

**THE REPUBLIC OF TURKEY  
PRIME MINISTRY  
STATE PLANNING ORGANIZATION**

**SECTOR PROFILES OF TURKISH INDUSTRY**

**A General Outlook**

**General Directorate for Economic Sectors and Coordination**

**Industry Department**

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## **A. INDUSTRY IN GENERAL**

Throughout the five-year development plan periods implemented since 1963, "industry based growth" has been one of the main objectives in Turkey. However, the industrialisation strategies adopted and economic policies followed have shown great differences before and after 1980. An import substitution policy had been implemented until 1980. However, after 1980, significant progress has been made towards establishing the principles and fundamentals of a market economy through the introduction of export-oriented industrialisation.

These reforms made significant contribution to the dynamism of the private sector and improved the adaptability of Turkish economy to internal and external impacts. Therefore, the source of industrial growth in recent years has been investments and the dynamism of the private sector.

As a result, industry has shown a great performance, except the years in which economic crises occurred. Considerable increases were recorded in industrial value added, in the volume of exports and share of manufacturing industry in exports. As a result of economic growth, the volume of imports especially for investment and intermediate goods has also increased.

Following a severe contraction in industry in the year 2001 as a result of the recent economic crises, signs of recovery was observed starting from the first quarter of 2002 and continued at a higher rate with positive developments in the Turkish economy. Due to recovery in domestic demand and sustained export performance, there has been a considerable increase in production and capacity utilization in the manufacturing industry since then.

Turkish industry mainly depends on the private sector activities. The share of public sector in the manufacturing industry has been decreased through privatisation activities in recent years. Currently, more than 80 % of production and about 95 % of gross fixed investment in the manufacturing industry is realized by the private sector.

The main objective for the improvement of industrial sectors emphasized in the Eighth Five Year Development Plan is to increase competitiveness and productivity of the industry, and to promote and maintain sustainable growth within an outward oriented structure, in the face of increased global competition. This objective will be achieved within the framework of market principles and in compliance with international agreements.

In that respect, Turkish industry shall have a structure, in which it will utilise, as possible, domestic resources, produce in compliance with environmental norms, consider consumer health and preferences, use well-qualified labour, apply strategic management techniques, attach importance to R&D, generate technology, create original designs and trademarks and thus take its proper place in international markets.

In order to reach those targets it is of vital importance that private sector gives emphasis to investments, which aim at creating high value added, enhancing competitiveness, increasing employment, productivity and exports and enabling development and/or transfer of appropriate technologies. Foreign direct investments will certainly play an important role in that process.

Information and technology intensive industries such as defence and aviation, machinery, chemicals, electronics, software and biotechnology will be promoted, the use of advanced technologies in industry will be increased and the competitiveness of traditional industries will be enhanced.

## VALUE ADDED

(Billion USD)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
INDUSTRY	38,5	44,7	46,5	46,5	1,6
Mining and quarrying	2,4	2,2	2,3	1,9	-1,8
Manufacturing	33,1	38,3	38,3	37,1	0,9
Energy	3,0	4,2	6,0	7,5	8,1
GDP	150,7	169,8	199,7	183,4	1,6
Share of Industry (%)	26	26	23	25	

(\*) In current prices

## EXPORTS

(Billion USD)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Manufacturing	10,3	19,1	25,3	32,7	10,1
Share (%)	80	88	91	93	
TOTAL	13,0	21,6	27,8	35,1	8,7

## IMPORTS

(Billion USD)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Manufacturing	16,5	29,7	45,0	41,8	8,1
Share (%)	74	83	83	82	
TOTAL	22,3	35,7	54,5	50,8	7,1

Source: State Institute of Statistics (SIS), State Planning Organisation (SPO)

(Million USD at 1998 Prices)

<b>2002</b>	<b>Production</b>	<b>Share (%)</b>	<b>Export</b>	<b>Share (%)</b>	<b>Import</b>	<b>Share (%)</b>
<b>INDUSTRY</b>	<b>139.754</b>		<b>37.832</b>		<b>50.521</b>	
<b>A.MINING</b>	<b>2.058</b>		<b>414</b>		<b>4.535</b>	
<b>B.MANUFACTURING</b>	<b>128.923</b>	<b>100,0</b>	<b>37.399</b>	<b>100,0</b>	<b>45.854</b>	<b>100,0</b>
<b>CONSUMPTION GOODS</b>	<b>62.875</b>	<b>48,8</b>	<b>16.160</b>	<b>43,2</b>	<b>5.835</b>	<b>12,7</b>
Food products	25.526	19,8	1.806	4,8	1.631	3,6
Beverages	2.207	1,7	57	0,2	22	0,0
Tobacco products	5.072	3,9	111	0,3	60	0,1
Textiles	16.680	12,9	6.272	16,8	3.080	6,7
Wearing apparel	11.049	8,6	7.664	20,5	618	1,3
Leather and leather products	2.341	1,8	249	0,7	423	0,9
<b>INTERMEDIARY GOODS</b>	<b>41.995</b>	<b>32,6</b>	<b>8.918</b>	<b>23,8</b>	<b>18.429</b>	<b>40,2</b>
Wood and cork products	4.115	3,2	155	0,4	193	0,4
Paper and paper products	1.197	0,9	316	0,8	1.269	2,8
Printing and publishing	882	0,7	35	0,1	268	0,6
Coke and petroleum products	8.587	6,7	291	0,8	1.473	3,2
Chemicals	9.426	7,3	1.751	4,7	8.931	19,5
Fertilizers	580	0,4	32	0,1	497	1,1
Rubber and plastic products	3.461	2,7	1.282	3,4	1.249	2,7
Glass products	1.096	0,9	509	1,4	257	0,6
Cement products	1.715	1,3	386	1,0	9	0,0
Ceramic, refractory, non-metallic minerals	3.327	2,6	850	2,3	397	0,9
Iron and steel	6.262	4,9	2.877	7,7	2.689	5,9
Nonferrous metals	1.347	1,0	433	1,2	1.199	2,6
<b>INVESTMENT GOODS</b>	<b>24.054</b>	<b>18,7</b>	<b>12.322</b>	<b>32,9</b>	<b>21.590</b>	<b>47,1</b>
Fabricated metal products	4.053	3,1	1.035	2,8	993	2,2
Machinery	5.788	4,5	2.665	7,1	7.379	16,1
Agricultural machinery	244	0,2	79	0,2	50	0,1
Computing machinery	196	0,2	39	0,1	969	2,1
Electrical machinery	1.471	1,1	980	2,6	2.154	4,7
Motor vehicles	6.082	4,7	3.686	9,9	2.931	6,4
Shipbuilding	295	0,2	240	0,6	740	1,6
Railway vehicles	162	0,1	15	0,0	141	0,3
Aircraft	317	0,2	197	0,5	514	1,1
Other industries	5385	4,2	3386	9,1	5718	12,5
<b>C.ELECTRICITY, GAS and WATER</b>	<b>8.773</b>		<b>113</b>		<b>1.222</b>	

## CAPACITY UTILIZATION RATE (%)

Manufacturing Industry	2000	2002	2003
	4 <sup>th</sup> Quarter	4 <sup>th</sup> Quarter	3 <sup>rd</sup> Quarter
<b>TOTAL</b>	<b>78,1</b>	<b>75,6</b>	<b>80,9</b>
Food products and beverages	71,7	68,9	75,0
Tobacco products	66,3	68,1	69,2
Textiles	80,3	81,8	79,0
Wearing apparel	82,3	84,8	83,7
Leather and leather products	67,4	62,3	69,8
Wood and cork products	78,8	87,5	82,1
Paper and paper products	76,6	77,7	83,6
Printing and publishing	77,1	83,0	78,1
Coke and petroleum products	83,3	80,6	95,0
Chemicals	79,3	77,8	78,3
Rubber and plastic products	78,6	76,8	82,5
Non-metallic mineral products	82,5	73,2	82,9
Basic metals	78,3	70,0	81,4
Fabricated metal products	66,1	64,9	70,9
Machinery	71,0	77,5	82,0
Computing machinery	70,0	58,9	80,0
Electrical machinery	76,6	74,6	70,1
Electronics	88,7	82,2	90,7
Medical, precision and optical instruments	70,4	66,6	79,5
Motor vehicles	80,7	64,4	58,9
Other transport vehicles	76,3	74,9	44,2
Furniture and other manufacturing	74,5	79,0	82,4

*Source: State Institute of Statistics (SIS)*

(Million USD)

Composition of Exports (ISIC, Rev.3)	2002			2003		
	12 Months	Share (%)		10 Months	Share (%)	
<b>A. Agriculture and forestry</b>	<b>2.037,5</b>	<b>5,7</b>		<b>1.815,2</b>	<b>4,7</b>	
<b>B. Fishing</b>	<b>51,4</b>	<b>0,1</b>		<b>46,6</b>	<b>0,1</b>	
<b>C. Mining and quarrying</b>	<b>387,4</b>	<b>1,1</b>	<b>100,0</b>	<b>433,4</b>	<b>1,1</b>	<b>100,0</b>
Mining of coal, lignite and peat	1,5		0,4	1,1		0,3
Crude petroleum and natural gas	3,2		0,8	2,8		0,6
Metal ores	101,5		26,2	133,7		30,9
Other mining and quarrying	281,3		72,6	295,8		68,2
<b>D. Manufacturing</b>	<b>33.565,4</b>	<b>93,1</b>	<b>100,0</b>	<b>35.965,5</b>	<b>93,9</b>	<b>100,0</b>
Food products and beverages	1.637,2		4,9	1.862,0		5,2
Tobacco products	105,5		0,3	76,0		0,2
Textiles	7.006,5		20,9	7.273,0		20,2
Wearing apparel	5.141,5		15,3	5.102,9		14,2
Leather and leather products	214,2		0,6	246,3		0,7
Wood and cork products	118,5		0,4	126,3		0,4
Paper and paper products	302,5		0,9	291,5		0,8
Printing and publishing	48,8		0,1	55,4		0,2
Coke and petroleum products	670,3		2,0	761,8		2,1
Chemicals	1.580,5		4,7	1.586,1		4,4
Rubber and plastic products	1.084,5		3,2	1.200,9		3,3
Non-metallic mineral products	1.467,6		4,4	1.484,9		4,1
Basic metals	3.239,4		9,7	3.245,6		9,0
Fabricated metal products	827,8		2,5	1.113,3		3,1
Machinery	2.196,6		6,5	2.628,2		7,3
Computing machinery	39,7		0,1	30,3		0,1
Electrical machinery	1.057,5		3,2	997,2		2,8
Electronics	1.575,0		4,7	1.445,9		4,0
Medical, precision and optical instruments	89,0		0,3	100,3		0,3
Motor vehicles	3.604,6		10,7	4.378,8		12,2
Other transport vehicles	528,7		1,6	937,2		2,6
Furniture and other manufacturing	1029,7		3,1	1.021,6		2,8
<b>E. Electricity, gas and water supply</b>	<b>15,8</b>	<b>0,0</b>		<b>17,3</b>	<b>0,0</b>	
Electricity, gas and steam	15,8			17,3		
<b>K. Others</b>	<b>1,5</b>	<b>0,0</b>		<b>39,1</b>	<b>0,0</b>	
<b>TOTAL</b>	<b>36.059,1</b>	<b>100,0</b>		<b>38.317,1</b>	<b>100,0</b>	

Source: State Institute of Statistics (SIS)



(Million USD)

Composition of Imports (ISIC, Rev.3)	2002			2003		
	12 Months	Share (%)		10 Months	Share (%)	
<b>A. Agriculture and forestry</b>	<b>1.705,7</b>	<b>3,3</b>		<b>2.155,6</b>	<b>3,9</b>	
<b>B. Fishing</b>	<b>1,2</b>	<b>0,0</b>		<b>3,4</b>	<b>0,0</b>	
<b>C. Mining and quarrying</b>	<b>7.199,5</b>	<b>14,0</b>	<b>100,0</b>	<b>8.926,9</b>	<b>16,1</b>	<b>100,0</b>
Coal, lignite and peat	689,2		9,6	681,4		7,6
Crude petroleum and natural gas	6.193,4		86,0	6.418,1		71,9
Metal ores	189,8		2,6	1.698,6		19,0
Other mining and quarrying	127,1		1,8	128,8		1,4
<b>D. Manufacturing</b>	<b>42.511,4</b>	<b>82,5</b>	<b>100,0</b>	<b>44.410,2</b>	<b>79,9</b>	<b>100,0</b>
Food products and beverages	1.399,0		3,3	1.358,2		3,1
Tobacco products	50,0		0,1	49,0		0,1
Textiles	2.522,0		5,9	2.547,6		5,7
Wearing apparel	325,0		0,8	347,4		0,8
Leather and leather products	331,5		0,8	379,2		0,9
Wood and cork products	152,9		0,4	237,0		0,5
Paper and paper products	1.007,4		2,4	1.066,1		2,4
Printing and publishing	199,8		0,5	199,7		0,4
Coke and petroleum products	2.191,4		5,2	2.237,7		5,0
Chemicals	8.654,5		20,4	9.209,4		20,7
Rubber and plastic products	1.073,7		2,5	1.157,7		2,6
Non-metallic mineral products	410,9		1,0	423,0		1,0
Basic metals	4.706,6		11,1	6.241,2		14,1
Fabricated metal products	1.012,3		2,4	820,0		1,8
Machinery	6.819,6		16,0	6.633,4		14,9
Computing machinery	987,8		2,3	918,4		2,1
Electrical machinery	1.704,2		4,0	1.583,2		3,6
Electronics	2.335,7		5,5	2.421,0		5,5
Medical, precision and optical instruments	1.155,5		2,7	1.092,9		2,5
Motor vehicles	2.919,4		6,9	4.554,3		10,3
Other transport vehicles	961,1		2,3	395,8		0,9
Furniture and other manufacturing	1591,2		3,8	538,0		1,2
<b>E. Electricity, gas and water supply</b>	<b>128,2</b>	<b>0,2</b>		<b>42,6</b>	<b>0,1</b>	
Electricity, gas and steam	128,2			42,6		
<b>K. Others</b>	<b>7,7</b>	<b>0,0</b>		<b>32,2</b>	<b>0,1</b>	
<b>TOTAL</b>	<b>51.553,8</b>	<b>100,0</b>		<b>55.570,9</b>	<b>100,0</b>	

Source: State Institute of Statistics (SIS)

## B. MINING

### 1. General Assessment

(Million USD in Current Prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
<b>Export</b>	326	391	400	387	1,4
<b>Import (*)</b>	4.138	4.090	7.105	7.199	4,7
<b>Import (**)</b>	391	522	909	1.006	8,2
<b>Production (*)</b>	-	-	2.670	2.335	-
<b>Consumption (*)</b>	-	-	9.374	9.147	-

(\*) Crude Oil and Natural Gas Included

(\*\*) Crude Oil and Natural Gas Excluded

The mining industry has a modest share in Turkish economy. In 2002, the share of the mining industry in total GDP is 1,1 percent, which is approximately 2 billion dollars.

The share of mining in Turkey's total fixed capital investment during the past twenty years has varied between 1,2-5,1 percent.

Turkey has always been an importer of crude oil, to which natural gas has been added during the last decade. Natural gas imports have increased during the last decade. Other minerals and mineral based commodities imported in large volumes are metallurgical coal, iron ore and phosphate rock. In 2002 the total amount of imports in mining sector -including crude oil and natural gas- was 7,2 billion dollars. The continuous increase in the imports of minerals during the past twenty years has lowered the ratio of oil and natural gas imports in total mining from 91% to 86%.

**The main strategy of the mining sector** is to provide raw material requirements of the industry economically and safely and to increase the value added to the country's economy by processing mining products within the country.

Encouraging exploration and exploitation activities of domestic mining firms carried out abroad to provide required inputs to the related industries is another policy of Turkish mining sector.

**Mining Legislation and Taxation System:** In Turkey, the State both operates through its own exploration and production agencies and has a regulatory body to grant the permissions to explore and exploit minerals and to supervise the activities in this field.

The regulatory function of the State in this area is carried out by the Ministry of Energy and Natural Resources under the **Mining Law No.3213** which constitutes the basic mining legislation in Turkey.

The mining rights are granted in 3 phases, the first being an exploration license for 30 months duration which may continue with second phase, the granting of a pre-operation license for 3 years, that cannot be extended. The third phase is the operation license which has a duration of ten years extendable up to sixty years.

Royalty: 10 percent of the gross profit obtained from the mining operation is paid as the royalty to the Treasury by the license holder. These sums are calculated and charged by the Mining Department of the Ministry.

Notice And Discovery Rights: During preoperation and operation stage, 1 percent and 2 percent of the gross revenue are paid to the Mining Department as the “Right of Notification” and “Right of Discovery” respectively by the license holder annually. The Department transfers this amount to the relevant persons.

**Reform Program for the Improvement of the Investment Environment in Turkey:** The Government of Turkey has initiated a comprehensive reform program to streamline the investment environment and to attract more private direct domestic and foreign investment. Within Reform Program, licencing system in mining and related legislation has been studied. Decisions taken in these studies have been incorporated into the **new Draft Mining Law**. Nowadays this Draft Mining Law is being negotiated at the Grand National Assembly of Turkey. The aim of the new Law is to minimize the duration and to simplify the procedure of obtaining licences and to provide additional support for the investors. This Law will help to improve investments, production and exports in the mining sector.

## **Strengths**

Due to laying down on one of the most important orogenic belts in the world (Alpian Orogenic Belt), Turkey has a quite complex geological structure. This complex geological structure of the country, on one hand, provides the country with a favorable environment to host diverse kinds of minerals, on the other hand, constraints the size of the mineral reserves. As a result of this structure, many kinds of minerals are known and mined in the country. The mineral reserves of boron, barytes and trona have considerable deposits in comparison to world scales.

Among metallic ores chromite deposits may be considered important worldwide because of their high grade. Among industrial ores boron deposits are the largest known deposits in the world. Turkey is the second largest producer and exporter of boron minerals and compounds in the world. Comparatively moderate industrial mineral deposits such as marble, magnesite, dolomite, rock salt, cement raw materials, glass and ceramic minerals, refractory clays, zeolite deposits are also found.

## **Weaknesses**

In Turkey private sector rarely invests in mineral exploration except when it is essential for the safeguard of the production. The deposits of some valuable minerals, except boron, which have well established export markets have been explored to the limited extend. However this situation can also be accepted as an advantage because the country may shelter unknown and valuable mineral deposits that can be attractive for the investors.

## 2. Product / Subsector Assessment

In Turkey more than 50 minerals have been produced during recent years. Major minerals produced include lignite, boron, marble, magnesite and other construction materials.

### Domestic Consumption Quantities of Selected Minerals

(1000 Tons)

Minerals	1990	1995	2000	2002
Lignite	46.892	56.031	61.315	49.753
Hard Coal	10.842	8.530	16.379	16.648
Iron Ore	7.450	8.153	8.216	8.547
Chromite	528	1.067	79	130
Copper	3.860	2.759	4.343	2.793
Magnesite	3.948	1.738	2.468	2.778

### Production Quantities of Selected Minerals

(1000 Tons)

Minerals	1990	1995	2000	2002
Lignite	46.892	56.031	61.315	49.627
Hard Coal	5.629	3.377	3.330	3.347
Iron Ore	4.925	4.931	4.076	3.433
Chromite	1.205	2.080	546	326
Copper	4.018	2.928	4.476	2.943
Boron	2.062	1.769	2.938	2.216
Magnesite	845	1.928	2.674	3.044
Marble (1000 m3)	215	282	647	558

### Export Quantities of Major Minerals

(1000 Tons)

Minerals	1990	1995	2000	2002
Chromite	677*	1.013	467	265
Copper	31*	84 *	190	210
Boron	684	683	624	399
Feldspar	97	731	2.114	2.163
Magnesite	229	218	236	266
Marble (1000 m3)	20	55	131	801

\* Concentrate

## Import Quantities of Major Minerals

(1000 Tons)

Minerals	1990	1995	2000	2002
Coal	5.218	5.153	13.756	13.408
Iron Ore	1.973	3.221	4.140	5.114
Phosphate	730	621	668	746
Crude Oil	19.842	23.605	21.363	23.708
Natural Gas (million m3)	3.307	6.756	14.923	17.329

## Energy Raw Materials

**Lignite** is the most important energy resource of Turkey when compared with others according to the amount of reserves. Total reserves of lignites in the country are approximately 8 billion tonnes, generally poor in calorific value and the amount of annual production is around 55 million tonnes. Production is dominated by two state companies; Turkish Coal Enterprises (TKİ) with a total annual production capacity of over 40 million tonnes and Electricity Production Cooperation. A very large part of lignite production is consumed in power generation.

Turkey has a limited oil, natural gas and hard coal reserves and production. As a result, the country is mostly importing these commodities.

## Industrial Minerals

Main industrial mineral deposits are marble, magnesite, dolomite, baryte, rock salt, cement raw materials, glass and ceramic minerals, refractory clays and zeolite. Minerals given in the table are the most important export goods of the sector.

Reserves of Selected Industrial Minerals by 2002 (Tons)

Boron	1.805.710
Feldspar	239.305
Magnesite	4.560 (% 34 Mn)
Marble (1000 m3)	5.161.000 (Total Potential)

Source: General Directorate of Research and Exploration (MTA)

**Boron** is the most important export mineral of Turkey. Turkey is one of the most important countries in the world in terms of both reserves and production quantities of boron. The country's total boron reserves, which are mostly located in the western part of the country, accounts for more than 60 percent of the world's total.

Eti Mine Enterprises, which is a state owned company, is the only boron producer in the country. Almost 40 percent of the company's boron production is exported as lumpy ore or concentrate. The remaining is converted to refined boron products such as borax decahydrate, borax pentahydrate, boric acid, ground colemanite and sodium perborate by the Company. According to the Law No.2840, that was issued in 1983, exclusive rights has been given to the state in exploration and exploitation of boron.

In Turkey, there exist various kinds and colours of **marbles** resulting from its complex geological structure. The marbles produced in Turkey primarily belong to the groups of sedimentary and metamorphosed limestones. Plutonic stones such as granite have attracted great attention in the marble market lately.

Although the Turkish marble industry has a long history, during the recent years, it has exhibited a spectacular development mainly due to increasing demand for the Turkish marbles in foreign markets. Also, domestic consumption of marble resulting from developments in construction industry of the country has demonstrated a steady increase recently. In almost all stages of the industry, from block cutting to wall tile production, modern technologies have been introduced. As a result, great improvements in both quality and quantity of production have been achieved.

Although the small private companies dominate the industry, some big companies have emerged recently.

**Magnesite** is one of the important export minerals of Turkey. Turkey's known magnesite reserves and annual production are around 110 and 2,5 million tonnes respectively. The ore production is primarily carried out by small private enterprises. The biggest company in magnesite mining is Kutahya Magnesite A.S. The company, which is already the largest producer of dead-burned magnesite and refractory bricks in the country also exports some of its dead- burned magnesite production.

**Trona (Soda Ash)** is one of the important minerals known but unexploited in the country. The Beypazari trona deposit with a total proven reserve of 200 million tonnes and Kazan trona deposit that has a reserve of nearly 600 million tonnes. Both deposits have considerable reserves compared to trona deposits in the world. The Beypazari trona deposit belongs to Eti Mine Enterprises, a state company. Eti Mine Enterprises established a consortium with a private firm in order to make the investment and exploit the deposit. However, Kazan trona deposit is owned by an international mining company, Rio Tinto and it has not been in operation.

The complex mineral deposit at Beylikahır near Eskişehir, containing **rare earth elements, thorium** and **fluorite** is one of the important mineral deposits in the country. The concession to exploit the deposit of which total reserve is estimated 30 million tons, has been granted to Eti Mine Enterprises. The most important obstacles preventing exploitation of the mine are of technical nature.

## Metallic Minerals

Reserves of Selected Metallic Minerals by 2002 (Tons)

Iron Ore	149.925 (% 55 Fe)
Chromite	25.931 (> % 20 Cr <sub>2</sub> O <sub>3</sub> )
Copper	2.279 (metallic)
Gold (Potential)	440

Source: General Directorate of Research and Exploration (MTA)

Iron ore is consumed domestically and far from meeting the demand of the integrated iron and steel plants in the country.

**Chromite** deposits may be considered important worldwide because of their high grade. Turkey had been one of the major exporters with a sizeable share in world chromite market for a long time, in the past. Especially, refractory grade Turkish chromite had been the most favoured product in the market. Turkey's total chromite reserves are estimated as 25 million tonnes (grade over 20 %). Although this is considered too small in comparison to the world reserves, Turkey's chromite reserves are still quite important, if huge low-grade chromite reserves of the Republic of South Africa are disregarded. Small private companies that mainly export crude ore dominate chromite mining in the country. In the public sector, Eti Krom and Eti Elektrometalurji, which are in the Privatization Program, are the only producers. These companies process crude ore into ferrochromium.

Turkey has been luring the interest of world's biggest **gold** producing companies during the last decade. These companies have made an intensive effort for reevaluating the country's known gold deposits. At present approximately 340 tons of sedimentary gold reserves were explored in different areas. The potential gold reserves are about 440 tons. The first investors Normandy Mining Co. is continuing the production of gold mine in İzmir.

### 3. Medium Term Expectations

In the future, the investors may be directed to the exploration and development of base metals potential of Turkey in Black Sea and Aegean Regions which haven't been explored yet.

Prospects for growth in the minerals industry will be greater than in the primary mining. Growth of production in marble, cement, clay products, ceramic raw materials and boron are expected to continue in line with the growing domestic and export markets.

In the long term Turkey's geothermal resources are expected to be used to the largest extent for space heating and to the limited extent in electricity production.

## C. FOOD INDUSTRY

### 1. General Assessment

*(Million USD at 1998 Prices)*

<b>Food Industry</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic Consumption	18.931	21.938	25.737	25.347	2,4
Production	19.002	22.101	26.159	25.526	2,5
Export	915	1.813	1.710	1.662	5,0
Import	1.097	1.642	1.608	1.581	3,0

Turkish food industry contributes around 5 per cent of the GNP. Food industry has a 20 per cent share in total production of manufacturing sector by 2002. Food sector employs more than 100 thousand registered workers and technical staff in more than 28 thousand enterprises which are mostly SMEs. Two thousand of these enterprises are relatively modern and bigger in the sector. In 1990, the number of enterprises producing foodstuffs were around 25 thousand.

In most of the sub-sectors of food industry capacity utilization is approximately at a level of 50 per cent. This fact is generally caused by changing domestic and foreign consumption trends and consumer preferences, the weak financial structure of SMEs in the sector, wrong investment decisions, instability in export markets, seasonality of agricultural production and insufficient integration or coordination between agriculture and industry.

#### **Main Policies and Related Legislation**

The issue of food safety has been a priority area after the Customs Union with the EU in 1996. Decree Law no. 560 Regarding the Manufacture, Consumption and Inspection of the Foodstuffs has been put into force in 1995 and harmonization of food legislation to the EU acquis has been started by the government. This Decree Law enforces food safety controls in the context of the Turkish Food Codex to be conducted by the Ministry of Agriculture and Rural Affairs (MARA) in production and export/import stages and by the Ministry of Health in the market.

MARA has been responsible for official food control up to the marketing stage, production permissions, and import licencing. The Ministry of Health has been responsible for the technical and hygienic inspection of manufacturing plants and the control of the foodstuffs in the market regarding health concerns. However, a draft law which is consistent with the EU food law, is prepared to build a unified and improved official control system for food safety in the country that works under the responsibility of MARA.

In order to prevent the public health risks originating from food and to provide a better perspective to the agricultural and food trade, the new food safety system will emerge into one that will be based upon the HACCP (Hazard Analysis Critical Control Points), GMP (Good Manufacturing Practices), GHP (Good Hygiene Practices), risk analysis (risk evaluation, management, and communication) based



on the “farm-to-table” safe food objectives of the EU along with an effective coordination between related bodies.

### **Public Enterprises in the Sector and Privatization**

In only a few sub-sectors of the food industry, such as sugar, meat and tea industries, there are state owned enterprises in Turkey. However, these state enterprises do not have monopoly power and private firms coexist at the production and marketing stages of the products. In the mid-1990’s state owned factories in milk and feed industries and a number of meat combines were privatized.

It is important to mention that a roadmap of privatization for 26 state owned sugar factories (owner is a company named TSFAS) were declared by the government in 2003. Privatization process is expected to be completed by the end of 2004. Sugar factories has a market share of more than 70 per cent in the domestic market and there are no price controls for both sugar beet and sugar in the domestic market.

### **Strengths**

- No difficulty finding raw materials, like agricultural produces, packaging material etc.,
- Variety and quantity of agricultural production,
- Relatively cheap workforce,
- Large domestic market and young population,
- Presence of widespread local communication networks and infrastructure,
- Sufficient educated and specialized workforce,
- Developing markets close to Turkey,
- Increasing volume of foreign trade,
- Perspective for EU accession.

### **Weaknesses**

- Insufficient integration and cooperation between agriculture and industry,
- Quality and safety problems in the agriculture,
- Technology and capacity utilization problems of most food producing SMEs,
- Need to improve the official food control system in line with the EU legislation.

## 2. Product/Subsector Assessment

### Selected Products in the Food Industry

Name of Products	2002 (As per cent of Total)				Approximate Production Capacity by 2000 (thousand tons/year)
	Consumption	Production	Exports	Imports	
<b>Meat and Meat Products</b>	16,9	13,8	5,8	38,7	
Meat	6,5	6,4	0,0	0,0	
Poultry Meat	5,5	5,5	0,4	0,0	1000 *
Others	4,9	1,8	5,4	38,7	
<b>Milk and Milk Products</b>	14,6	14,4	2,1	2,7	
Yoghurt	4,4	4,3	0,0	0,0	825
White Cheese	2,7	2,7	0,2	0,0	1100
Others	7,6	7,4	2,0	2,7	
<b>Processed Fishery Products</b>	1,6	1,5	0,4	0,2	70 *
<b>Products of Cereals and Starch</b>	40,4	40,7	15,2	12,8	
Wheat Flour and Semolina	14,2	14,4	3,6	0,0	
Pasta	0,9	1,3	1,4	0,0	1040
Bread	16,0	15,9	0,1	0,0	
Bisquits	2,3	2,9	6,9	0,2	500
Starch	7,0	6,1	3,1	12,6	
Others					
<b>Processed Fruits and Vegetables</b>	3,5	7,2	47,6	1,9	
Canned Products	0,1	0,8	10,7	0,7	435
Frozen Products	0,2	0,8	4,3	0,0	210 *
Tomato Paste	0,6	1,3	6,0	0,0	680
Juices and Concentrates	0,7	0,8	2,2	0,4	
Pickled Olives	0,9	0,8	2,6	0,0	
Hazelnut Products	0,1	1,3	17,8	0,0	
Others	0,9	1,2	4,0	0,8	
<b>Vegetable Oils and Oil Products</b>	7,3	6,1	10,3	31,2	
Olive Oil	0,7	0,5	2,4	0,2	300
Refined Vegetable Oil	2,6	1,8	3,4	22,6	
Margarine	1,9	2,2	3,3	0,0	910
Others	2,0	1,6	1,2	8,4	
<b>Sugar, Confectionery and All Others</b>	11,6	12,4	18,4	10,4	
Sugar	6,4	6,6	1,6	0,0	2300
Chewing gums	0,3	0,5	2,7	0,0	180 *
Sugar confectionery	1,7	1,8	2,2	0,4	265 *
Chocolate and other food prep.cont.cocoa	1,3	1,8	5,3	1,9	190 *
Manufactures thereof	1,9	3,5	11,9	8,1	
<b>Others</b>	4,1	4,1	0,1	2,0	
<b>TOTAL</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	

\*Production capacities at 1998.

Source: Ministry of Agriculture and Rural Affairs, SPO.

Many products that are excess in supply are processed and exported, and thus provides considerable income in Turkey. Flour, pasta and pastry products, sugar and confectionery, margarine, processed vegetables and fruits are major commodities that are exported to world markets. The EU, East European (candidate countries for the EU) and Newly Independent States of the Former Soviet Union (NIS) are the major export markets for Turkish food products. Raw vegetable oils, rice, animal by-products and oil cake are the main products that are imported from abroad. The EU and other OECD countries provide nearly half of the imports of Turkey.

The distribution of the number of enterprises among sub-sectors of food industry have not been changed much since 1990. By 2000, flour milling, bakery products and pasta producing enterprises have a more than 65 per cent share in the total number of food enterprises. Fruit-vegetable processing enterprises is in the second place with a 11,5 per cent share, dairy enterprises have 11 per cent, fat and oil processing enterprises have 3,5 per cent, confectionary producers have 3 per cent share and the rest is meat processing and other food enterprises.

### **3. Medium Term Expectations**

In the coming ten years, domestic market is foreseen to grow more in real terms than in the 1990-2002 period. The reason is that no economical and political crisis are expected in the near future and this would lead the country to grow in stability, improving the net income. The food demand of the young generation in Turkey is diverse and consumption trends are quiet different from that of the most EU countries'.

On the other side, food production depends heavily on the changes in agricultural production. Agricultural production in Turkey is expected to be more commercial and to get more capital-based in the coming years, in order to become more productive and competitive in the EU market. Increasing agricultural production and developing food industry would increase the accessibility of people to food and create sufficient conditions to increase exports. Inward processing regime is another tool to increase exports in Turkey when firms find new markets to export food but have shortages of raw material in the domestic market.

In almost all sub-sectors, investments by technology transfer, structural improvement or merger would help the enterprises to grow rapidly and become more competitive in the markets.

In animal product (meat and milk) processing industries, if the safety of raw material and vertical integration in the sector would be improved in line with agricultural infrastructure, these industries are believed to promise considerable development in the medium term. The production of animal husbandry sector is expected to be raised via governmental support which would lead to the improvement of the diet of the society.

Demand for processed fishery products increased around 8 per cent during 1990-2002 period. Considering the rich water resources in Turkey, fish processing is foreseen to have a great potential for investment.

Fruit and vegetable processing industry has had a considerable growth since the beginning of 1990's. The number of varieties, improving quality and cultural

consumption patterns in Turkey promote new investments in this sub-sector. The price advantage and marketing opportunities are among the other reasons to stimulate future investments or mergers in the sector.

Sugar confectionery, cocoa products, pasta and pastry production are seen to be potential industries with supply of abundant domestic raw materials, namely cereals and sugar. Sugar confectionery production grew by nearly 2 per cent, chocolate and other food preparations containing cocoa by 9 per cent and pasta and bakery products by more than 2 per cent annually in 1990-2002 period. When the export markets in the neighbourhood of Turkey and young Turkish population are taken into account, these industries are predicted to have a continuous growth potential.

Moreover, functional and herbal foods can be produced and launched to the Turkish market or to world markets according to consumer preferences. Because of increasing health concerns in developed countries, olive oil and processed organic products are believed to generate more income in Turkey.

Additionally, privatization of sugar factories is believed to give an opportunity of entering to a large market to investors to meet the demand of a vastly consumed product in Turkey.

With the EU membership perspective, Turkish agriculture would be more knowledge based and capital intensive in order to be more competitive and productive and to become closer to the standards of the developed countries. This would help much the food industry to produce and trade more in the world markets as well as nourishing the nation.

## D. BEVERAGES INDUSTRY

### 1. General Assessment

Production of high alcoholic drinks had been under government monopoly in accordance with Law 4250. This duty had been performed by the General Directorate of TEKEL. In order to comply with EU regulations, monopoly on production, sales and exports was abolished by the Law in 2002 and the Regulatory Board for Tobacco, Tobacco Products and Alcoholic Beverages Market has established. This subsidiary of TEKEL related to alcoholic beverages was privatized in 2003.

Major products like raki, beer and wine are produced domestically. As raki is manufactured by TEKEL, beer and wine are manufactured mainly by private sector.

The development of the alcoholic beverages sector is dependent on positive developments in the Turkish tourism, which will lead to rise in the domestic consumption. Further increase in imports will give rise to the increase in the quality of domestic products.

### 2. Product/Subsector Assessment

80 per cent of domestic consumption of distilled alcoholic drinks is composed of raki. Production of raki is still being carried out in 6 raki factories of TEKEL in Turkey. Total capacity of production is 84,8 million liters a year. In the year 2002 rate of capacity utilization was 71 per cent.

In the year 1999, domestic consumption of raki was realized as 74,3 million liters per year whereas the consumption decreased to 66,7 and 60,3 million liters per year in the year 2000 and the year 2002 respectively. Decrease in raki consumption was brought by economic crisis in 2000 and 2001 and due to the increase in import of low priced whiskey. The development in the raki sector can be seen from the following tables.

*(Million USD at 1998 prices)*

<b>RAKI</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	339	404	392	355	0,37
Production	363	395	403	350	-0,29
Export	4	5	6	9	5,54
Import	-	-	-	-	-

*(Million liters)*

<b>RAKI</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	57,7	68,7	66,7	60,3	0,36
Production	61,7	67,2	68,6	59,5	-0,30
Export	2,1	2,1	2,7	3,9	5,46
Import	-	-	-	-	-

The major raw materials used in production of raki are raisin, aniseed and water. Among distilled beverages raki has an advantageous position due to its fruit flavor, its unique production in Turkey and availability of domestic inputs.

There are two types of taxes that are private consumption tax and value added tax on raki. Total rate of these taxes comprises 65 per cent of sales price of raki.

In Turkish beer industry there are two private firms and one state owned company, namely TEKEL. Turkish beer industry has reached to the standards of developed countries in respect to both quality and product variety through the modern production technology and the marketing policies of private sector.

According to the data of the year 2002, beer sector comprises the amount of 3 billion dollars of total revenue with value of 4,3 billion dollars in alcoholic beverage sector. In the beer sector, the share of the public is 1 per cent. The rate of capacity utilization is 75 per cent in the sector.

In Turkey, beer consumption per capita is 15 liter, whereas this figure is 129 liters in Germany, 113 liters in Denmark and 105 liters in England. That indicates a strong market potential in the future.

The tables below demonstrate the development of the beer sector in the period of 12 years. The amount of domestic consumption, production and exports increased but the amount of import was negligible in this period.

*(Million USD at 1998 prices)*

<b>BEER</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	213	350	444	441	6,25
Production	216	387	446	459	6,47
Export	3	34	14	17	16,04
Import	-	-	-	-	-

*(Million liters)*

<b>BEER</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	364,2	599,4	758,8	754	6,25
Production	370,0	661,7	763,3	785	6,47
Export	5,2	62,3	25,7	31,2	16,05
Import	-	-	-	-	-

## E. TOBACCO PRODUCTS INDUSTRY

### 1. General Assessment

In tobacco industry, state monopoly was abolished in 1991 and some foreign tobacco manufacturers entered to Turkish market. Philsa, the Corporation of Phillip Morris and Sabancı Holding Company, and the RJ Reynolds started to manufacture cigarettes after establishing plants in İzmir-Torbalı in 1993.

Participation of foreign firms into cigarette industry led to formation of free competition environment in tobacco sector. TEKEL, the state company, is the only manufacturer of oriental cigarettes that are produced from 100 per cent oriental tobacco produced domestically. However, TEKEL competes with private firms in the manufacturing of blended cigarettes. Domestic production of non-filtered cigarettes, which are produced by only TEKEL remained in limited amounts. Privatization of TEKEL is expected to be completed in 2004.

Tobacco and tobacco products market in Turkey is regulated by the Regulatory Board for Tobacco, Tobacco Products and Alcoholic Beverages Market.

In Turkey, cigarette production is carried out in 9 factories, 6 of which belong to TEKEL.

In year 2002, total production capacity of filtered cigarettes was 179 billion pieces and capacity utilization rate was realized as 70,9 percent.

The following tables indicate the figures of the filtered cigarettes.

*(Million USD at 1998 prices)*

<b>CIGARETTES</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	1709	2871	3998	4178	7,7
Production	924	3115	4698	5069	15,2
Export	-	53	76	95	
Import	282	-	-	-	-

*(1000 tons)*

<b>CIGARETTES</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>	<b>Annual Increase (%) (1990-2002)</b>
Domestic consumption	72,2	90,2	110,8	109,8	3,6
Production	56,5	94,6	122,0	126,6	7,0
Export	-	-	12,0	15,3	
Import	15,9	0,1	-	-	

The share of blended cigarettes, which is above 60 per cent, is increasing in the cigarette market. However, 80 per cent of tobacco used for production of blended cigarettes is composed of imported tobacco. This type of cigarettes has a big disadvantage concerning other type due to taxes and funds on import. Moreover,

high quality cigarettes are in a disadvantageous position since the taxes on cigarettes are specific and based on prices.

In the future, domestic consumption of the oriental type of cigarettes is expected to decline as will the production of oriental tobacco used in this type of cigarettes. The increase in the demand of blended cigarettes will raise the import of the tobacco required for the production of blended cigarettes.

## 2. Product / Subsector Assessment

Cigarette Consumption

(Tons)

Year	1999		2000		2001		2002	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Oriental cigarettes (TEKEL)	41330	37,5	41459	38,3	43045	39,1	38283	35,1
Blended cigarettes	71743	62,5	69368	61,7	68102	60,9	71564	64,9
<i>TEKEL's share (%)</i>	33,3		32,1		29,9		26	
TOTAL	113073	100	110824	100	111147	100	109847	100
<i>TEKEL's share (%)</i>	69,9		69,6		68,6		60,9	



## F. TEXTILE AND CLOTHING INDUSTRY

### 1. General Assessment

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	7.986	10.018	17.035	17.418	6,7
Production	12.108	13.778	26.111	27.728	7,1
Export	5.161	6.777	11.877	13.936	8,6
Import	799	1.268	2.879	3.698	13,6

The textile industry is the largest and one of the first established industries in Turkey. Clothing industry has begun to establish in the 1950s and served for domestic consumption, and its development remained limited until the end of the 1970s. However, the textile industry has started to develop by the influence of incentive measures applied after 1967. After January 24, 1980 economic reforms, the textiles and clothing industry has developed mainly due to the export oriented economic policies, the rational use of incentive measures for investment, and the supports introduced for the import of machinery equipment and auxiliary materials. As a result, the international competitiveness of the textiles and clothing industry has increased, and important increases have been achieved in the exports. As of today, textiles and clothing industry is an outward oriented industry, uses modern technology, and can compete with that of other countries in international markets.

The value of textiles and clothing industry production was around 27,7 billion dollars in 2002 and exported 44 percent of that amount. Its share in manufacturing production in 2002 was %21,5.

Textiles and clothing industry exports increased significantly during the last two decades, from 595 million dollars in 1979 to 12,5 billion dollars in 2002 by more than 20 times. During the early eighties Turkey was exporting mostly textile products like fibers, yarns and fabrics. Since 1986 the export of apparel increased steadily and in the early nineties exports of value added apparel products has started. The important part of the textiles and clothing exports, nearly two thirds, has been directed to European Union (EU). Geographical proximity, duty free access to the EU, relatively low wage levels, high quality of goods demanded by the EU are the main causes of the increase in the textiles and clothing industry exports. The shares of the textiles and clothing industry in total exports and in manufacturing industry exports in 2002 were %33,7 and %36,2 respectively. In other words, more than one third of total exports is realized by the textiles and clothing industry.

The textiles and clothing industry imports was around 2,9 billion dollars, in 2002. The shares of the textiles and clothing industry's imports in total imports and in manufacturing industry imports in 2002 were %5,5 and %6,7 respectively.

There were significant capacity improvements in textiles and clothing industry starting by the 1970s. The machinery stock increased to 5,7 million spindles and 459.600 rotors in 2001. Even though the capacity utilization rate differs by sub sectors, overall it is around %80 for the textiles and clothing industry.

In the past, the state played an important role in the textiles and clothing industry, but now there are only two public economic enterprises, Sümer Holding and Sümer Halı. But these two enterprises have a minor role in the textiles and clothing sector.

Altogether, textiles, clothing and leather industries provide for more than one third of employment in the manufacturing industry.

The share of foreign capital investment has been limited. There are 337 foreign capital textiles and clothing companies operating in Turkey, accounting %5,2 of total number of foreign capital firms.

### Strengths

The main reason behind the good performance of the textile and clothing industry in Turkey is the increase in modern machinery imports and new investments in recent years. The performance of textiles and clothing industry affected positively by domestic cotton production, proximity to the EU market, trained work force, the progress achieved in infrastructure and telecommunication systems, together with the existence of large domestic market.

### Weaknesses

With the evolution of the market and quota removal after 2005, textile and clothing industry in Turkey will soon face fierce competition from low wage countries, particularly China. These low wage countries enter the market with cheap products. Turkey will need to move into much higher quality segments, which require advanced design and marketing skills, in order to sustain a competitive edge here. To achieve this, the financial incapability and SME structure of the industry are the biggest weaknesses.

## 2. Product / Subsector Assessment

### Textile industry

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	6.931	8.555	12.242	13.455	5,7
Production	8.862	9.127	15.282	16.680	5,4
Export	3.125	3.887	5.485	6.272	6,0
Import	725	1.091	2.476	3.080	12,8

### Clothing industry

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	1.055	1.463	4.793	3.963	11,7
Production	3.246	4.651	10.829	11.049	10,7
Export	2.037	2.890	6.392	7.664	11,7
Import	74	177	403	618	19,4

Two segments dominate Turkey's textile and clothing industry:

- The spinners and weavers that use high quality domestic raw materials to produce textiles. These firms keep market standards high with original designs.
- Apparel manufacturers, which use a combination of domestic and imported cloth to produce finished non-branded goods. These include non-branded firms who market their products through 3rd party retail chains. Non-branded products currently make up the majority of the industry's domestic and export sales.

In 2002 export of Turkish textile products reached 7 billion dollars, while clothing products reached 5,1 billion dollars.

Leather garments and fur industry					(Million USD at 1998 prices)
	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	117	428	423	634	15,1
Production	731	910	777	882	1,6
Export	659	506	442	411	-3,9
Import	8	24	105	202	31,5

One of the most competitive subsectors of clothing industry is leather garments and fur industry, with its focus primarily on exports and shopping tours. Approximately 85-90 percent of the leather garments production is either exported or sold domestically to shopping tourists. In this framework, leather garments is the industry that has the highest proportion of exports within its production. The Turkish fur industry produced fur mainly from lambskin with hairy. And similarly the large proportion of fur apparel industry production, more than 95 percent, is the garments made by lambskin with hairy too.

Turkey is the third largest producer of the world in this subsector. The product quality has been improving over the past years. It is worse than Italy, the world second largest producer, France, Germany, but it is better than China, the world largest producer, India, South Korea, Pakistan. The leather garments manufacturing plants are primarily located in Istanbul, İzmir, Tekirdağ-Çorlu, Manisa-Salihli and Antalya.

The highest production figure of 10.8 million units in this subsector were observed in 1996. Since the Asia crisis in 1997 and especially Russia crisis in 1998 the production in the leather and fur garments industry decreased in following years, except the year 2000, until 2002. The production amount increased to 6.9 million units in 2002 from 5.7 million units in 2001 due to increase in demands for leather garments of Russia and some European countries. Some major buyer countries in Europe for leather garments and furs are Germany, France, England and Switzerland.

Changes in the domestic demand for leather garments have been determined mainly by the consumption of tourists coming from northern countries like Russia, Ukraine etc. for the last 12 years.

The leather garments imports have increased by higher percentages since 1999, because the competitor Asian countries offered lower prices.

### **3. Medium term expectations**

Turkey, as one of the biggest manufacturers of textile and clothing products in the world, has the capability of serving full-package products. In the medium term, with decreasing lead times, better quality/price ratio and creation of brands, Turkey will still be one of the most competitive textile and clothing industries in the world.

With its young and increasing population, Turkish internal market is gradually becoming more sophisticated. Like the other countries, the demand for textile and clothing products will get more diversified.

Despite the fact that Turkey will face intensified competition in textile and clothing industry after quota elimination in 2005, Turkey with its geographical location, raw materials production, trained workforce, has still a potential in this industry. However, Turkish textile and clothing industry needs a restructuring by improving its quality, management and marketing skills, logistic performance, certifications. In doing this, foreign investment can play particularly an important role. Foreign companies should be attracted to Turkey to increase the quality of the products and the organisations.

## G. LEATHER AND LEATHER GOODS INDUSTRY

### 1. General Assessment

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Changes (%) (1990-2002)
Domestic consumption	1.694	2.244	2.195	2.499	3,3
Production	1.633	2.178	1.987	2.341	3,0
Export	63	149	192	249	12,1
Import	128	264	406	423	10,5

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

By the implementation of openness to the abroad and export encouraging policies in the Turkish economy after 1980's, the Turkish Leather and Leather Goods Industry went through a rapid development period. In addition to the economic policies, the geographical closeness of the Turkey to the European markets, its traditional know-how of leather works and the large amount of sheep and goat skin available were the key factors of this development period. Turkey started importing raw hides and skins after 1983 to meet the demand in the industry. The imports of rawhides and skins have been increasing ever since, as a result of the increasing exports of leather and leather goods.

The production in the sector growing rapidly in 1990's because of high increase in demand for leather garments, leather goods and footwear of east European countries and especially Russia made a peak in 1996. However, the sector has shrunk in following years as a result of Asia crisis 1997, Russia crisis in 1998 and financial crisis in Turkey in 2001. Therefore, the production in the sector decreased to minimum level of the last 12 years. In 2002, the production of the sector increased by 30,7 percent as an outcome of high domestic demand, increase in exports and tourist shops. As a result, the production increased by 8,1 percent annually in the 1990-1996 period and decreased by 1,8 percent annually in the 1996-2002 period. The sector production increased by 3 percent in 1990-2002 the period annually.

The high demand for leather and leather goods in the world market caused new investments realized in this sector. Towards the end of 80's, 2 major organized industry zones and some small industry sites were established. Most of these investments were completed in the early 90's, resulting in significant increases in the capacity. The resulting industry structure was one that makes use of modern technology and water waste treatment facilities. Expecting the demand in the foreign markets and the domestic demand by shopping tourists will continue to grow, Turkish entrepreneurs invested in new organized or small industry sites towards mid 1990's. However, the Asian Crisis in 1997 and the Russian Crisis in 1998 affected the leather and leather goods industry unfavorably, causing these investments to pause. Therefore, any large additional capacity has not been created in the sector since 1998.

## **Strengths**

- Large amount of domestic production for raw hide and sheep and lamb skins
- Skilled labor force
- The availability of highly trained technical personnel
- Large domestic demand and rapid growth in consumption
- Closeness to big importer countries, Europe, Russia and Middle East Countries
- Sufficient physical infrastructure with waste water treatment facilities
- High quality in sheep and goat leather
- High quality in leather garments
- Expansion of the use of new machinery in leather tanning industry
- An advanced chemical industry
- Free zone advantages
- Actual production well-matched to fashion and consumer needs in leather garments and sheep and lamb leather
- Low wages
- Existence of fierce competition
- Control on international sheep and lamb skins markets as a big buyer

## **Weaknesses**

- Highly dependent on imported raw materials
- Low capacity utilization
- Low number of plants with optimal capacity in footwear and leather goods industry
- Standards and quality problems in bovine leather, footwear and leather goods
- Widespread use of old technology in footwear production.
- High dependence on a few country for exports.
- Difficulties to enter new markets

## **2. Product / Subsector Assessment**

### **a) Rawhides and Skins**

Domestic rawhide and skin production has declined due to diminishing livestock for a long time. Domestic rawhide production was 55 thousand tons in 1990. It becomes 47 thousand tons in 2002. While domestic skin production was around 25 million units in 1990, it realized as 15,6 million units in 2002. Declining in skin production is faster than rawhide production during the period 1990-2002. As a result, domestic demands for the rawhide and skin have to be met through imports.

The rawhide imports of Turkey was 9.3 thousand tons and the skin imports was 24.1 million units in 1990. Import figures have fluctuated during 1990-2002 period due to

international crises in 1997/1998. Imports for rawhide and skin increased to 35,7 thousand tons and 59,1 million units respectively, depending on the increase of the production of footwear products, leather garments and leather goods in 2002. Generally, big proportion of the skin import, between 90-95 percent, is sheep and lambskin imports. Turkey was the 6th for raw hide and skins imports in the world in 2002 with a 217 million dollar value and 4.5 percent share.

The rawhide and skin export of Turkey is small amount because of high demand for these raw materials in domestic market. The rawhide export of Turkey was 0.9 thousand tons and the skin export is 5.4 million units in 2002. More than 95 percent of rawhides and skins exports has been shipped to Izmir-Menemen Leather Free Zone and has been processed there.

## **b) The Leather Tanning and Processing Industry**

In 1990, the leather tanning and processing industry had a capacity of processing 112 thousand tons of rawhides and 56 million units of sheep goatskin and annually. The leather processing capacity has increased and technology utilization has been wide spread in the industry, after İstanbul-Tuzla and İzmir-Menemen Organized Leather Industry Zones became operational in 1993 and 1995 respectively. These two zones accommodate a total of 212 middle and large-scale leather processing plants. Besides, about 120 units middle and large-scale plants operate in Çorlu-Tekirdağ Organized Leather Industry Zone later. These three organized industry zones, that have water waste treatment facilities and cover a total of 560 hectares, constitute a very large proportion of the total leather processing capacity in Turkey. Other major locations where leather processing take place are Manisa, Uşak, Niğde-Bor, Bursa, Bolu-Gerede, Denizli, Manisa-Kula, Manisa-Salihli, Antakya, Isparta, Balıkesir-Gönen and Gaziantep. The quality problem for finished leather has been solved in the organized industry zones and other large-scale plants outside those zones.

Raw hides have been tanned and processed mostly in Niğde-Bor, Bolu-Gerede, Manisa, Denizli, Antakya, Gaziantep and Isparta. Sheep and goatskins have been tanned and processed in İzmir-Menemen Çorlu-Tekirdağ Uşak, Manisa-Kula, and Manisa-Salihli. Both rawhides and skins have been tanned and processed in İstanbul, Bursa, and Gönen.

In 2000, the leather tanning capacity of Turkey reached 195,000 tons of rawhides and 140 million units of sheep and goatskin, with approximately 1650 leather tanning and processing plants spread around the country. In the same year, the share of the Share of Turkish leather tanning and processing industry in the world capacity was 16 percent in sheepskin and lambskin, 3 percent in rawhide. Turkey has third largest capacity after China in the sheep and lambskins tanning in the world. But Turkey has not an important place in the capacity for rawhide tanning.

As seen, there has been a significant increase in the leather processing capacity over the recent years, especially with the launching of new organized leather industry zones. The production capacity of these zones and large-scale plants could not be channeled to exports yet, due to the lack of experience in the foreign markets. The bovine leather, sheep and goat skin leather exports increased by 25,8 and 35,2 respectively at constant price in the 1990-2002 period. However, the amount of the exports is not sufficient compared to the capacity.

In 1980's and 1990's, some of the developing countries brought limitations to exports of raw hides and skins in order to protect their domestic leather, leather goods and footwear industries. Consequently, the competition in the international leather and leather goods market intensified, leading to fluctuations, and then a general increase, in the price level of skins and raw hide, while the prices of leather and leather goods less compared to the prices of raw materials in many cases. The provision of the raw material is usually more difficult and more expensive than semi or finished leather in the international market.

Turkey has imported important amount of semi finished and finished leather at beside rawhide and skins to meet internal leather demand. The bovine leather, sheep and goat skin leather imports increased by 7,9 and 6,7 percent respectively at constant price in the 1990-2002 period. The semi finished and finished leather imports is the largest group in the total leather and leather goods imports with a share of 65,4 percent in 1990 and 45,1 percent in 2002.

### **c) Footwear Industry**

In 1990, the footwear industry production capacity was 155 million pairs annually. There are positive developments in the industry in terms of the plants with optimum capacity and quality of production in following years. Yet, the current small-scale structure of the industry brings some disadvantages with it. Consequently, the industry still faces quality problems and the increase in production and exports fails to be sufficient. In 2002, the footwear industry production capacity reached 305 million pairs annually. The biggest capacity increases occurred in slippers and shoes with polyurethane sole in the last ten years.

Major footwear production plants are located in Istanbul, İzmir, Konya, Gaziantep, Antakya Trabzon and Isparta-Yesilyuva. During the past years, investments for two important small industry sites in İstanbul-İkitelli, İzmir-Bornova and Gaziantep were completed and these sites started operating.

Turkey is the 11th largest producer in the world with a share of 1.3 percent of the total world footwear production. The rapid increase observed in footwear exports is primarily due to the increase in demand for footwear in the Russian market. The footwear export in 2002 increased more than 22 times compared to 1990.

### **d) Leather Goods Industry**

Leather goods industry is a sub-sector where the improvements are rather slow. The small goods industry from leather is more competitive than the small goods industry from other material like plastic, textile in Turkey. There are only a few well-known big plants that can make use of modern technology and produce quality goods. Major production plants are placed in Istanbul, Izmir, Ankara and Bursa.

### **e) Educational Facilities**

Currently, the leather engineering division of a state university has awarded undergraduate and graduate degrees for almost 25 years in İzmir and another division within a private university has awarded undergraduate degree for 4 years in Istanbul on leather processing industry. Furthermore, 3 vocational schools, 4 industrial high schools and 1 institution serve the human resources needs of the



leather processing industry. Similarly, an industrial high school and an apprentice training center provides training for the footwear industry, while 1 vocational school and 1 industrial high school is available for training on leather garments industry. Although the number of educational institutions is very high in leather processing sub-sector, in other subsectors, it is not sufficient. As a result, to find skilled labor force, especially in the leather tanning industry is not difficult in the labor market.

### 3. Medium Term Expectations

In the future, the growth in the sector will be determined by developments in the footwear industry and the expansion in the leather garments industry.

Obviously, Turkey is an important actor in the world leather and leather goods industry. If Turkish industrialists place enough emphasis on skilled labor, research and development facilities and use information technologies, together with monitoring of latest developments in the global market and taking the necessary precautions accordingly, Turkish leather industry will continue to grow. Although its competitors are said to provide considerable support to their exporters, Turkey can take its place among the industry leaders, if it makes good use of its potential and advantages through wise strategies.

In 2012, the tanning capacity in Turkey is expected to reach to 450,000 tons of rawhides and 185 million units of sheep and goatskin annually. Thus, the shares of the Turkish leather tanning and processing industry capacity in the world will become 18 percent in sheepskin and lambskin, about 6 percent in rawhide. In the same year, it is estimated that the footwear production capacity will be 650 million pairs annually.

#### Demand For Leather and Leather Goods

(Million USD at 1998 prices)

GOODS	1990	1995	2000	2002	Annual Change (%) (1990-2002)
Sheep and Goat Leather	415	573	441	533	2,1
Bovine Leather	236	292	280	338	3,0
Calf Leather	165	221	221	278	4,4
Sole Leather	71	71	59	60	-1,4
Leather Goods	58	74	107	113	5,7
Footwear	910	1.210	1.280	1.414	3,7
Leather Footwear	639	869	845	965	3,5
Plastic Footwear	50	43	74	80	4,0
Rubber Footwear	16	24	44	46	9,4
Textile Footwear	84	133	138	157	5,3
Slippers	122	142	179	167	2,6
Others	75	95	86	101	2,5
T O T A L	1.694	2.244	2.195	2.499	3,3

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Demand For Leather and Leather Goods

GOODS	Quantity				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather (Million dm2)	3.039	3.949	3.365	3.615	1,5
Bovine Leather					
Calf Leather (Million dm2)	1.066	1.463	1.443	1.707	4,0
Sole Leather (Ton)	7.534	7.890	6.409	6.746	-0,9
Footwear (Million Pairs)	94	123	123	137	3,2
Leather Footwear	35	47	45	51	3,3
Plastic Footwear	8	9	7	11	3,0
Rubber Footwear	6	8	12	12	6,3
Textile Footwear	10	16	17	18	5,1
Slippers	36	43	43	45	1,9

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather and Leather Goods Industry Production

GOODS	(Million USD at 1998 prices)				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather	411	493	352	440	0,6
Bovine Leather	214	263	227	294	2,7
Calf Leather	150	197	172	235	3,8
Sole Leather	64	66	55	59	-0,7
Leather Goods	96	108	96	108	1,0
Footwear	837	1.226	1.229	1.406	4,4
Leather Footwear	628	882	791	951	3,5
Plastic Footwear	28	62	84	91	10,3
Rubber Footwear	16	22	27	31	5,6
Textile Footwear	78	112	130	142	5,2
Slippers	87	149	197	192	6,8
Others	75	87	83	93	1,9
TOTAL	1.633	2.178	1.987	2.341	3,0

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather And Leather Goods Industry Production

GOODS	Quantity				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather (Million dm2)	2.657	3.482	2.448	2.850	0,6
Bovine Leather					
Calf Leather (Million dm2)	990	1.274	1.143	1.518	3,6
Sole Leather (Ton)	7.448	7.627	6.304	6.816	-0,7
Footwear (Million Pairs)	95	137	161	186	5,8
Leather Footwear	35	50	45	54	3,5
Plastic Footwear	8	17	23	25	10,3
Rubber Footwear	6	8	10	11	5,6
Textile Footwear	10	14	16	18	5,2
Slippers	36	49	68	79	6,7

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather And Leather Goods Industry Exports

GOODS	(Million USD at 1998 prices)				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather	0	8	11	12	35,2
Semi Finished Leather	0	1	5	5	36,8
Finished Leather	0	7	7	6	34,0
Bovine Leather	1	12	16	23	25,8
Semi Finished Leather	0	1	4	13	54,4
Finished Leather	1	11	10	9	17,3
Sole Leather	0	1	2	1	49,9
Leather Goods	40	42	45	60	3,5
Footwear	21	84	117	154	17,9
Leather Footwear	18	46	29	51	9,3
Plastic Footwear	0	22	27	29	48,6
Rubber Footwear	0	1	2	3	29,4
Textile Footwear	1	3	5	7	16,6
Slippers	1	12	40	47	42,2
Footwear Parts	2	1	15	17	22,5
Others	0	3	2	0	4,5
TOTAL	63	149	192	249	12,1

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather And Leather Goods Industry Exports

GOODS	Quantity				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather					
Semi Finished Leather (Ton)	22	120	881	932	36,8
Finished Leather (Million dm2)	6	35	108	185	34,0
Bovine Leather					
Semi Finished Leather (Ton)	51	1.030	4.004	9.307	54,4
Finished Leather (Million dm2)	19	73	75	129	17,3
Sole Leather (Ton)	1	110	298	140	49,9
Leather Goods (Ton)	1.488	1.449	1.522	2.245	3,5
Footwear (Thousand Pairs)	2.778	19.320	51.734	62.056	29,5
Leather Footwear	1.728	4.043	3.025	5.018	9,3
Plastic Footwear	135	7.713	17.303	15.613	48,6
Rubber Footwear	83	386	809	1.835	29,4
Textile Footwear	277	602	1.038	1.743	16,6
Slippers	555	6.575	29.559	37.846	42,2
Footwear Parts	425	112	4.758	4.852	22,5
Others (Ton)	158	2.097	1.439	268	22,5

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather And Leather Goods Industry Imports

GOODS	(Million USD at 1998 prices)				Annual Change (%) (1990-2002)
	1990	1995	2000	2002	
Sheep and Goat Leather	59	117	105	130	6,7
Semi Finished Leather	21	28	9	17	-1,8
Finished Leather	38	89	96	112	9,4
Bovine Leather	25	56	72	61	7,9
Semi Finished Leather	3	15	6	7	8,6
Finished Leather	16	35	60	52	10,4
Sole Leather	6	5	6	2	-8,8
Leather Goods	3	12	57	65	28,1
Footwear	40	67	168	160	12,2
Leather Footwear	25	30	84	70	8,8
Plastic Footwear	0	3	18	18	45,2
Rubber Footwear	0	2	19	18	81,3
Textile Footwear	6	23	13	22	11,2
Slippers	2	5	21	22	22,9
Footwear Parts	7	4	12	11	4,0
Others	1	13	5	7	23,9
T O T A L	128	264	406	423	10,5

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## Leather And Leather Goods Industry Imports

GOODS	Quantity				
	1990	1995	2000	2002	Annual Change (%) (1990-2002)
Sheep and Goat Leather					
Semi Finished Leather (Ton)	2.678	5.556	2.045	2.156	-1,8
Finished Leather (Million dm2)	404	528	1.026	1.190	9,4
Bovine Leather					
Semi Finished Leather (Ton)	573	2.596	1.415	1.548	8,6
Finished Leather (Million dm2)	97	261	374	318	10,4
Sole Leather (Ton)	213	373	402	70	-8,8
Leather Goods (Ton)	513	867	6.416	10.055	28,1
Footwear (Thousand Pairs)	1.825	4.740	13.471	13.035	17,8
Leather Footwear	862	1.126	3.302	2.381	8,8
Plastic Footwear	20	239	2.129	1.770	45,2
Rubber Footwear	2	215	2.174	2.522	81,3
Textile Footwear	580	2.215	1.469	2.083	11,2
Slippers	360	944	4.397	4.279	22,9
Footwear Parts	978	322	1.802	1.563	4,0
Others (Ton)	148	137	1.250	1.943	23,9

Source: SPO - Annual Programs and Developments in Economic & Social Sectors

## H. PETROLEUM PRODUCTS INDUSTRY

### 1. General Assessment

*(Million USD at Current Prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Consumption	9.621	9.474	12.310	13.767	3,0
Production	9.344	8.988	10.024	12.246	2,3
Export	290	277	301	670	7,2
Import	568	763	2.587	2.191	11,9

TÜPRAŞ (Turkish Petroleum Refineries Corporation) and ATAŞ are the two main companies in the petroleum refining sector of Turkey. The refineries of TÜPRAŞ located strategically across the country (Kırıkkale, İzmir, İzmit, Batman) with a primary focus on the main markets of İstanbul, İzmir and Ankara, ATAŞ refinery is located in Mersin.

Total crude oil processing capacity of Turkey is 32 MT/Y (million tons/year). TÜPRAŞ has a combined capacity of 27.6 MT/Y representing 86 % of Turkish refining capacity while ATAŞ has a capacity of 4.4 MT/Y and a share of 14 %.

After the completion of Kırıkkale Refinery which has a capacity of 5 MT/Y in 1986 and the commissioning of an expansion project at the İzmir Refinery between 1987-1989 TÜPRAŞ's crude oil processing capacity reached 27.6 MT/Y and total refining capacity of the country reached 32 MT/Y and since 1989 total refining capacity of Turkey remained the same.

The petroleum products production quantity which was 22.2 MT in 1990 grew 14 % and reached to 25.3 MT in 2002. Value of the production which was 9.344 M.USD (million US Dollars) increased 31 % and reached to 12.246 M.USD in 2002.

Petroleum products consumption quantity also grew 35 % and increased from 21.7 MT in 1990 to 29.3 MT in 2002. Value of the consumption grew 43 % during the same period and increased from 9.621 M.USD to 13.767 M.USD.

The quantity of Turkey's petroleum products imports increased from 2.2 MT in 1990 to 7.5 MT in 2002. During the same period exports increased from 2.1 MT to 3 MT. Value of the imports increased from 568 M.USD in 1990 to 2.191 M.USD in 2002. During the same period value of the exports increased from 290 M.USD to 670 M.USD.

Turkey is located at the gateway of Middle East and Caspian petroleum and Central Asian natural gas to the west, which are regarded as the important energy reserves of the world. This proximity to the energy sources creates an attractive investment environment for the producers and increases the competitiveness of the country. The national policy of constructing crude oil and natural gas pipelines also supports this advantageous investment environment.

In 1989 TÜPRAŞ launched a comprehensive investment program covering the years 1989 to 2004 known as the “Master Investment Plan”. This program seeks to increase the Company’s profit potential and competitive strength by modernizing the refineries and bringing production processes and products into compliance with European Union (EU) environmental standards. Total investments provided for this Plan amount to 2 billion USD in value of which 1.3 billion USD was completed as of year-end 2002.

In 1990, the decision on the privatization of TÜPRAŞ has taken and by year 2000 34.24% of the Company had been privatized. Finally, the bidding deadline of the remaining 65.76 % of TÜPRAŞ via block sale was ended on 24 October 2003. After the completion of the evaluation process 100 % of the company will be privatized.

In 2001, Yarımca facilities, the first complex set up by PETKİM (Petrochemicals Holding), was turned over to TÜPRAŞ and renamed Körfez Petrochemicals and Refinery Complex. Also, in 2002 TÜPRAŞ acquired another 50.98 % stake in DİTAŞ (Marine Operations Corp.) in addition to its existing 29 % stake thus bringing its total stake in the Company to 79.98 %.

The main policy of the refining sector is to satisfy Turkey’s need for petroleum products safely and economically. For this purpose existing and/or new firms in this field may set up, purchase and operate petroleum refineries and new units both in Turkey and abroad. Also improving product quality and achieving compliance with EU specifications are the main objectives of the ongoing investments.

Also, as it was mentioned in the 8<sup>th</sup> Five Year Development Plan, another basic policy is to encourage the construction of a new refinery plant in order to meet petroleum products requirements of the country.

The Petroleum Law, 6326, in effect since 1954 regulates prospecting, exploration and production under permit, license and lease. The law also governs pipeline transit and refining.

Major legislative change was occurred by the acceptance of the new Petroleum Market Law on 4 December 2003 which has an objective of creating a competitive market, as the state’s gradually withdrawing from the industry and enhancing its role of supporting industry, regulating and monitoring the market within the framework of international rules. By the new law all licensing issues and regulation of the market is handed over from the Ministry of Energy and Natural Resources to the Energy Market Regulation Board.

## **Strengths**

Although Turkey is an importer of crude oil which is the main input for petroleum refining activities, the advantageous location of the country enables the companies to maintain their crude oil requirements continuously and economically. In addition to the domestic production and the conventional suppliers of Turkey like Saudi Arabia, Iran and Libya, the refineries may also have term contracts for crude oil supply from Syria, Algeria and Russia in the region.

TÜPRAŞ which is the biggest refining company of Turkey has also considerable capacity among the European refineries. After the completion of the Master

Investment Plan it is expected that the Company's refineries' complexity will reach to the level of Spanish and Italian refineries. Also ongoing Bakü-Ceyhan crude oil pipeline project will provide improved economies for crude oil delivery as well as an attractive investment environment for the domestic and foreign investors in this sector.

The Turkish labor force is well known with its skills and learning capacity so in general there aren't any problems related to the workforce in this industry.

### **Weaknesses**

Being delayed for increasing the quality of the products to meet international standards and the insufficient monitoring of the retailing organizations of fuel distribution companies.

## **2. Product / Subsector Assessment**

Distribution of the petroleum products both produced in the refineries in Turkey and imported from abroad is carried out by the retailing organizations of fuel distribution companies. By the end of 2002, 18 fuel distribution companies were active across Turkey which have a product storage capacity of 2.024.884 tons.

Transportation activities are carried out by various pipelines. Main pipelines are Batman-Dörtyol Crude Oil, Turkey-Iraq Crude Oil and Yumurtalık-Kırıkkale Crude Oil Pipelines.

Batman-Dörtyol Crude Oil Pipeline has a capacity of 3.5 MT/Y and 2.7 MT crude oil was transported in 2002. Turkey-Iraq Crude Oil Pipeline has an annual capacity of 70.9 MT/Y and 23.8 MT were transported through this pipeline in 2002. Yumurtalık-Kırıkkale Crude Oil Pipeline has a capacity of 5 MT/Y and 3.6 MT were transported through this pipeline in 2002.

In Turkish refineries, 26.1 MT of crude oil were processed yielding 25.3 MT of various products in 2002. In the same year, 7.5 MT of products were imported while 3 MT of products were exported. Civilian consumption of petroleum products including 39.424 tons LPG and 65.212 tons regular gasoline produced by PETKİM, reached to 29.3 MT. Detailed figures based on years are given below.



Petroleum Products Refined in Turkey

(Tons)

Products	1990	1995	2000	2002
Refinery Fuel Gas	414.968	633.508	556.982	629.803
LPG	676.330	748.449	669.642	739.636
Naphta	1.465.315	1.450.804	1.851.164	1.453.384
Normal Gasoline	1.569.244	2.109.592	959.072	286.279
Super Gasoline	1.042.365	1.343.450	917.650	993.348
Unleaded Gasoline	10.812	166.702	801.164	2.428.974
Solvent		7.326	2.833	2.772
Jet Fuel	618.898	1.146.055	1.023.526	1.181.393
Kerosene	166.890	78.327	26.241	40.363
Diesel Oil	6.359.381	7.706.617	6.646.908	7.461.455
Spe. Heat Oil	218.497	73.364		
Heating Oil	318.140	1.554.185	1.458.968	1.160.477
Fuel-Oil-5	1.073.285	13.172		
Fuel-Oil-6	7.094.476	7.769.507	6.563.104	6.809.005
Asphalt	720.806	980.311	1.282.265	1.245.574
Lube Oil	282.300	293.628	317.232	298.594
H.V.G.O		360.796	456.007	485.025
Others	137.345	93.173	113.952	129.253
<b>Total</b>	<b>22.169.052</b>	<b>26.528.966</b>	<b>23.646.710</b>	<b>25.345.335</b>

Source: General Directorate of Petroleum Affairs

## Petroleum Products Consumed in Turkey

(Tons)

Products	1990	1995	2000	2002
Refinery Fuel Gas	414.968	633.508	556.982	629.803
LPG	1.565.986	2.362.412	4.546.884	3.500.383
Naphta	1.554.709	1.582.021	1.562.018	1.678.374
Normal Gasoline	1.685.894	2.343.185	1.200.003	470.832
Super Gasoline	1.002.758	1.441.842	1.068.236	933.200
Unleaded Gasoline	10.415	161.091	1.387.639	1.699.819
Solvent		144.022	267.179	208.530
Jet Fuel	292.223	867.237	970.995	1.199.223
Kerosene	183.689	91.887	36.577	30.540
Diesel Oil	7.193.181	8.100.884	8.774.281	9.063.456
Heating Oil			1.464.170	1.318.510
Fuel oil-6	6.738.459	8.026.886	6.202.133	6.824.004
Asphalt	694.630	969.525	1.247.415	1.238.357
Lube Oil	292.014	338.805	489.841	412.162
Others	93.205	97.105	115.626	127.033
<b>Total</b>	<b>21.722.131</b>	<b>27.160.410</b>	<b>29.889.979</b>	<b>29.334.226</b>

Source: General Directorate of Petroleum Affairs

## Petroleum Products Trade in Turkey

(Tons)

Years	Imports	Exports
<b>1990</b>	2.168.471	2.075.379
<b>1995</b>	2.978.728	1.686.440
<b>1996</b>	5.094.274	1.630.949
<b>1997</b>	4.602.959	1.629.439
<b>1998</b>	5.022.724	2.326.769
<b>1999</b>	5.585.111	2.751.992
<b>2000</b>	8.622.152	1.550.983
<b>2001</b>	5.791.746	2.349.893
<b>2002</b>	7.534.685	2.768.513

Source: General Directorate of Petroleum Affairs

### **3. Medium Term Expectations**

According to the petroleum products demand projections made by TÜPRAŞ the demand for these products is going to be 35 MT by 2010. When compared with the 2002 figures for the refined petroleum products it is clearly seen that the gap between production and consumption will be increasing continuously. This situation also increases the attractiveness of the petroleum refining and distribution activities in the country.

As a result of growing demand, a new refinery investment should be realized immediately for providing the petroleum product requirements of the country in a sustainable way. While evaluating the new refinery investment it should be considered that Bakü-Ceyhan crude oil pipeline is going to be completed in 2005 and this pipeline project may provide improved economies and safety for the crude delivery of the new refinery as well as the existing ones.

In relation with the policy of manufacturing, the products in line with EU product specifications and lowering the aromatic content of gasoline to meet these specifications, it can be expected that the quantity of exports to the European countries will be increased after the completion of necessary investments.

With the new Petroleum Market Law it is expected that the petroleum market is going to be liberalized, the competitiveness in this market will be increased and the fuel distribution activities will be carried out more efficiently, safely and properly.

## I. CHEMICAL INDUSTRY (\*)

### 1. General Assessment

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual increase (%)(1990-2002)
Domestic consumption	7.800	9.200	15.868	16.608	6,5
Production	5.690	5.949	9.379	9.426	4,3
Export	970	948	1.460	1.751	5,1
Import	3.130	4.199	7.949	8.931	9,1
Import/Consumption	40,1	45,6	50,1	53,8	
Export/Import	31,0	22,6	18,4	19,6	
Per Capita Consumption, dolar	139	149	230	238	4,6

\* Fertilizers excluded

Turkish chemical industry production, with about 45.000 employees, grew at an annual average rate of 4.3% over 1990-2002. The capacity utilization in 2001 is 72,1 %. More than 1000 entities are operating in Turkey. Private entities mostly invested on consumption goods such as soaps, detergents, paints and pharmaceuticals and there is considerable foreign involvement in detergent and cosmetics sub-sectors.

As regards to general structure in Turkish chemical industry, 2% of existing companies have more than 150 employees and the number of companies with 0-20 employees is much higher.

54 percent of the demand for chemicals is met by imports which is mostly raw materials. 84 percent of production originates from private sector. 80 percent of the total production (excl. pharmaceuticals) is intermediate goods. Boron chemicals, soaps, detergent, cosmetics, paints subsectors have export potential.

The examination of present condition of chemical sector reveals that the sector except medium and large scale industries is far away from a modern and competitive structure. Except petrochemicals and fertilizers, the integration between the production of basic and intermediate chemicals seems to be inadequate.

There have been considerable improvements in terms of quality, productivity and protection of environment. The responsible care, the chemical industry's trademarked initiative on environmental, health and safety issues, has been successfully implemented since 1992.

The industry will become more import dependent as new investments are mostly small expansion and modernization projects. In chemical industry, which is technology and capital intensive, large scale investments can be realized by

domestic and foreign companies provided that the investment environment is improved and economic stability is ensured. In the context of “Reform Program for Improving Investment Environment in Turkey”, problems regarding chemicals and pharmaceutical sectors mainly related to environmental and certification procedures are determined. The efforts directed towards the solution of these problems are continuing.

### **Strengths**

- Availability of qualified human resource and entrepreneurship nature of Turkish people,
- Potential of consumption growth compared to other countries,
- Existing industrial enterprises are dynamic, open for innovation and easily adaptable to changes,
- Rich deposits of natural resources.

### **Weaknesses**

- Unstable economy,
- Insufficient quality standards,
- Lack of supervision,
- Lack of experience in technology development,
- Insufficiency in management and organization issues,
- Unconscious environment actions,
- Lack of infrastructure for environmental protection.

### **Opportunities**

- Planned oil and natural gas pipelines,
- The new demand models arising from the increasing age average and high life standards in developed countries,
- Proximity to EU countries,
- The innovation and progress in information technologies,
- Goal focused, low cost, high quality and recoverable products due to the increase in global competition,
- Increase in the sensitivity to environment, thus increasing demand on environment friendly materials.

### **Threats**

- The new policies about chemicals in EU,
- The domination of multi-national firms on market,
- Difficulties to access to the new technologies,
- The better investment conditions in neighborhood countries,
- High cost of the intermediate chemicals and raw materials imported.

## 2. Product / Subsector Assessment

(Million USD at 1998 prices)

SUBSECTORS (in 2002)	Consumption	Import	Export	Production	Cap.Util.(2001)	Imp/Cons
Manufacture of basic chemicals	3.450	2.444	418	1.425	82,8	70,8
Manufacture of plastics in primary forms and of synthetic rubber	2.556	1.931	146	771	86,5	75,6
Manufacture of pesticides and other agro-chemical products	202	92	24	133	47,6	45,7
Manufacture of paints, varnishes and similar coatings, printing ink and mastics	932	254	98	777	46,6	27,2
Manufacture of pharmaceuticals, medicinal chemicals and botanical products	4.219	2.041	201	2.380	72,5	48,4
Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	1.365	322	399	1.442	70,4	23,6
Manufacture of other chemical products n.e.c.	2.787	901	100	1.987	67,5	32,3
Manufacture of man-made fibres	1.096	946	361	511	80,2	86,3
<b>TOTAL</b>	<b>16.608</b>	<b>8.931</b>	<b>1.751</b>	<b>9.426</b>	<b>72,1</b>	<b>53,8</b>

### 3. Medium Term Expectations

The consumption and production in chemical industry as in other countries develops in accordance with the general economy and industrial growth. Low per capita consumption of chemicals and the expected growth in general economy is an impulsive force to have new investments in chemical industry.

Establishment of chemical organized industrial zones are considered in the future for increasing domestic and foreign investments in chemical industry. In addition, for a more innovative industry, formation of innovative chemical industrial zones are also considered. Because, these zones present a lot of advantages (such as utilizing a developed infrastructure, investment support groups, technology developing centers, human resources) to the manufacturers by creating an environment for developing a common synergy between the companies.

The import/consumption ratio and the capacity utilization ratio are especially high in following subsectors and they are considered as potential investment areas: basic chemicals, plastics in primary forms and synthetic rubber and man-made fibres. Bakü-Ceyhan oil and Mavi Akım natural gas pipeline projects can lead to new petrochemical and chemical complexes which will increase the competitiveness of the sector.

## **J. PHARMACEUTICAL INDUSTRY**

### **1.General Assessment**

As of the end of year 2002, 134 entities are operating in Turkey. From these entities only two are publicly owned, others are private enterprises. Of the 134 companies active in the industry, 35 are partially or wholly owned by foreigners. Eight of the 35 foreign capital firms operating in the industry have their production facilities. The rest of the companies are supplying their products by means of imports or using subcontractors' production facilities in Turkey. The share of domestic firms in 2002 has been realised as 47% (of which the 24 percent belongs to large local companies) of the total sales (including licensed products), where multinational companies had a share of 53%.

According to the data provided by the Ministry of Health, 85 of 134 companies are pharmaceuticals manufacturing facilities, 11 are raw materials production facilities and 38 are importers.

Pharmaceuticals industry is mainly located in the Marmara Region especially in provinces of Istanbul, Kocaeli and Tekirdağ. Better infrastructure, easy supply of packaging materials and technical personnel, telecommunication and transportation facilities and the existence of a high number of health institutions in the region are the main reasons behind this situation.

The Turkish pharmaceutical industry, with about 21.549 employees, grew at an annual average rate of 10,2% over 1995-00 in terms of consumption. The capacity utilization in 2001 is 70,4 . Exports of pharmaceuticals to more than 50 countries reached US\$ 139,4 million(finished products) in 2002. The industry is characterized by its relatively high import content. Imports amounted to US\$ 1.427 million(finished products) in 2002, mainly biotechnology products from the United States, Germany, and Switzerland. Per capita consumption in Turkey(US\$44) is quite lower than EU and other developed countries.

After the application of Good Manufacturing Practices (GMP) in 1984, Turkish Pharmaceuticals Industry, has reached a technological level which can almost be compared to European Union countries except in biotechnology and a few new production technologies.

Pharmaceuticals industry is producing many active ingredients of pharmaceuticals, primarily antibiotics and analgesics, by using fermentation, extraction and synthesis methods. Afyon Alcaloids Factory publicly owned is producing 20% of the morphine consumption of the pharmaceuticals industries all over the world. Limited number of raw materials like morphine, its derivatives and paracetamol is locally produced.

The production and marketing of all pharmaceuticals must be authorized by the Ministry of Health, and pharmaceutical products and firms must be registered with the Ministry. Prices of pharmaceuticals are subject to the approval of the Ministry of Health.

The Customs Union with EU has brought about the harmonization of many of the regulations relating to the industry. In this respect, Turkey extended patent protection to pharmaceutical products legally from 1 January 1999. While Turkey started

recognizing patents from 1995, given the long development duration for new pharmaceutical products, in practice there are few patent products currently in the market and it is expected that patent protected products will only become more prevalent between 2005 and 2007.

### **Strengths**

- Availability of the capacity to meet the domestic market in conventional products,
- Availability of the conventional drug production technologies that all basic drugs can be produced,
- Availability of qualified human source,
- Production of high quality products,
- Growth of domestic market development (> %10 annually).

### **Weaknesses**

- Inability to use the full production capacity,
- Inability to develop new technologies and having no investment in this field,
- Insufficient level and organization of high technology and relevant knowledge,
- Limited number of various specialized personnel in R&D and technology development,
- Having no competitive strength in new technology products (especially biotechnology),
- No R&D activity for new pharmaceuticals,
- Low competitiveness in foreign markets,
- Difficulty in competing with the multi-national companies in domestic market,
- Government interference,
- Weak financial resources,
- Insufficient investment level,
- Inability to create funds necessary for expensive research,
- Insufficient level of organization, experience and culture in R&D activities,
- Inadequate cooperation of university/industry and inability to produce industrialized results,
  - The limited number of patents taken by national industry,
  - Inadequacies arising from not conforming with international standards completely,
  - No autonomous national pharmaceutical institution,
  - The family type management structure of domestic companies,
  - Uncertainty due to short-term policies.



## **Opportunities**

- Low investment necessary for the production of some drug forms (transthermal and similar products) not produced in the country,
- Rapid development of information and communication technologies and the easy access to information,
  - Increase in the technology transfer possibilities,
  - Development in the fields of logistics, transportation and communication,
  - Foreign market opportunities due to globalization and increase in the export potential,
  - The goal of enlarging the Health Insurance coverage by the State,
  - The policies for the encouragement of generic usage in public pharmaceutical expenditure,
    - Positive changes in population and demographical structure,
    - Gradual development of environment for clinical studies,
    - The experience in formulation and process development,
    - The adaptation of EU laws and corresponding increase in potential for entering foreign markets,
    - Ability of generic manufactures formulation and process patent,
    - The progress in clinic research potential/labor costs/promotion and similar factors, attractive for foreign investment,
    - As a result of globalization, the availability of capital seeking for investment opportunities,
    - The potentials gained by the our fellow citizens in foreign countries for new technologies,
    - The development of consciousness of public in health issues.

## **Threats**

- Instruction/education not reaching the requirements of 21. century and brain drain in the country,
- The exponential increase of science and technology in the world,
- The level of foreign investments not reaching the expectations and unachieved establishment of necessary stabilized environment,
- Low purchasing power,
- High inflation rate,
- High cost of and limited credit resources,
- Insufficient research consciousness and appreciation,
- The monopolization in market segments as a result of mergers,
- The low competitiveness caused by high production costs,
- High prices well above international levels in domestic industrial inputs,

- Insufficient government resources allocated to health and education,
- Different pharmaceutical pricing and procurement policies imposed by public social security institutions,
- Insufficient development in private health insurances.

### **3. Medium Term Expectations**

It is expected that total pharmaceutical market by 10 percent increase each year will reach to 8.292 million dollars in 2013. After 2005, the number of the original pharmaceuticals patented in Turkey and introduced to the market will increase.

The Directive 89/105/EEC of EU relating to the transparency of measures regulating the pricing of medicinal products for human use and their inclusion within the scope of national health insurance systems will be harmonised and put into force in 2004 in line with Turkey's commitments in the Turkish National Program for the adoption of EU Acquis. Turkey will take into consideration the commission's remarks on the system for determining prices and reimbursement of medicinal products in line with the economic program, which is being maintained in connection with the IMF.

According to National Program, Medicine and Pharmaceuticals General Directorate of the Ministry will be restructured. When the National Drug Institution is established, problems such as licensing and mutual recognition etc. are expected to be resolved more rapidly.

Turkey will reduce the duration of the market authorization procedure to 210 days and put the new procedure in implementation in 2004 as foreseen in National Program.

The law for unifying public social insurance institutions Bağ-Kur, SSK and İş-Kur, was published. Unifying social insurance institutions that cover 85-90% of pharmaceutical market is expected to produce rational policies about health and pharmaceuticals.

Vision 2023 project led by TÜBİTAK put forth the vision and the future goals for various sectors including health-pharmaceuticals in terms of technology development and R&D. The developments concentrating on bio-technology is expected to provide important contributions into the economy and sector in medium and long term.

There is approximately 30% additional capacity that local pharmaceuticals industry can make use of. The existing capacity utilization can be increased to over 70-80% by the transition to double shift system without any investment.

Parallel imports are not possible from Turkey (30-50% cheaper than EU markets) to EU according to Custom Union whereas it is completely free in EU. This subject being a great export potential for multi-national and national companies will be expected to be solved in the negotiation processes of full membership to EU.

## K. FERTILIZER INDUSTRY

### 1. General Assessment

Turkish fertilizer industry is comprised of one public (Tügsaş) and four private companies (Ege Gübre, Bağfaş, Toros, Gübretaş). The public sector accounts for 40 percent of total fertilizer capacity and 20 percent of total sales.

Total fertilizer production capacity is 5,3 million tons/year. Due to overcapacity in phosphatic fertilizers, interruption on natural gas and unfair competition in imports, capacity utilization is low and about 66 percent in recent years. Total production is around 3-3,5 million tons/year. Domestic demand has been fixed around 5 million tons/year. Export is in negligible amounts. Import quantity depending on consumption and production, is 2-2,5 million tons/year.

#### Development of the sector (1990-2002)

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	950	1124	1054	946	-0,04
Production	673	716	469	580	-1,2
Export	37	35	5	32	-1,2
Import	281	486	599	497	4,8

In 1986, fertilizer procurement, imports, exports, marketing and pricing were liberalized. Fertilizer subsidy has been phased out since 2001. TÜGSAŞ is in the Privatization Programme and about to be privatized.

#### Strengths

- Experienced workforce
- Potential domestic demand
- Existence of competition among producers

#### Weaknesses

- Dependency on imported raw materials (natural gas, phosphate rock) and intermediates (ammonia, phosphoric acid).
- Low plant scales
- Low competitiveness in foreign markets.

Changes on prices of raw materials and intermediates plays a major role on the competitiveness because fertilizer industry is depended on imported raw materials and intermediates.

### 2. Product / Subsector Assessment

Amonnium nitrate(26 % N), urea (46%), amonnium sulphate, triple super phosphate, diamonnium phosphate and composite fertilizers are the products that are produced domestically.

(Tons per year in 2002)

FERTILIZER	CAPACITY	PRODUCTION	DEMAND	EXPORT	IMPORT
AN (26-33 %)	1,566,500	1,059,000	1,627,000	34,000	727,000
AS	270,700	195,000	296,000	37,000	625,000
UREA	561,000	537,000	719,000	64,000	64,000
TSP	530,000	61,000	25,000	0	7,000
DAP	375,700	164,000	384,000	4,000	229,000
NPK	1,978,000	1,544,000	1,463,000	104,000	125,000
TOTAL	5,281,900	2,398,000	4,514,000	243,000	2,359,000

### 3. Medium Term Expectations

Supply-demand figures show that new investments are needed in order to meet domestic demand. Domestic demand will be 8,5-9 million tons/year if problems in agriculture are solved. New plants should be built in large scale for competing in domestic and world markets. Increase in fertilizer demand and agricultural production will depend on increase in technological improvements, irrigation projects, training of farmers, enlarging farm scales etc. Import figures will change depending on new investments.

Since changes on prices of raw materials and intermediates plays a major role on sectors competitiveness, export will be in negligible amounts in future too.

In the future, if structural problems in agriculture is solved and education level of farmers is improved; some special fertilizers containing higher nutrients and appropriate for special fields, are expected to be produced. Liquid fertilizers will be used mostly in large scale farms.

For the improvement and maintenance of competitiveness of the fertilizer sector, new large scale plants will also be an opportunity in globalized world for the Turkish fertilizer industry.

## L. PETROCHEMICAL INDUSTRY

### 1. General Assessment

There are two public companies (PETKİM, TÜPRAŞ) and two private companies (SASA, Başer Kimya) which produce basic and intermediate petrochemicals in Turkey. PETKİM and TÜPRAŞ account for 85 percent of total production capacity and 35 percent of total sales and they are in the privatization programme. The syntetic fiber producers are all private companies (AKSA, Yalova Elyaf, SASA, Sönmez Filament, Sifaş, KORDSA).

#### Development of the sector (1990-2002)

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	1371	2852	4153	4100	9,6
Production	1107	1725	2123	1500	2,3
Export	274	332	542	600	6,7
Import	560	1460	2572	3100	15,3

*(Includes basic and intermediate petrochemicals and syntetic fibers.)*

Domestic supply does not meet domestic demand. Supply to demand ratio is 35-40 percent for basic petrochemicals and 80 percent for syntetic fibers.

#### Strengths

- Fast growing domestic demand
- Diversification and high quality of products
- Experienced and qualified workforce

#### Weaknesses

- Dependency on imported raw material
- Low scale of the plants

Changes on prices of raw materials play a major role on the competitiveness because petrochemicals industry is depended on imported raw materials (crude oil and naphta). Especially cost advantage of the countries with sufficient raw materials, threatens the domestic producers. But they can compete due to market proximity advantage, broad range and high quality of products.

Syntetic fiber is one of the main inputs for textiles. Therefore, syntetic fibers as a subsector of petrochemicals grow up parallel to textile industry which is one of the important exporter sector. Since 1997, technology has been renovated, capacity has been increased and products has been diversified in syntetic fiber industry.

## 2. Product / Subsector Assessment

Main products produced domestically are thermoplastics (polyvinylchloride, polyethylene, polypropilen, polystyren), fiber raw materials (acrylonitril, ethyleneglychol, dimethylterephthalate), aromatics (benzen, xylene) and synthetic fibers (polyester, polyamid, acrylic).

Basic and intermediate petrochemicals production capacity is 2 million tons/year, capacity utilization is over 90 percent recently. Syntetic fiber production capacity is 730.000 tons/year, capacity utilization is about 90 percent. Production capacity of acrylic fiber, polyester yarn, polyester fiber and polyamid yarn is 240.000 tons/year, 288.000 tons/year, 135.000 tons/year and 68.000 tons/year respectively.

### Production Capacity Of Basic And Intermediate Petrochemicals

COMPANY	PRODUCT	CAPACITY, T/y
PETKİM	TERMOPLASTICS	516,000
	FIBER RAW MATERIALS	249,000
	OTHER PETROCHEMICALS	819,000
	PETKİM TOTAL	1,584,000
TÜPRAŞ	RUBBER RAW MATERIALS	93,000
	POLYSTIREN (PS)	27,000
	BUTADIENE EXTRACTION (BDX)	33,000
	TÜPRAŞ TOTAL	153,000
SASA	DMT	240,000
BAŞER	PS	40,000
	TOTAL	2,017,000

Domestic consumption, production, export and import of petrochemicals (including basic and intermediate petrochemicals, syntetic fibers) are 4.100 million dollar, 1.500 million dollar, 600 million dollar and 3.100 million dollar in 2002 with 1998 prices. Consumption, production, export and import of syntetic fibers are 1.100 million dollar, 550 million dollar, 400 million dollar and 950 million dollar respectively.

(TONS PER YEAR IN 1998)

PRODUCTS	DEMAND	PRODUCTION	EXPORT	IMPORT
PVC	403.000	200.000	8.000	212.000
LDPE	396.000	220.000	2.000	178.000
PP	508.000	81.000	2.000	429.000
ACRYLIC FIBER	205.000	193.000	11.000	24.000
POLYESTER FIBER	132.000	94.000	10.000	48.000
POLYESTER YARN	227.000	187.000	38.000	78.000

### **3. Medium Term Expectations**

Domestic market is fastly growing with an average of 10 percent rate. Therefore, domestic supply is insufficient to meet the increasing demand.

Although there is not any technology or quality problem, export potential will continue to be weak due to imported raw materials. If domestic demand slows down, exports can increase to lower the inventories.

Expectations for capacity development are very optimistic. In order to meet domestic demand, a new petrochemicals complex based on 1 million tons/year of ethylene is needed.

The competitiveness of the sector will be maintained by realizing new large scale investment projects.

Rapidly growing domestic demand, need for establishing large scale plants, new crude oil and natural gas pipelines, proximity to raw material are the opportunities for the development of the sector.

## M. GLASS INDUSTRY

### 1. General Assessment

In Turkey, glass sector has a production capacity to produce more than 1,9 million tons/year. The sector produced 1,6 million tons of glass and exported more than one third of the total production in 2002. The exports were shipped to more than 140 countries.

All of the factories in this sector belong to the private sector. Domestic consumption, production, export and import values of the sector have been on the rise in recent years. But, higher costs of energy and workforce in Turkey make it difficult to compete with the countries like Far-Eastern Countries.

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	649,9	968,2	1343,4	1236,2	5,5
Production	948,3	1150,3	1601,3	1612,6	4,5
Export	353,6	282,5	552,8	673,7	5,5
Import	55,3	100,4	183,1	187,3	10,7

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	444	662	918	845	2,3
Production	645	782	1089	1096	3,2
Export	267	213	417	509	9,0
Import	76	138	251	257	10,8

### 2. Product / Subsector Assessment

Most important product groups are flat glass, industrial containers and household goods. Some figures about these subsectors are given below.

*(thousand tons, 2002)*

	Subsectors		
	Flat Glass	Industrial Containers	Household Goods
Domestic Consumption	525	440	130
Production	640	500	350
Export	230	80	235
Import	115	20	15

### 3. Medium Term Expectations

In the Glass Sector there is no expectation of great improvement related to glass production technologies. In this respect, what seems to be important is to use this technology more effectively. Therefore, survival of the firms in the long run is highly dependent on high productivity, production of high value-added products, reduction of the production costs and effective marketing policies.



## N. CEMENT INDUSTRY

### 1. General Assessment

Cement sector consists of 57 facilities, 39 of which are integrated facilities and 18 of which are grinding and packing facilities. All of these facilities belong to the private sector. Klinker production capacity of the sector is 33 million tons/year and cement grinding capacity is 65 million tons/year. The sector has shown a rapid export growth in recent years. Development of the sector can be seen from the tables given below.

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	23.715	30.433	31.553	27.334	1,2
Production	24.416	33.143	35.953	32.758	2,5
Export	2.626	4.174	6.525	9.877	11,7
Import	1.082	338	270	32	-25,4

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	1048	1345	1394	1208	1,3
Production	1036	1407	1526	1390	2,5
Export	66	106	165	250	14,6
Import	57	18	14	2	-10,2

*Note: Lime excluded*

### Strengths

In Turkey the Cement Sector is among the strongest industries. Turkey has the first rank in Europe and the second rank in the world in cement exports. The country is rich in cement raw materials and the facilities have the latest technology and equipment. The machinery and equipment used in cement facilities and their spare parts are produced locally.

### Weaknesses

When compared to other countries, Turkey has relatively high energy costs.

### 2. Medium Term Expectations

The sector has shown a steady growth in both production and export volumes. Since some of the firms in the sector continue to increase their capacity with bottleneck removal and plant expansion investments, the volume of the exports is expected to increase. On the other hand, the relatively high energy costs should be decreased in order to achieve the export goals.

## O. CERAMIC INDUSTRY

### 1. General Assessment

Ceramic sector accounted for nearly 1 % of manufacturing production with 1179 million US \$ value in 2002. It consists of 36 large and medium scale enterprises and 300-350 small scale workshops. All production facilities belong to the private sector. The sector has shown a steady export growth in recent years. Development of the sector can be seen from the tables given below.

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	563	1212	1623	1260	6,9
Production	635	1570	2456	2327	11,4
Export	112	378	872	1121	21,2
Import	41	19	39	55	2,4

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	367	790	1058	822	5,1
Production	322	796	1245	1179	8,5
Export	48	161	372	478	20,9
Import	91	42	86	121	6,8

### Strengths

Turkey is rich in ceramic raw materials and the factories have the latest technology and sufficient number of workforce. With the modernization investments undertaken in recent years, the production technology has been renewed. Great improvements in product quality have been achieved by means of product standards and quality assurance certificates. As a result, the competitiveness has improved and the volume of the exports has increased. The producers export to countries such as European Countries, USA, Canada, Australia, Middle East and Central Asian Countries, and also compete with leading countries, such as Italy and Spain.

### Weaknesses

When compared to other countries, Turkey has relatively high energy costs.

### 3. Product / Subsector Assessment

This sector includes ceramic building materials, ceramic sanitary materials, china and porcelain materials, electrical supplies and laboratory materials.

#### 2.1 Ceramic Building Materials

Total number of firms has increased rapidly and reached to 23 in 2002. As of 1999, production capacity reached 5 billion m<sup>2</sup> in the world and 200 million m<sup>2</sup> of which was

in Turkey. With this capacity Turkey has become the 5th biggest producer in the world. This capacity reached 230 million m<sup>2</sup> in the year 2000. Capacity utilization rate was 76% in 2000.

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	491	1114	1521	1149	7,3
Production	555	1440	2296	2150	11,9
Export	92	339	799	1018	22,2
Import	31	13	24	17	-4,8

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	198	450	614	464	5,1
Production	201	522	833	780	9,1
Export	30	110	258	329	21,5
Import	25	10	19	14	-0,2

The biggest part of the production and exports within ceramic industry is realised by this subsector. 98,5% of the domestic demand in Turkey was met by domestic production and 47% of the production was exported in 2002. Turkey has the third rank in ceramic building materials exports both in Europe and in the world after Italy and Spain.

Both the quantity and value of the imports are small. Occasionally low priced goods are imported from countries such as Iran, Hungary and Taiwan, however their shares in the internal market have been insignificant. The majority of imports were high priced products aiming at upper income groups.

All the facilities in this sector are utilizing the latest technology. Mainly natural gas is used in production, but some use LPG.

Problems such as stagnation in construction sector, high energy costs and insufficiency of harbour facilities for exports have been continuing to affect the sector.

## **2.2 Ceramic Sanitary Materials**

There are 10 large scaled and around 34 small scaled enterprises in this sector. Total production capacity of the sector has reached 200-210 thousand tons/year by the end of 2002. Large scaled firms operating in the sector have attained the world standards both in production quality and in design, hence they are able to export approximately 60% of the production. Nearly all of the domestic demand is met by domestic production. In terms of production capacity, Turkey had the 5th rank among the European Countries.

(Thousand Tons)

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	49,4	66,0	79,7	49,9	0,1
Production	63,5	97,0	133,1	127,0	5,9
Export	14,7	32,0	53,6	77,3	14,8
Import	0,6	0,0	0,2	0,2	-8,2

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	96,0	128,3	155,0	97,0	-2,0
Production	97,1	148,3	203,5	194,1	3,1
Export	18,7	40,8	68,4	98,6	18,0
Import	4,2	0,0	1,5	1,5	-5,9

In parallel to the development of new designs, great production increases have been obtained. Large and medium scale firms have mostly completed their modernization investments.

### 2.3 China and Porcelain Materials

This subsector consists of 6 large and medium scale enterprises and small scale workshops whose number is estimated around 250-300. There are firms producing products, which can be considered as traditional and modern ceramic designs, besides producing china and porcelain materials. Approximately 20 small and medium scale firms produce traditional Kütahya tile-making designs. The total production capacity is 60-62 thousand tons/year in this subsector. The development of the sector was negatively affected by unfair competition from the Far-Eastern Countries' exports.

(Thousand Tons)

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	15	23	10	51	10,9
Production	11	25	17	41	11,8
Export	3	6	18	19	18,3
Import	7	5	11	29	13,3

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	60	94	41	208	13,1
Production	48	113	76	185	16,8
Export	6	14	42	44	24,0
Import	15	12	26	68	9,9

## 2.4 Electrical Supplies

This group includes insulators and other electrical supplies used in low voltage distribution networks.

There are 2 medium scale private companies in the sector. Also, there are a large number of small scale producers, accounting to a total capacity of 2500 tons/year. The total capacity in the subsector was 11000 tons/year in 2002.

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	31,7	30,5	42,3	46,1	5,3
Production	13,1	17,8	20,0	16,7	5,1
Export	0,4	0,0	1,2	2,9	17,9
Import	14,2	0,0	14,5	32,3	6,0

## 3. Medium Term Expectations

The sector has shown a steady growth in both production and export volumes and this situation is expected to continue in the future. In the long run, export products are expected to shift towards high quality, high value products. However, due to fierce competition in domestic market and international markets, it is important to maintain product quality and to develop consumer reliance on Turkish brands in order to retain market share.

## P. REFRACTORY MATERIALS INDUSTRY

### 1. General Assessment

Refractory Materials Sector, which can compete with its European rivals, is now capable of meeting the domestic demand along with the exports made to the neighbouring countries. In the last ten years the sector has shown an important progress in developing new products and improving the quality. As of 2002, there were 15 private firms with approximately 3500 workers in the sector.

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	308	297	291	257	-1,5
Production	256	335	292	282	0,8
Export	7	110	58	78	22,7
Import	59	72	57	54	-0,8

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) ( 1990-2002)
Domestic Consumption	227	219	215	190	2,1
Production	131	171	149	144	4,7
Export	3	41	22	30	15,3
Import	83	101	81	75	0,5

Production capacity of the sector in 2002 was 552 thousand tons/year. As a result of the technological improvements, the quality and the durability of the sector products has increased and correspondingly total domestic consumption has decreased. Capacity utilization rate is 40% as an average. Since the types and the quality of some domestic products can not meet the domestic demand properly, some amount of these products are imported especially from European Countries. The exports are generally made to Balkan and Middle East Countries and Russia.

### 2. Product / Subsector Assessment

The main products in this sector are heat-resistant materials made from basic materials and alumina silicate. Some of the firms produce sintered magnesite as an intermediate product and export the excess amount. Production capacity of the sector regarding the subproducts was 244 thousand tons/year in alumina silicate products and 308 thousand tons/year in basic products in 2002. On the other hand, there is a shift from alumina silicate refractory materials production to basic refractory materials production, resulting especially from the developments in the technology of the Iron and Steel Industry.

### 3. Medium Term Expectations

Since the sector is mainly oriented towards the internal market, the development of the sector is dependent on the domestic Iron and Steel Industry. As an improvement in the Iron and Steel Industry is expected, the sector will grow in the future.

## Q. IRON AND STEEL INDUSTRY

### 1. General Assessment

#### 1.1. Market Players

In the early 1980s, three government-owned integrated steel producers controlled a substantial majority of the capacity. Over the past two decades, significant capacity has been added through private mini-mill investments. As a result, Turkey has become one of the top players in the global steel market.

Currently, the Turkish steel industry consists of three main types of player: Integrated steel producers, mini-mills using electrical arc furnaces and processors.

Integrated steel producers: Integrated producers use iron ore and coal as raw materials and produce iron using coke plants, sinter and blast furnaces. Iron is then converted into steel in basic oxygen furnaces (BOF). There are three integrated steel producers in Turkey: Erdemir, Isdemir, and Kardemir. Erdemir, a semi-private company traded in the stock exchange since 1985, is the only flat product producer in Turkey with 3 million tons of crude steel capacity. Currently, 44,12 percent of Erdemir is in the scope of privatization. Isdemir was transferred to Erdemir in January 2002 by way of privatization and with the condition that the plant transforms some of its production capacity from long to flat products. Kardemir was privatized in 1995 through transferring the ownership to its employees. These three integrated producers account for 28 percent of crude steel capacity and 31 percent of crude steel production in 2002. They represent approximately 50 percent of employment in the steel industry.

EAFs: These players purchase (mostly imported) scrap metal and melt it in electric arc furnaces. There are 16 mini-mills in Turkey, which produce long products, with the exception of a few producing specialty steel. These mini-mills account for 72 percent of crude steel capacity and 69 percent of crude steel production in 2002. They represent approximately 25 percent of employment in the steel industry.

Processors: These players import semis or purchase them from integrated steel producers and mini-mills. With the exception of one cold rolling company that produces flat products and a few companies producing specialized products such as spring steel, most of these players are sub-scale rolling mills supplying low-value-added, often very substandard, long products to the construction industry. More than 300 rerollers produced almost 3 millions tons of rebar and profiles in 2002. Processors account for the remaining 25 percent of employment. (McKinsey)

#### 1.2. Development of the Steel Sector

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	3.474	4.804	6.491	5.780	4,3
Production	3.628	4.748	6.010	6.262	4,7
Export	1.176	1.660	2.098	2.877	7,7
Import	947	1.854	2.888	2.689	9,1

Turkish iron and steel industry has witnessed privatizations, close downs or changes in the ownership status of some enterprises over the last decade.

Currently, the steel industry is an important part of the Turkish economy, with about 0.8 percent share of GDP and 0.2 percent share of the employment, and it constitutes 7.0 percent of total exports of Turkey. (McKinsey)

With its 16,5 million tons of crude steel production, Turkey ranked 13<sup>th</sup> in the world steel output in 2002.

(tons)

Crude Steel Capacity and Production				
	1990	1995	2000	2002
Capacity	11.334.000	18.648.496	19.832.000	21.928.899
Production	9.322.263	12.744.575	14.324.735	16.472.458
Capacity Utilization (%)	82	68	72	75

Source: Turkish Iron&Steel Producers Association

Turkey was the 9<sup>th</sup> biggest exporter of the steel products in 2001. When it comes to imports Turkey was the 15<sup>th</sup> biggest steel importer in that year. (International Iron and Steel Institute)

Exports of Turkish iron and steel industry have been continuously increasing in the recent years. Among the markets that Turkish steel products are exported; the EU is the primary export market, Middle East is the second and the Far East is the third biggest export market. According to regional breakdown the biggest steel importer of Turkey is Russian Federation and Ukraine and the second region is the EU and the third region is the Central and Eastern European countries.

Turkish iron and steel industry constitutes 7,8 percent of total exports and 4,1 percent of total imports of Turkey in 2002.

Foreign Trade			
2002 (\$)	Iron&Steel	TOTAL	Share(%)
Export	2,8	36,0	7,8
Import	2,2	51,6	4,1

Total employment in the steel making industry fell from 43.7 thousand in 1990 to 26.7 thousand in 2002.

Employment in Steel Making Industry				
	1990	1996	2000	2002
EAFs	10.525	9.554	9.239	9.766
Integrated	33.145	20.278	17.459	16.966
TOTAL	43.670	29.832	26.698	26.732

In spite of several periods of economic recovery during the last 20 years and a fast growing population, the use of steel in Turkey has remained below potential levels, in global terms and per head. Apparent steel consumption per capita is around 200 kgs. (Annex-1)

As a result of the economic crisis in Turkey that occurred in November 2000 and February 2001, steel demand from the main sectors such as constructions, infrastructure, automotive and machinery have diminished. With the decrease in the



domestic demand and the competitive advantage gained from the devaluation of the Turkish Lira, the producers tended towards the export markets and steel imports were also limited. Increase in the exports and decrease in the imports resulted in the iron and steel industry being less affected from the crisis situation. Thus, the growth trend in the production of the sector has been continued. 2003 is even a better year in terms of sales and consumption figures.

### **1.3. Main Policies and Legislation Related to the Sector**

The basic principles of free trade on European Coal and Steel Community (ECSC) products between Turkey and ECSC were established by Turkey-ECSC Free Trade Agreement, which was signed in July 25, 1996. The ECSC Treaty has been expired in July 2002, but provisions of the Turkey-ECSC Free Trade Agreement are still under implementation as no new decision has been taken.

Under this Agreement, taxes, duties and levies other than customs duties having equivalent effect has been abolished. In addition, a restructuring project for the Turkish steel industry has been carried out with the financial support of the EC.

On the other hand, strategic objectives for the development of the steel sector can be briefed as;

- Modernization and harmonization of production capacities with market demand, mainly by transforming the long/flat products ratio of the sector in favour of flat steel products.
- Improving viability and competitiveness of the sector under free market rules,
- Increasing product quality and productivity in the sector while reducing cost,
- Orientation of Turkish steel industry towards higher value added products,
- Stability of employment in the sector resulting from its competitive position in an open domestic market and international markets.

### **1.4. Competitiveness Assessment**

The mid-1980's ushered in an era of greatly increased competitive intensity in Turkish steel production; privately owned mini-mills gained a strong foothold and the three government-owned producers were privatized. Since then, competitiveness has increased further as mini-mills have continued to develop a stronger market presence. (McKinsey)

Turkey has been implementing policies supporting the withdrawal of government from the steel sector over the last decade. These policies helped to strengthen disciplines and market-driven adjustment in the steel sector.

While in many developed countries 60 to 65 percent of the overall production is directed towards flat products, in Turkey the ratio flat/long products has been around 20/80 percent. The Turkish steel industry's focus on long products has resulted in Turkey's becoming a major player in export markets. However, although Turkey exports almost half of its total production, it nevertheless meets domestic demand for flat products mainly through imports. (McKinsey)

In order to solve this structural problem some product conversion projects from long to flat is required. An important step for capacity rationalization will be the modernization and transformation investments in ISDEMIR, which are planned to be realized within 5 years time. After the completion of this investment, the surplus in the domestic capacity for long products will be reduced and there will be a more balanced production-consumption figure in the sector.

On the other hand, Turkish steel making companies are pursuing technological developments in the steel production across the world in order to increase their long-term viability. They have been investing in new technologies to enhance their competitiveness and efficiency and this trend is likely to be maintained over the years to come.

Currently in all of the 3 integrated plants, BOF technology is used as the production process. In addition, because the investments in EAFs have been relatively recent, they have incorporated modern technology and Turkey is now among the most productive exporters of long products in the world.

The labor productivity of the Turkish steel industry improved over the recent years. The production per direct worker rose to 616 tons in 2002 from 214 tons in 1990. This increase in efficiency is mainly attributed to investment in technology, which leads to decline in employment.

In a report prepared by Mckinsey Global Institute, total factor productivity (TFP) as capital and labor productivity is analyzed for the Turkish steel industry. Findings of that study is summarized below:

The sector's TFP is estimated to be 75 percent of US levels, with both capital and labor productivity at about the same index level. With respect to capital productivity, there are three important levers, as equivalent tons per physical ton of output, physical tons of output per capacity, and capacity built per capital invested. Turkey indexes at about 20 percent below the US in each of the first two factors; however it indexes higher than the US in terms of capacity built per dollar of capital due to the higher share of mini mills in the sector, which require lower capital investments. As for labor productivity, mini mills in Turkey index very high: they have reached 133 percent of average US labor productivity levels. However, integrated steel producers, which constitute 50 percent of employment in the Turkish steel industry, deliver lower productivity, benchmarking at 70 percent of average US labor productivity levels. Lower labor productivities in processor rolling mills have a further negative impact on overall labor productivity levels in the Turkish steel industry.

### **1.5. Strengths and Weaknesses of the Sector**

Strengths of the steel sector can be briefed as;

- Proximity to the important markets,
- Low labor costs,
- Turkish entrepreneurs experiences,
- Modern infrastructure,
- Up to date technology in existing facilities.

Weaknesses of the Turkish steel sector are:

- High electricity prices and inadequate raw materials,
- Macro economic fluctuations,
- Flat/Long products unbalanced capacity structure,
- Low domestic demand due to the economic crises.

## 2. Product / Subsector Analysis

### 2.1. Main Products and / or Subsectors

While the Turkish industry produces most types of steel, its product mix is skewed towards lower-value long products used mainly in the construction industry. The main products produced in Turkey are semis, long products, flat products, and specialized steel.

### 2.2. Capacity and Capacity Utilization (Annex-2)

*(tons)*

2002	Capacity	Ratio (%)	Production	Ratio (%)	Utilization(%)
Integrated	6.200.000	28	5.138.702	31	83
EAF	15.728.899	72	11.333.756	69	72
<b>TOTAL</b>	<b>21.928.899</b>	<b>100</b>	<b>16.472.458</b>	<b>100</b>	<b>75</b>

*(\*) Crude Steel*

*(tons)*

2002	Capacity	Ratio (%)	Production	Ratio (%)	Utilization(%)
Long	18.436.899	84	13.250.211	80	72
Flat	3.000.000	14	2.893.027	18	96
Special	492.000	2	329.220	2	67
<b>TOTAL</b>	<b>21.928.899</b>	<b>100</b>	<b>16.472.458</b>	<b>100</b>	<b>75</b>

*(\*) Crude Steel*

These figures reveal that the share of the electric steel making plants within the total steel-making capacity is much higher than the world average. It also reflects the structural problem in the steel sector, that there is a persisting imbalance between production capacities for long products and flat products when compared with the domestic demand.

### 2.3. Domestic Consumption, Export, Import

*(million tons)*

	2002	Production	Export	Import	Consumption
PRODUCTS	Long	9,1	5,3	0,4	4,2
	Flat	4,2	1,1	3,8	6,9
	Special	0,3	0,2	0,4	0,5
	Tubes	1,5	1,1	0,2	0,6
	<b>TOTAL (*)</b>	<b>15,1</b>	<b>7,7</b>	<b>4,8</b>	<b>12,2</b>
SEMIS	Billet-bloom		2,7	0,6	
	Slabs			0,3	

*(\*) Excluding ferroalloys, casting and other products*

(Million USD at 1998 prices)

	<b>2002</b>	Production	Export	Import	Consumption
PRODUCTS	Long	2.798	1.283	155	1.122
	Flat	1.540	430	1.266	2.395
	Special	126	88	428	484
	Tubes	715	496	324	491
	<b>TOTAL (*)</b>	<b>5.180</b>	<b>2.296</b>	<b>2.173</b>	<b>4.491</b>
SEMIS	Billet-bloom		140.523	30.019	
	Slabs			19.585	

(\*) Excluding ferroalloys, casting and other products

Turkish domestic steel consumption is destined for mainly construction industry. Other sectors using steel products are transport, packaging, consumer goods and machinery and equipment. Also pipe industry and castings and forgings have a considerable consumption share.

### 3. Medium Term Expectations

Turkey's steel consumption per capita figure is about half of the EU's and developed countries' consumption and a lot of infrastructure investments and potential requirements have been delayed because of the recent economic crises. However, economic indicators in 2002 and 2003 have shown signs of recovery and this will result in a boost in the investments in the near future, which will also increase domestic steel consumption.

Due to the big domestic market and utilization of the export potential, automotive industry is expected to be one of the biggest steel using sectors. Turkey will be a production and export base of the automotive industry, mainly for the EU market in the long term. The export potential for home appliances industry will also trigger the domestic steel consumption.

As a result, it is expected that annual average increase in domestic steel consumption will be 6-7 per cent with the forecasted 5 % GDP increase in the forthcoming years.

Due to decrease in the domestic steel consumption in recent years, steel producers concentrated on the export markets and almost 57% of the domestic production was exported in 2002. Although a higher share of domestic production is expected to fulfill to the domestic market in the following years as a result of economic recovery, competitiveness in the foreign markets will be also maintained.

Another point is that, Turkish steel producers are one of the best suppliers for the restructuring investments in Iraq and Middle East.

**ANNEX - 1**

<b>Crude Steel Production (thousand tons)</b>						
	<b>1995</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
<b>İsdemir</b>	1,580	1,951	1,89	1,965	1,575	1,677
<b>Karabük</b>	0,622	660	637	876	0,740	0,568
<b>Erdemir</b>	2,042	2,545	2,611	2,388	2,962	2,893
<b>EAF</b>	8,501	8,992	9,171	9,096	9,703	11,334
<b>TOTAL</b>	12,745	14,148	14,309	14,325	14,980	16,472

<b>Crude Steel Production (thousand tons)</b>						
	<b>1995</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
<b>Long Products</b>	10,329	11,243	11,455	11,597	11,717	13,250
<b>Flat Products</b>	2,042	2,545	2,611	2,388	2,962	2,893
<b>Special Alloy Steel Products</b>	0,374	360	243	340	0,301	0,329
<b>TOTAL</b>	12,745	14,148	14,309	14,325	14,980	16,472

<b>Apparent Steel Consumption (thousand tons)</b>						
	<b>1995</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
<b>Crude Steel Production</b>	12,745	14,148	14,309	14,325	14,980	16,472
<b>Imports</b>	5,064	6,614	5,873	8,207	5,932	7,396
<b>Exports</b>	7,784	8,37	9,722	7,653	13,269	12,962
<b>Apparent Consumption</b>	10,025	12,392	10,461	13,035	7,643	10,906
<b>Consumption per Capita(kg)</b>	161	194	162	200	118	168

(\*) Crude steel equivalent.

## ANNEX-2

('tonnes)

<b>Crude Steel Capacity and Production by PROCESSES</b>																
	1990			CU	1995			CU	2000			CU	2002			CU
	Capacity	Production	%		Capacity	Production	%		Capacity	Production	%		Capacity	Production	%	
Integrated	4.800.000	4.367.325	91	5.900.000	4.243.115	72	6.200.000	5.228.538	84	6.200.000	5.138.702	83				
EAF	6.534.000	4.954.938	76	12.748.496	8.501.460	67	13.632.000	9.096.197	67	15.728.899	11.333.756	72				
<b>TOTAL</b>	<b>11.334.000</b>	<b>9.322.263</b>	<b>82</b>	<b>18.648.496</b>	<b>12.744.575</b>	<b>68</b>	<b>19.832.000</b>	<b>14.324.735</b>	<b>72</b>	<b>21.928.899</b>	<b>16.472.458</b>	<b>75</b>				

Source: Turkish Iron&Steel Producers Association

CU: Capacity Utilization Rate (%)

('tonnes)

<b>Crude Steel Capacity and Production by PRODUCTS</b>																
	1990			CU	1995			CU	2000			CU	2002			CU
	Capacity	Production	%		Capacity	Production	%		Capacity	Production	%		Capacity	Production	%	
Long	9.038.000	7.146.637	79	15.166.896	10.328.269	68	16.340.000	11.597.228	71	18.436.899	13.250.211	72				
Flat	2.000.000	1.940.766	97	3.000.000	2.041.542	68	3.000.000	2.388.009	80	3.000.000	2.893.027	96				
Special	296.000	234.860	79	481.600	374.764	78	492.000	339.498	69	492.000	329.220	67				
<b>TOTAL</b>	<b>11.334.000</b>	<b>9.322.263</b>	<b>82</b>	<b>18.648.496</b>	<b>12.744.575</b>	<b>68</b>	<b>19.832.000</b>	<b>14.324.735</b>	<b>72</b>	<b>21.928.899</b>	<b>16.472.458</b>	<b>75</b>				

Source: Turkish Iron&Steel Producers Association

CU: Capacity Utilization Rate (%)

## R. NONFERROUS METALS INDUSTRY

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	861	1.227	1.910	2.154	7,9
Production	694	880	1.188	1.347	5,7
Export	211	228	438	433	6,2
Import	403	569	1.099	1.199	9,5

Leading subsectors in the nonferrous metals industry are aluminium and copper industries.

### 1. Aluminium Industry

(Thousand Tons)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	93	124	133	142	3,6
Production	120	112	151	175	3,2
Export	33	30	78	97	9,5
Import	5	41	60	64	23,5

(\*) Castings are not included

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	173	353	351	382	6,8
Production	262	314	364	418	4,0
Export	84	81	207	256	9,7
Import	17	120	189	206	23,4

**Seydisehir Aluminium**, which is in the current privatization programme, is the only primary aluminium producer in Turkey. Seydisehir plant has its own bauxite deposit of 36 million tons that can fulfill approximately 70 years of production with the current capacity. The plant produces 170.000 tons of alumina annually of which 120.000 tons is processed to metal in the existing aluminium smelter producing 60.000 tons and remaining 50.000 tons is sold to domestic or export markets.

The plant started operations in 1973. Since then no big modernization investment has been made. There is a "Modernization and Capacity Improvement Project" for Seydisehir plant with a total value of 300 million US dollars.

On the other hand, high electricity prices in Turkey effects competitiveness of the plant. Recently, a hydroelectrical power plant has been transferred to the Seydisehir plant in order to solve its energy problem. Seydisehir plant will be privatized together with the Oymapinar Hydroelectric Power Plant.

Besides Seydisehir plant, there are about 1000 SMEs operating in different sub fields of the aluminium industry. These firms produce aluminium products from ingots by casting, forming, rolling, forging and extrusion operations. They can also produce

some alloyed products. As Seydisehir plant cannot satisfy the domestic demand fully, considerable amount of primary aluminium products have been imported.

Per capita aluminium consumption in Turkey is around 2,5-3 kg, which is below that of developed countries that is about 30 kgs. With the improvement in the general economic conditions, aluminium demand is expected to increase in the near future.

## 2. Copper Industry

*(Thousand Tons)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	73	137	161	257	11,1
Production	76	150	218	274	11,3
Export	43	47	86	48	0,9
Import	40	34	29	31	-2,2

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	204	307	335	555	8,7
Production	157	319	440	552	11,0
Export	99	100	198	121	1,6
Import	133	87	89	102	-2,1

The only blister copper producer in Turkey is Karadeniz Bakır İşletmeleri (KBİ), which has a capacity of 38.460 tons. KBİ is in the privatization program and it will be tendered together with ETİ Bakır that is a copper ore and copper concentrate producer. Besides KBİ, there are some firms producing electrolytic copper and other copper products.



## S. MACHINERY INDUSTRY

### 1. General Assessment

(Million USD at 1998 prices)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic Consumption	n.a.	n.a.	11.521	10.502	n.a.
Production	n.a.	n.a.	6.393	5.788	n.a.
Production(*)	2.638	3.567	3.184	3.332	2,0
Export	161	447	1.567	2.665	26,3
Import	3.790	4.514	6.695	7.379	5,7

(\*) 3 Months Industry Production Statistics, Current Prices.

According to 1992 General Census of Industry and Business Establishments done by the State Institute of Statistics, there were 9200 firms and approximately 30 000 employment in the sector. In 2002 General Census, number of firms reached more than 16 000 and employment were around 130 000.

In this period share of machinery in manufacturing industry was 2,2 in 1990. Then in 2002 this ratio reached 4,5 percent.

In 1990, 75 percent of the domestic consumption was supplied by imports. In 2002 this ratio was around 70 percent. Turkey almost imports every kinds of machinery. In 2002 import was around 6,6 billion dollars. Highest import figure reached was 8.2 billion dollars in 1997.

Share of export to production in 1990 was around 11 percent. In 2002 this ratio reached 46 percent.

Export performance of machinery sector is impressive and export increased from 161 million dollars to 2 081 million dollars in current prices between 1990 and 2002.

The mechanical engineering industry is indeed characterized by a large number of small and medium-sized companies. But, in Turkey average firm size is around 8.1 employment/firm. In Europe this size is around 120 employment.

Private firms dominate the sector. Only a small number of firms operating in defense and sugar machinery industries are public companies.

Turkey-EU Custom Union had very wide effects on machinery sector. Competition has increased, and legislation related to EU, mainly the machinery directives and CE marking, affected the sector.

After Custom Union and economic crises in the country forced the producers to give more importance to exports. Exporters gained new markets in the neighboring countries and in Europe.

Main strengths of the sector are cheap educated labor force and small flexible firms. One of the main weaknesses of the sector is the concentration in the low technology products and lack of complete system approach. Sector mainly concentrated in the supply of spare parts. Only exception in this field is the household appliance industry.

Very cheap products by low wage countries threaten the machinery sector. Turkey has an advantage of being in the vicinity of less developed neighboring countries. This creates a marketing opportunity for machine producers.

General level of competitiveness of the sector is not good but gaining strength due opening to the world markets after Custom Union with EU.

**2. Subsector Assessment:**

In 1990 total exports was 161 million dollars. Refrigerator exports of 21 million dollars was one of the important export items. In 2002 its export reached 275 million dollars and total household appliance exports were almost 1 billion dollars. This product group constitutes half of the machinery sectors exports and production. In last years household appliance industry gained a very competitive position in Europe.

**Main Household Appliances Products** *(Thousand Unit)*

Product	1995				2002			
	Cons.	Prod.	Export	Import	Cons.	Prod.	Export	Import
Refrigerator	869	1 621	792	40	1 088	3 318	2 247	51
Washing Machine	799	834	41	6	824	1 654	989	159
Dishwasher	237	236	2	3	282	346	149	99
Oven	437	505	71	3	339	1 341	1 000	29

Source: TURKBESD

Main sub-sectors of Turkish machinery industry are miscellaneous general-purpose machinery, pumps, compressors, pressing machine-tools, textile-apparel and leather machinery, lifting and handling equipment.

**3. Medium Term Expectations:**

Large domestic market and big share of imports create opportunities for new firms. Skill level of the sector has a chance of being added to world supply chains.

As the industrialization of the country progress, machinery imports will increase in the near future. Development of the country will create an opportunity for the sector to develop further.

## T. AUTOMOTIVE INDUSTRY

### 1. General Assessment

Automotive industry production in Turkey dates back to the mid-1950s and the industry gained momentum in 1960s. The first vehicle assembly company was established in 1954 for jeep and pick-up manufacturing. By 1955 trucks, and by 1963 buses were being assembled in Turkey.

The two major producers of cars, TOFAS and OYAK-RENAULT, under Italian and French licenses respectively, established their production lines in 1971. Recently Japanese and South Korean car manufacturers have established joint-ventures in Turkey.

Today several companies are manufacturing various types of vehicles such as passenger cars, buses, trucks, pickups, mini and midibuses and trailers.

### General Information on the Automotive Manufacturers-2003

FIRMS	PRODUCTION PLACE	STARTING YEAR OF PRODUCTION	LICENCE	FOREIGN CAPITAL (%)
A.I.O.S.	İSTANBUL	1966	ISUZU	29,75
ASKAM	GEBZE/ KOCAELİ	1964	DAIMLER- CHRYESLER/ HINO	0
B.M.C.	İZMİR	1964	-	0
FORD OTOSAN	İSTANBUL	1959	FORD	41
	ESKİŞEHİR	1983		
	KOCAELİ	2001		
HONDA	GEBZE/ KOCAELİ	1997	HONDA MOTOR	100
TÜRKİYE	KOCAELİ			
HYUNDAİ	KOCAELİ	1997	HYUNDAİ	50
ASSAN			MOTOR	
KARSAN	BURSA	1966	PEUGEUT	0
M.A.N. TÜRKİYE	ANKARA	1966	M.A.N.	99,9
M.BENZ TÜRK	İSTANBUL	1968	MERCEDES	85
	AKSARAY	1985	BENZ	
OTOKAR	SAKARYA	1963	DEUTZ/T.ROVER /LORH/GT	0
OTOYOL	SAKARYA	1966	IVECO	27
O.RENAULT	BURSA	1971	RENAULT	51
TEMSA	ADANA	1987	MITSUBISHI	0
TOFAŞ	BURSA	1971	FIAT	37,8
TOYOTA	SAKARYA	1994	TOYOTA	100

Source: Automotive Manufacturers Association (OSD), General and Statistical Information Bulletin of Automotive Manufacturers, 2003-1

Turkish main automotive industry (assemblers) consists of 15 assemblers of which 10 are foreign owned or joint ventures operating under licences. There are more than 1,000 suppliers providing autoparts.

There is no public enterprises in the sector.

## Capacity and Production

Total established production capacity in 2003 is 1,015,155 vehicles with 726,000 passenger cars, and 289,155 commercial vehicles.

The capacity utilization rate is 53 percent in automotive sector and 41 percent in automobile industry in 2003.

The main automotive industry employment is 26,122 in 2002, and the total employment in automotive industry is around 150,000 with the addition of supplier industry.

In this framework, production reached around 8.4 billion USD in 2000 including suppliers production, as shown below.

*(Million USD at 1998 prices)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic consumption	4.772	6.324	13.865	5.327	0,9
Production	3.293	5.256	8.384	6.082	6,2
Export	154	534	1.839	3.686	30,3
Import	1.634	1.602	7.320	2.931	5,0

In 1999, the global crises negatively affected the automotive industry. Because of the high interest rate, domestic demand to those products was diminished and production decreased. But in the year of 2000, the macroeconomic program implemented in Turkey resulted in considerable demand increase to automotive products.

However, because of two consecutive crises in November 2000 and in February 2001, interest rates went up, floating currency system was introduced and the Turkish Lira devaluated. This situation created uncertainty in the economy, decreased domestic demand and negatively affected all industrial sectors, especially automotive industry. Therefore, the contraction in automotive sector continued up to September 2002 and recovery started. In 2003, with the positive developments in economy in general, the sector has shown great performance due to high export increase and increase in domestic demand.

As a result, the developments in the indicators of the main automotive industry for the years 1998-2003 are given in the table below:

### Developments in the Main Automotive Industry Indicators *( in units)*

	1998	1999	2000	2001	2002	2003
Sales	477.922	403.075	658.895	195.715	174.580	395.197
Production	344.502	297.862	430.947	270.685	346.565	533.672
Import	179.724	176.543	339.882	94.656	82.728	216.827
Export	36.964	85.816	96.489	198.233	257.744	347.119

As it is shown in the table, the total number of the production of motor vehicles was 344,502 units in 1998, 430,947 units in 2000 and is 533,672 in 2003.

## **Imports**

After the year 1990, automotive industry was accelerated to open the world market. Therefore motor vehicles imports has increased continuously. Especially after the Custom Union, the imports was sharply increased.

A great number of increases have been experienced in the car imports, in comparison to the years especially before the Customs Union.

In 1995, around 20,000 cars was imported, however it was reached 125,025 cars in 1997, 258,987 cars in 2000 and 153,769 cars in 2003. The share of the imported cars was reached to 68 percent of domestic demand in 2003 and 88 percent of imported cars came from EU and EFTA countries. The increase in domestic demand, the decrease in the interest rates due to implemented macroeconomic program and development in dollar- mark parity are the main reasons behind the huge increase in imports in 2000. It is important to notice that there is no used car figures in this huge number of car imports.

The Turkish automotive industry's import was around 1.7 billion dollars in main automotive industry, 1.2 billion dollars in supplier industry and around 3 billion dollars in total in 2002. Total automotive industry imports is 4,6 billion dollars in ten months of 2003.

## **Exports**

In the automotive sector, companies producing vehicles are trying to increase exports as much as possible.

There has been a strong cooperation between local and foreign partners. In some automobiles and pickups, the new models developed in the cooperation with partners have been initially produced in Turkey and exported from Turkey to all over the world. Turkey was seen as a production centre and this cooperation increased the Turkish automotive sector's exports.

As a result, automobile exports reached around 215,000 units in 2003 while it was around 33,000 units in 1995.

In 2002, the automotive industry's export was 2,4 billion dollars in main automotive industry, 1,1 billion dollars in supplier industry and around 3,6 billion dollars in total.

In ten month of 2003, total automotive industry's export is 4,4 billion dollars with 54 percent increase from the previous year.

## **Investment**

In recent years, the firms in automotive industry have given much importance to new model development, and modernization investments to increase their

competitiveness. In 2003, main automotive industry (assemblers) firms made around 456 million dollars investment of which 77 percent allocated to mentioned areas<sup>1</sup>.

## **Legislation**

In motor vehicles, large number of EU legislation was adopted. Turkey has been continuing efforts to introduce the relevant legal arrangements and significant progress has been achieved in this field.

Currently, national type approval certificate is granted for motor vehicles in serial manufactured, of which components, systems and separate technical units comply with EU directives and/or UN/ECE regulations in force.

In this framework, the existing technical legislation relating to motor vehicles in Turkey is the "Regulation on Manufacturing, Modification and Assembly of Motor Vehicles (A.I.T.M) which entered into force by the Ministry of Industry and Trade, on 3 February 1993.

The regulation on "Type Approval of Motor Vehicles (MARTOY)" which is mainly based on 70/156/EEC Directive became effective in 1997 and required amendments that have been made mainly based on EU Directives. Accordingly, EU directives on motor vehicles are being adopted and the respective provisions of A.I.T.M are being repealed according to the harmonization process.

A technical committee on motor vehicles (MARTEK) has been established by the Ministry of Industry and Trade after entry into force of MARTOY, in 1997 to monitor harmonisation and implementation activities in this field. There are 10 sub-committees working under MARTEK and relevant public and private sector representatives meet regularly to discuss the issues on harmonisation of relevant legislation.

## **Strengths**

Main strengths of the sector are existence of capacity suitable for economic scale, strong domestic supplier industry and diversified supplier products, high ratio of foreign capital, strong cooperation with foreign partners, development in R&D capacity, potential in domestic market, proximity to developing and developed markets, perspective for EU accession, implementation of international technical legislation and quality system, educated and qualified workforce, relatively cheap labor etc.

## **Weaknesses**

Instability in domestic market, high import penetration rate, high purchasing taxes, low capacity utilization, etc. are some weaknesses of the sector.

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<sup>1</sup> Automotive Manufacturers Association (OSD), General and Statistical Information Bulletin of Automotive Manufacturers, 2003-I

## 2. Subsector Assessment

The production segment and percentage increase in 2003 as below:

### Main Automotive Industry Production (in units)

TYPE	Production		Annual Increase (%)
	2002	2003	
<b>Automobile</b>	<b>204.198</b>	<b>294.116</b>	<b>44</b>
Truck	12,245	19,041	56
Pick Up	116,872	195,606	67
Bus	2,684	4,490	67
Minibus	6,139	13,625	122
Midibus	4,377	6,794	55
<b>Total</b>	<b>346,565</b>	<b>533,672</b>	<b>54</b>

#### **Automobile**

In recent years, automobile production is around 60 percent of total motor vehicles production in number. Therefore, the automobile has a significant importance in the sector.

Five companies are producing passenger cars (HONDA, HYUNDAI, OYAK RENAULT, TOFAS (FIAT), TOYOTA ).

Total automobile production capacity is 726,000 passenger cars in 2003.

The figures about automobiles as shown below:

Automobile Production, Domestic Demand and Foreign Trades (In units)

Years	Domestic Demand	Production	Export	Import	Export/ Production (%)	Import/ Domestic Demand (%)
1970	7.060	4.314	654	3.400	15,2	48,2
1975	81.385	68.088	379	13.676	0,6	16,8
1980	31.901	31.529	4.515	4.887	14,3	15,3
1985	69.399	60.353	3.760	12.806	6,2	18,5
1990	233.649	167.556	6.122	72.215	3,7	30,9
1991	222.022	195.574	7.244	33.692	3,7	15,2
1992	316.600	265.245	8.779	60.134	3,3	19,0
1993	441.928	348.095	7.177	101.010	2,1	22,9
1994	227.977	212.651	12.790	28.116	6,0	12,3
1995	222.299	233.412	32.764	21.651	14,0	9,7
Customs Union						
1996	231.832	207.757	33.404	57.479	16,1	24,8
1997	372.433	242.780	21.051	125.025	8,7	33,5
1998	328.527	239.937	32.377	111.536	13,5	34,0
1999	288.600	222.041	77.459	131.215	34,9	45,5
2000	466.400	297.476	90.026	258.987	30,3	55,5
2001	131.438	175.343	142.288	72.259	81,1	55,0
2002	90.615	204.198	169.920	55.096	83,2	60,8
2003	227,036	294.116	213.587	153.769	72,6	67,7

Source: Automotive Manufacturers Association (OSD), General and Statistical Information Bulletin of Automotive Manufacturers and Monthly Statistical Bulletins

Automobile exports is 73 percent of total automobile production in 2003.

The capacity utilization rate is 41 percent in automobile industry in 2003.

### **Automotive Supplier (Autoparts) Industry**

The autoparts industry of Turkey has developed as a consequence of positive developments in the automotive industry. The Turkish autoparts industry is capable to support almost all automotive industry production and the vehicle park of Turkey.

Turkish autoparts industry consists of more than 1.000 plants operating in various branches of activity. Turkish parts and components producers have reached to international standards together with exports to Western Industrialised Countries. According to Association of Automotive Parts & Components Manufacturers (TAYSAD), at present, the local parts and components production consists of casting, forging, engine, power-train parts and components, electrical equipment, brake and clutch parts and components, hydraulic and pneumatic systems, body panels, chassis frame and parts, seating and safety components, suspension



systems, fixings, various plastics parts, various aluminium parts, batteries and auto glasses

The value of exports has been increasing steadily. Total exports of the Turkish supplier industry realized as 1,1 USD billion 2002 and 1,2 USD billion in the ten month of 2003<sup>2</sup>.

According to TAYSAD, automotive suppliers exports are shipped to 170 countries and 70 % of total amount is exported to EU countries. Germany, Italy, France and UK are the major countries to which 55 % of exports shipped.

Due to the high export potential and regional advantages of Turkey, foreign capital is now showing an increasing interest in the automotive suppliers industry in Turkey. As of 2002, there are 185 foreign company partnerships in the industry, most of which are with European Union companies<sup>3</sup>.

### **3. Medium Term Expectations**

In 2000, the number of vehicles per thousand persons in Turkey is only 91, while worldwide average is 125 and EU average is 556.

Moreover, the number of automobiles per thousand persons in Turkey is only 67, while worldwide average is 91 and EU average is 476. Therefore, there is a high potential in domestic demand for automotive products in line with economic performance of Turkey in general.

Nowadays, Turkish automotive industry exhibits characteristics of an industry focusing on exporting. Turkey is becoming a production center for global markets.

However, despite increasing exports, domestic demand is crucial for the future of the automotive sector. In this framework, level of income, interest rate and consumer confidence are critical determinants to increase the domestic demand.

In the future, Turkey can be the center of manufacturing passenger cars and commercial vehicles, and alternative suppliers center for the global manufacturers. In addition, by achieving the consumer confidence, macroeconomic stability and continuing the sustainable growth in economy, it is estimated that the total demand of automobiles will be around 750,000-850,000 units at the end of this decade.

To reach mentioned goals, in the automotive industry, it is important to set up a structure, which enables economies of scale, implementation of new technologies and designs, export - based and sustainable competitiveness.

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<sup>2</sup> According to International Standard Industrial Classification (ISIC3).

<sup>3</sup> Association of Automotive Parts & Components Manufacturers (TAYSAD), [www.taysad.org.tr](http://www.taysad.org.tr)

## **U. INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)\***

### **1. General Assessment**

With the widespread use of Information and Communication Technologies (ICT), demand to and production of these technologies are increasing all around the world. Companies and governments are investing more in ICT than before to increase their productivity, gain competitive advantages across the global markets and make the provision of public services more efficient and transparent. ICT has also become a part of daily life of individuals and is used for several purposes such as communication, entertainment, education and others. 1990's have witnessed to an unprecedented increase in the share of ICT in total investment and consumptions, and in return, with the help of ICT, productivity gains and economic growth in many countries.

Although, ICT sector in Turkey had been negatively affected by the 2001 financial crisis, there are signs that the sector is recovering very rapidly and targeting even higher growth rates than expected. The new government, which came into force in late 2002, has managed to change the outlook of the economy in 2003 and is giving additional optimistic signs for future economic advancements.

The Government is aware of the opportunities that ICT sector offers and launched e-Transformation Turkey project in order to realize the transformation to an 'Information Society'. In a broader context, perhaps, the most significant impact on ICT would come from the fully liberalized telecoms sector starting from January 1, 2004. There are no more monopolies in telecoms sector in Turkey since the beginning of 2004. Turk Telekom's exclusive rights on voice transmission and infrastructure expired on this date. As stipulated by the law, other operators can operate in every segment of telecoms sector by obtaining a license from the Telecommunications Authority (TA).

Demand and production in ICT sector are steadily increasing in Turkey. It cannot be stated that Turkey fully exploits its market potential. Nevertheless, there are reasons to believe that the situation is going to improve rapidly with stabilized macroeconomic conditions, liberalized telecoms market, and ambitious e-Transformation Turkey project.

Data on Turkish ICT market is presented in table below and shows development of the sector. This data also illustrates the steady increase in both domestic consumption and foreign trade. Besides, telecommunications services represent a big portion (%76.7) of the total ICT market, compared to relatively small (%14.3) IT market.

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\* Information Society Department is responsible for this sector in SPO.

## Turkish ICT Market <sup>1</sup>

*(Million USD)*

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic ICT Consumption	2,975	3,911	11,341	9,515	10.2
Production	2,394	2,859	7,590	7,546	10
Export	33	38.5	147	119	11.3
Import	614	1,090	3,898	1,788	9.3

*Source: SPO, Interpro, OECD, TESİD, World Bank*

Although, Turkey has a relatively big ICT market, its ICT production is not satisfactory. Most of the inputs such as telecommunications hardware, software and computer equipment are imported and constitute a very large portion of Turkish ICT foreign trade. Turkish government is developing additional measures and policies within the context of e-Transformation Turkey Project in order to attract more FDI to compensate low level of ICT production.

Main policy of the government in the telecommunications sector is to establish a competitive market structure in all segments in order to help increase service quality and number of innovative and value-added services while reducing costs. Turk Telekom, Turkey's biggest telecommunications operator, is the last public-owned enterprise in telecommunications markets among OECD countries. It enjoyed to be a monopoly for years and held exclusive rights on voice transmission and infrastructure. The government decided to sell %51 of its stakes in Turk Telekom and the latest date for tender announcement is determined as May 31, 2004.

As a monopoly for long years, Turk Telekom has managed to install widespread infrastructure which serves even to the most remote settlements in the rural area. With liberalization, this infrastructure will be shared with new operators at the first step. It is expected that these operators will invest in their own infrastructures in the mid-term and this will strengthen national infrastructure at large. It should also be noted that Turkey's developed telecommunications infrastructure is among the factors that attract foreign investors, especially multinational companies.

Telecommunications Authority (TA) was established in January 2000 and given the responsibility to regulate the market. TA has put several legislations into force and some of them, concerning Licensing, Local Loop Unbundling, Rights of Way, Co-location, Accounting Separation and Numbering, are underway. The new Telecommunications Act has also been completed by the Ministry of Transportation and will be enacted by the Parliament after consulting with related parties is over. It is expected that full liberalization and effective regulation of the market will also attract many other foreign investments into the sector.

Since ICT sector uses latest technology, it requires a high-skilled workforce who can use and develop these technologies. Turkey has long been recognized by its high level sophistication in tertiary education. This yields to a pool of creative and talented ICT workforce in recent years. On the other hand, shortage of skilled workforce in Turkish case is not much different than many other countries and supply for ICT workforce, especially for the technician level, is not enough. Although, existing ICT

<sup>1</sup> Domestic ICT consumption and production data does not include services and consumption goods for 1990 and 1995. In 2002, production and foreign trade data does not include software.

workforce is quite competitive in terms of their wages and skills, enlargement of knowledge workers base remains as another issue for further development. This need will be more evident in the near future with the increasing usage of services concerning e-government and e-trade, for which specific actions exist in Government's e-Transformation action plan.

## 2.Product / Subsector Assessment

ICT market includes production and consumption of computer and communications hardware and software, networking and related services (consumer electronics is not included). According to a survey carried out by Interpro in 2002; 20 companies have %72 share in IT hardware market, 15 companies have %75 share in software market, 15 companies have %73 share in services market, 13 companies have %98 share in telecom hardware market, 5 companies have %99 share in carrier services market and 9 companies have %95 share in consumption goods market in Turkey.

It is estimated that ICT hardware production in Turkey was approximately 574 million USD in 2002. Telecommunications equipment production has a share of %79 (452 million USD). The consumption of ICT products and services for different subsectors is given in the following table for 2001 and 2002.

Turkish ICT Market Breakdown

Subsector	2001	2002	(Million USD)
			Share in 2002 (%)
IT hardware	1,565	1,070	11.2
Software	433	300	3.15
Services	869	742	7.8
Telecom hardware	1,565	1,173	12.3
Carrier services	6,173	6,129	64.4
Consumption goods	118	101	1.06
<b>TOTAL</b>	<b>10,723</b>	<b>9,515</b>	<b>100</b>

Source: Bilisim 500 study ([www.interpro.com.tr/bilisim500](http://www.interpro.com.tr/bilisim500))

As seen, a significant portion of the ICT market in Turkey belongs to telecommunications subsector. Carrier services and telecommunications equipment together have a share of %76.7 in total ICT market.

Production and foreign trade data of ICT goods is given in the following tables.

### Turkish ICT Exports

Product	(Million USD)			
	1990	1995	2000	2002
Computer Equipment	19	7	59	40
Communications Equipment	14	31	83	79
Software Products	0.03	0.5	5	n.a.
<b>Total</b>	<b>33,03</b>	<b>38,5</b>	<b>147</b>	<b>119</b>

Source: OECD IT Outlook 2002, World Bank

### Turkish ICT Imports

Product	(Million USD)			
	1990	1995	2000	2002
Computer Equipment	396	596	1 385	988
Communications Equipment	166	402	2 355	800
Software Products	52	92	158	n.a.
<b>Total</b>	<b>614</b>	<b>1,090</b>	<b>3,898</b>	<b>1,788</b>

Source: OECD IT Outlook 2002, World Bank

### Turkish ICT Production (services excluded)

Product	(Million USD)			
	1990	1995	2000	2002
Computer Equipment	n.a.	n.a.	257	122
Communications Equipment	327	252	171	452
Software Products	27	67	173	n.a.
<b>Total</b>	<b>354</b>	<b>319</b>	<b>601</b>	<b>574</b>

Source: SPO, Interpro, OECD, TESİD, World Bank

As illustrated in the above tables, exports are much lower than imports (Exports correspond to only % 3.8 of imports), which signify a huge gap in ICT foreign trade.

Turkish electronics industry has been investing more in R&D in the recent years. As a result, its competitive advantage and export figures have increased considerably. In 2002, Turkish telecoms equipment manufacturers reached to a production level of 450 million USD and consumer electronics production reached 1.4 billion USD.

Although, Turkish electronics industry is quite strong in consumer electronics, this is not the case for IT hardware and software. Turkey is still importing most of its software needs.

Technoparks have been established, in some university campuses, in order to facilitate university-industry collaboration, and those who operate in these privileged areas are exempted from income, corporate and value-added taxes until 2013. Some of these firms managed to export quite large deals of software products and some of them are producing for domestic market, military use in particular.

### **3. Medium Term Expectations**

ICT sector is growing quite rapidly all around the world. Global ICT market reached 2.4 trillion USD in 2001 while it was 2 trillion USD in 1998, reflecting an average annual growth of %6. This trend is quite similar for Turkey; ICT is increasing its share in GDP and this growth is expected to be faster in the following years. Turkish telecommunications market is liberalized and TA is putting necessary legislations into force, which are also compatible with new EU regulatory framework, in order to regulate the market. It is expected that this will create a competitive sector, increase both efficiency and volume of the market and attract more foreign investment into the sector as in many other liberalized markets.

Another prospective field of interest for foreign investors would be the block sale of Turk Telekom. Government's decision on selling its stakes in Turk Telekom may create a snow ball effect in the growing Turkish market. Mobile telecommunications have proven that Turkish market provides foreign investors with unpredictable growth opportunities that outperformed other markets with similar size and income. In the meantime, e-Transformation Turkey Project, which has been launched by the Government at the beginning of 2003, would pave the way for large e-Government projects with large amounts of public funding and fuel internet use and content creation.

Government is aware of the opportunities ICT offers and has taken measures to improve ICT production and R&D in order to increase exports as well as to meet domestic market needs. Especially, software is considered as a strategic sector for Turkey and its growth is promoted. Tax exemptions are provided for companies operating in technoparks until the end of 2013 and establishment of new technoparks is planned. Besides, there is a specific action in the action plan of e-Transformation Turkey Project aiming the transformation of Turkey to an excellence center in software. Furthermore, government is encouraging foreign direct investments (FDI) into the sector and taking measures to promote FDI. Another target of Turkey is to locate itself as a service provider for outsourcing countries and there are encouraging success stories in this field. Turkey also has a well educated young population who can be employed in ICT sector after appropriate training focusing on market needs. With its advantages in terms of proximity to the European market, time zone, competitive workforce, and Government support, a rapid growth in Turkish ICT sector is expected in the near future.