

# THE MINERAL INDUSTRY OF TURKEY

By Philip M. Mobbs<sup>1</sup>

Turkey's diverse mineral industry, in general, showed higher output levels and sales revenues in 1995 compared with those of 1994. The nation's economic crisis continued owing to a combination of factors, such as high levels of political uncertainty, public sector debt, unemployment, inflation, tight credit, and rapid devaluation of the Turkish lira.

The primary mineral sector's contribution to the economy traditionally has been slightly more than 1% of the gross domestic product (GDP). It was estimated that value-added secondary mineral commodities, including refined petroleum products, steel, cement, glass, and certain chemicals, accounted for about 70% of the value of the nation's manufacturing output. Overall (primary plus secondary) mineral industry revenues were estimated at about 15% of GDP.

The geology of Turkey is extremely complex and is reflected in the diversity of its mineral deposits. Best known for its industrial minerals, Turkey was a major producer of barite, boron minerals, celestite (strontium), emery, feldspar, limestone, magnesite, marble, perlite, and pumice. Among value-added secondary or beneficiated industrial mineral commodities, Turkey continued to be a major world producer of refined borates and related chemicals, cement, ceramics, and glass. A wide variety of primary metallic minerals was produced as well, but output generally was not considered large by world standards; chromite was the most significant metallic mineral in this respect. Among secondary metallic mineral commodities, Turkey was a significant producer of ferrochromium in 1995 and the 15th largest producer of steel in the world. Except for lignite, output of energy minerals was modest.

Much of Turkey's primary mineral production was from a very large number of mostly small mines. Capacity expansion projects continued at many secondary mineral production facilities. Mineral exploration by foreign companies in Turkey continued to be largely for gold, copper, and zinc.

## Government Policies and Programs

The Government continued to be a major player in most sectors of the Turkish minerals industry through various state-owned (parastatal) industrial corporations, banks, and shareholdings in a number of private companies. The private sector component has grown, especially since the passage of

Mining Law No. 3213 in 1985.

The Turkish economy has become burdened by high inflation partly stemming from Government policies to encourage economic growth, especially of exports. Inflation reached 80% on an annual basis by the end of 1995. Price rises for some industrial goods have reduced their competitiveness in foreign markets. Reductions of Turkey's import tariffs and of certain subsidies since 1990 have resulted in a flood of cheap imports. These imports have constrained domestic price increases, commonly to below inflation levels. This has been a particular problem for the Turkish steel sector.

Negotiation of the Turkish-European Union (EU) customs union was successful. Implementation of the union was scheduled for January 1, 1996 and would effectively remove Turkey-EU tariffs. However, because steel was specifically excluded from the customs union, a separate transitional side compact, the Europe Coal and Steel Community Free Trade Agreement, was endorsed at yearend.

Many parastatal corporations were considered overstuffed and have been maintained over the years through high levels of Government borrowing and spending. The Government continued spinning off its minerals sector holdings to both domestic and foreign investors. Also, privatization of the general minerals group, Etibank, has been proposed. General aspects of, and some specific sales within, the overall privatization program have been delayed and/or thwarted by legal challenges from trade union and political entities; these delays were anticipated to continue. At yearend, the privatization of most of the state's petroleum refineries and its last seven cement plants were under negotiation.

The Government's Council of State was reconsidering the Constitutional Court's 1994 opinion that build-operate-transfer (BOT) electric power projects could be classified as concessions and not as commercial contracts. Early in 1995, the Council had indicated that 16 of the 71 proposed BOT projects, totaling 2,904 megawatts, were commercial contracts. Foreign companies were reported to be concerned because contractual disputes could not be brought before international arbitration if the project in question was, in fact, a concession.

## Environmental Issues

Rapid growth of industry and increasing urbanization of

the population have led to increased awareness of and emphasis on environmental issues. A major issue was the use of lignite for domestic heating and for thermal powerplants that provide more than 50% of the country's electricity. In response to growing local opposition to the plants and pressure from international lending agencies, the Government was proceeding with an expensive program to install flue gas desulfurizers at the powerplants. For several years, imported natural gas and, beginning in 1994, liquefied natural gas (LNG) has been piped to the Ankara and İstanbul metropolitan areas, where it has replaced lignite for domestic heating in those cities, thereby greatly reducing wintertime air pollution. The gas pipeline network was being extended to other cities. Environmental considerations were affecting the Government's plans to address the growing electricity shortages in the country through the construction of 187 new powerplants, including 24 lignite-fired and 21 hard-coal-fired thermal plants and 2 nuclear reactors.

Environmental issues have become a factor in Turkey's foreign relations. Proposed fossil fuel developments in Kazakhstan and other landlocked Turkic republics risk oil spills or other shipping hazards if crude petroleum is shipped by supertankers via the Black Sea and the narrow Bosphorus and Dardanelles straits. As an alternative, Turkey began construction of a 1,625-kilometer (km) pipeline to Yumurtalık on the Mediterranean.

In 1995, there continued to be organized local opposition to the development by foreign companies of three gold mines near the Aegean coast. The controversy was over the proposed gold extraction method; namely, leaching with sodium cyanide in a closed-circuit system. There has been no opposition to the use of cyanide at a Government-owned silver mine in the same general region.

## Production

As shown in table 1, Turkey produced a wide variety of mineral commodities. For most metallic commodities, output levels in 1995 were about the same or higher than those in 1994. This was despite the public mineral sector, especially the Etibank aluminum smelter, having experienced production losses during a 2-week worker strike. Among metallic mineral commodities, perhaps the most significant increase was that reported for chromite. Low world prices had led to severely reduced chromite output levels and closed mines in 1992-93. By late 1994, market conditions had improved and some Turkish chromite mines reopened. Steel production increased yet again.

For industrial minerals, relatively few significant production increases were projected for the year. However, data traditionally have been incomplete for many industrial minerals either owing to output being kept proprietary or to the minerals being unreported, captively produced, raw materials for reported finished products such as cement. Barite production appeared to have increased to support

demand from petroleum drilling activity in the neighboring Turkic republics rather than the domestic petroleum sector. Magnesite production increased sharply, apparently reflecting higher domestic and international demand for refractory brick. In the energy mineral sector, hard coal production returned to normal levels, and lignite production was projected to have increased slightly. Civil unrest in the southeastern producing region contributed to the decline in crude petroleum output and low exploration activity.

## Trade

Turkey had a well-developed trade in industrial commodities with many regions of the world, and its mineral trade was compositionally diverse. In general terms, Turkey was a net exporter of only limited quantities of metallic ores, notably chromite and refined metals. Exceptions were steel and ferrochromium, of which Turkey was a major exporter. In contrast with metallics, Turkey exported a wide variety of industrial minerals and derived chemicals. The country's boron, cement, glass, and ceramics exports were among the world's largest. Turkey's mineral imports were dominated in value by crude and refined mineral fuels, as well as a variety of metallic ores, steel, and other smelted and refined metals. The country was a net importer of manufactured fertilizers.

In addition to normal imports, a significant volume of diesel fuel was reportedly brought across the border from Iraq.<sup>2</sup>

## Structure of the Mineral Industry

Traditionally, several sectors of the Turkish minerals industry have been dominated by large parastatals. (*See table 2.*) However, the Government has undertaken a major privatization program. Owing to the rapid growth of private investment in the minerals sector since the mid-1980's, private companies cumulatively have become the dominant producers of a number of commodities, notably, chromite, several industrial minerals, cement, and steel.

Based on 1993 data, it was estimated that the mining sector in 1995 had between 750 and 800 mining "establishments," a term roughly equivalent to "company" or "company division." These owned and/or operated about 3,000 mines. Most of the mines, in both public and private sectors, were small by world standards.

Among the state-owned minerals corporations, the various subsidiaries of Etibank dominated or produced the country's entire output of aluminum, blister copper, boron minerals and chemicals, ferrochromium, and zinc. Etibank remained the largest individual chromite producer in Turkey (26% of total in 1994 and approximately 23% in 1995). Turkish hard coal mining was all by Türkiye Taşkömürü Kurumu, and almost 90% of Turkey's total lignite output was accounted for by Türkiye Kömür İşletmeleri. About 80% of Turkey's total output of crude petroleum, all of its natural gas, and

virtually all pipeline transport of these fuels was by Türkiye Petrolleri Anonim Ortaklığı (TPAO) and its subsidiaries. Türkiye Petrol Rafinerileri A.Ş. was by far the largest oil refiner in the country. Until recently, cement production was dominated by the parastatal Türkiye Çimento ve Toprak Sanayii T.A.Ş. (ÇİTOSAN), but privatization has significantly reduced its sectoral share.

Maden Tetkik ve Arama Genel Müdürlüğü (MTA) remained the state agency responsible for geologic exploration and research in Turkey.

## Commodity Review

### Metals

**Copper and Zinc.**—Karadeniz Bakır İşletmeleri A.Ş. (KBİ), a subsidiary of Etibank, remained Turkey's largest producer of copper ore and concentrates and was the only producer of blister copper. Copper concentrate feed for KBİ's Samsun smelter came mainly from the company's mines and concentrators in the Murgul district near Artvin. The Samsun smelter has been proposed for privatization. Pyrite output from the KBİ mines and from those directly operated by Etibank contains up to 0.7% copper; but, in Turkey, this material has only been used to produce sulfuric acid. The main customers for pyrite for this purpose were Turkish fertilizer manufacturers. Some pyrite was exported.

Total copper refining capacity in 1995 was about 170,000 tons per year (t/yr), most of which was private sector. About 70% was produced by Sarkuysan Elektrolitik Bakır Sanayii T.A.Ş. The parastatal Makina ve Kimya Endüstrisi Kurumu (MKEK) had a plant at Kırıkkale with a refining capacity of 4,000 t/yr. Blister and/or anode requirements for the copper refineries were met partly through imports.

The newly opened (1994) Çayeli copper-zinc underground mine, 23 km northeast of Rize, produced separate concentrates of copper and zinc. The concentrates were exported and consequently did not affect domestic output of smelted and refined copper and zinc. The mine reached full ore production capacity of 600,000 t/yr during 1995.

**Gold and Silver.**—In recent years, Turkey's precious metals output has all been as credits in base metal (particularly copper) refinery slimes and/or smelted metals exported to Europe plus silver mined at one site. Most Turkish copper ores grade 1 to 2 grams per metric ton (g/t) gold, along with more variable silver. No precious metals were refined in Turkey.

The country liberalized its laws on gold importation and a gold bourse, The İstanbul Gold Exchange, opened in July; however, gold trading continued to occur in the Covered Bazaar, the traditional gold exchange. The purpose of establishing the bourse was to stimulate the country's gold jewelry industry and to attract some of the country's hoarded gold. A 100-t/yr gold refinery has also been proposed. After

midyear 1995, gold imports were officially processed by bourse members when the central bank's monopoly was terminated. Imports of gold in 1995 rebounded to 112.5 metric tons (t), from 38.1 t in 1994.

In 1995, three gold properties were awaiting development into mines. The Ovacık (Dikili) gold deposit, about 12 km west-southwest of Bergama, was held by Eurogold Madencilik Ticaret ve Ltd. A.Ş., a joint venture of Mine Or SA of Australia (66.7%) and Inmet (33.3%). Mining is planned at a rate of about 300,000 t/yr to produce about 3,100 kilograms per year (kg/yr) of gold and a similar amount of silver. Proven plus probable reserves as of yearend 1994 for this deposit were reported by Inmet to be 1.3 Mt grading 11.7 g/t gold and 20 g/t silver. Possible reserves were given as 1.7 million metric tons (Mt) grading 7.0 g/t gold and 20 g/t silver.

The Küçükdere deposit is about 10 km southeast of Edremit. The deposit was owned by Tüprag Madencilik Ticaret ve Ltd. Şti., a subsidiary of Gencor Ltd. of South Africa. A 250,000-t/yr open pit operation was planned to recover about 3,100 kg/yr of doré grading about 33% gold and 67% silver. The deposit's proven reserves, according to Tüprag, are 1.5 Mt grading 5.2 g/t gold.

Tüprag also held the Kaymaz property, about 145 km west-southwest of Ankara. Tüprag has indicated that its reserves are somewhat smaller than that of Küçükdere.

All three gold properties, after lengthy delays, received environmental permits for mining in 1994. However, still more permits were needed prior to commencing mine preparation. All three projects were facing strong, organized, local opposition to the proposed use of sodium cyanide for gold extraction, albeit in closed-circuit systems.

Gold exploration continued to be mostly in the Aegean and eastern Black Sea coastal regions.

**Steel.**—Turkish total crude steel production increased by 6% in 1995 to 12.75 Mt. The Turkish steel industry remained characterized by an imbalance of products: flat products accounted for only about 16% of total production, and long products, the rest. Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) was the sole flat products producer, but was near completion of a capacity expansion program to 3 million metric tons per year. However, this would still be far short of projected demand for flats. Erdemir increased its production by almost 9% to 2.0 Mt in 1995, despite the refurbishment of its three blast furnaces and extended downtime because of the modernization of the hot-rolling mill.

Both of the country's other integrated mills, Türkiye Demir ve Çelik İşletmeleri Genel Müdürlüğü (TDÇİ) (1.6 Mt) and Karabük Demir ve Çelik (622,000 tons), experienced production declines. The Government transferred ownership of the historic Karabük integrated steel mill, which had been operated by TDÇİ, to a coalition of millworkers and trade union and local community businessmen. Labor union and

political opposition had frustrated the Government's plans to close the plant in 1994. Karabük began a modernization program at yearend.

Turkish scrap buyers were significant customers of U.S. scrap metal exporters. Turkey was the largest customer of the United States for shredded ferrous scrap in 1995, buying 30% of the 2.9 Mt that was exported. Turkey placed second on the list of purchasers of exported U.S. heavy melting steel by importing 287,912 t. The private sector electric arc furnace (EAF) mini-mills that processed the scrap augmented the integrated plant production. These mills produced 8.5 Mt of crude steel in 1995, up about 11% from 1994.

Çolakoğlu Metalurji A.Ş. led the minimills with 1.3 Mt of steel production. Çukurova Çelik Endüstrisi A.Ş. produced 1.2 Mt of steel despite the loss of one of its four electric arc furnaces after a fire in December. Several mills were still undergoing programs to expand their meltshop and/or rolling capacities. The State's sale of its 42.6% interest in the EAF mill Metaş İzmir Metalurji Fabrikası T.A.Ş. was delayed by legal proceedings.

### ***Industrial minerals***

Etibank, the world's leading boron producer, was reported to be considering additional investment in the production of boron salts. Also during 1995, Erdemir was reported to be considering the construction of a 220-t/yr lime kiln at its Ereğli plant.

Çanakale Çimento Sanayii and Set Çimento were distributing cement from their recently built marine terminals at Ambarlı, near İstanbul. Cimenteries CBR of Belgium, a subsidiary of Heidelberger Zement of Germany, acquired majority interest in Çanakale at yearend.

Andolu Endüstri Mineralleri obtained 10 sepiolite (meerschau) concessions from the Government during 1995. ÇİTOSAN's Kümaş Kütahya Manyezit İşletmeleri A.Ş. was sold to Zeytunoğlu Holding A.Ş. The Kütahya plant was the largest in the country.

### ***Mineral Fuels***

Turkey has been boosting consumption of natural gas as a clean-burning substitute for lignite. However, its own declining gas production and reserves were inadequate to meet demand, estimated at 6 to 8 billion cubic meters per year (m<sup>3</sup>/yr).<sup>3</sup> The current and projected deficits were to be met through imports. For several years, Turkey has imported natural gas from Russia via a pipeline through Bulgaria, but Russian gas supplied by this route was considered inadequate for the long term. A number of new pipeline scenarios were being discussed to bring Russian, Iranian, and Central Eurasian natural gas in through the eastern borders of Turkey. Turkey has made provisions to import 2 billion m<sup>3</sup>/yr of LNG from Algeria via the 6-billion-m<sup>3</sup>/yr-capacity LNG storage and regassification plant at Marmaraeğlisi

that opened in 1994. The first shipment of Australian LNG was delivered in September. In addition, Turkey reportedly plans to import 1 billion m<sup>3</sup>/yr of LNG from Nigeria, beginning in 1999 after financing complications paralyzed the proposed construction of a 1,200-km natural gas pipeline between Iran and Ankara.

TPAO was Turkey's largest oil producer accounting for about 70% of domestic production. Output was estimated to have declined to about 25 million barrels (Mbbbl) in 1995, down from 26.4 Mbbbl in 1994.

Shell Petroleum N.V., a subsidiary of Royal Dutch/Shell Group, sold the exploration and production operations of its wholly owned subsidiary, N.V. Turkse Shell (NVTs) to Perenco Plc. of France and the United Kingdom. On January 1, 1996, Perenco was to acquire NVTs's 27 fields in the southeast, which produced approximately 4.8 million barrels per year.

### **Reserves**

Turkey's mineral inventory is diverse and large, but many of the deposits, especially for metallic minerals, are small by world standards. Mining, as a result, has tended to be by a large number of generally small companies or operations, sometimes with

significant cumulative output. Resources of metallic commodities minable by large-scale methods are known for bauxite, chromite, copper and copper-zinc, gold, iron, and silver. Turkey is better known for its deposits of industrial minerals, of which its most significant resources are of barite, boron, clays, limestone and marble, magnesite, perlite, pumice, strontium, and trona. The country has large lignite reserves, but those of hard coal are small. Turkey's crude oil reserves are cumulatively significant, but hosted in a large number of small fields. Natural gas reserves are small.

Many of Turkey's mineral deposits remain unevaluated in terms of current economic criteria, including the use of mechanized mining. The most complete official inventory of Turkish mineral resources is a 1989 MTA report.<sup>4</sup>

### **Infrastructure**

Turkey's extensive road and railroad infrastructure was heavily used for the transport of mineral commodities.

Turkey had 2,092 km of crude petroleum and 2,321 km of refined petroleum products pipelines. The longest stretch of pipeline was the 641-km twin line connecting Iraq with the Turkish oil-shipping facility at Yumurtalık. This was also the terminus for a 447-km pipeline from the refinery in Kırıkkale. The oil port at Dörtyol, 28 km north of İskenderun, was the terminus of a 494-km pipeline from the oil refinery at Batman, with shorter spurs from this line to the oilfields near Batman (Şelmo) and around Adıyaman. Turkey had about 900 km of natural gas pipeline, which was used to import natural gas from Russia.

Turkey had many ports capable of handling mineral commodity shipments. Refined petroleum products were handled at several ports, but crude petroleum was handled primarily at Aliğa, north of İzmir, and at Dörtöy and Yumurtalık. Major coal-importing ports included İskenderun and Ereğli. Chromite was shipped from various Anatolian ports on the Marmara coast, as well as from Antalya and İskenderun; the latter two ports handled all of Turkey's ferrochrome exports. Steel, steel scrap, and iron ore imports also were handled at many ports, particularly Aliğa, Ereğli, İskenderun, Mersin, and various sites in the İstanbul-İzmit area. Turkey's boron minerals and chemicals were exported from Bandırma. Copper concentrates, ore, and blister were shipped from Samsun and copper concentrates from Hopa near Artvin, from new facilities at Rize, and from İskenderun.

Total electrical generating capacity in 1993 was 20,335 MW, of which about 52% was installed in thermal plants and almost all the remainder in hydroelectric plants. Turkey was in the process of greatly expanding its electrical generating capacity.

## Outlook

The health of Turkey's mineral economy is likely to hinge significantly on the success of the ongoing privatization program. The economy appears unable to support continued high levels of public spending, although this has benefited the major steel and cement sectors and would likely continue to do so. Competition on the world market, particularly for steel, chromite, and ferrochromium, appears destined to increase. Turkey's value-added, or secondary, mineral sector would appear to be more resilient to future world market fluctuations than is the primary mineral sector. Environmental issues are likely to assume an increasing role in Turkey's economic affairs. Lengthy mine-permitting procedures could lessen exploration interest in the country.

---

<sup>1</sup>Text prepared Sept. 1995 by Hendrik G. van Oss, revised May 1996 by Philip M. Mobbs.

<sup>2</sup>Washington Times. Truckers in Turkey Violate U.N. Sanctions Against Baghdad. Mar. 6, 1995, p. 11.

<sup>3</sup>Middle East Economic Digest. V. 39, No. 39, 1995, p. 27.

<sup>4</sup>Erseçen, N. Known Ore and Mineral Resources of Turkey. Maden Tetkik ve Arama Genel Müdürlüğü Bull. 185, 1989, 108 pp.

## Other Sources of Information

General Directorate of Mines  
(Maden Genel Müdürlüğü)  
İhlamur Sokak No. 2, Maro Han  
Sihhiye, Ankara  
Turkey

General Directorate of Petroleum Works  
(Petrol İşleri Genel Müdürlüğü)  
Ziya Gökalp Cad. No. 41 Yenışehir  
Ankara, Turkey  
Telephone: (90) 312-435-4578

İstanbul Mineral and Metal Exporters' Association  
(İstanbul Maden ve Metaller İhracatçıları Birliğı)  
İnönü Cad. Devres Han No. 96  
Kat. 3-4-5, 80090 Gümüşsuyu—Taksim  
İstanbul, Turkey  
Telephone: (90) 212-293-4010  
Fax: (90) 212-293-3329 and 293-8607

Mineral Research and Exploration General Directorate  
(Maden Tetkik ve Arama Genel Müdürlüğü)  
Eskişehir Yolu Üzeri Balgat,  
06520 Ankara, Turkey  
Telephone: (90) 312-287-9159  
Fax: (90) 312-287-9151

State Institute of Statistics  
(T.C. Başbakanlık Devlet İstatistik Enstitüsü)  
06100 Necatibey Cad. 114  
Ankara, Turkey  
Telephone: (90) 312-425-8442

Turkish Iron and Steel Producers Association  
(Demir-Çelik Üreticileri Derneğı)  
Meşrutiyet Cad. No. 5/14 06640  
Kızılay, Ankara  
Turkey  
Telephone: (90) 312-417-1647  
Fax: (90) 312-417-5544

Turkish Ministry of Energy and Natural Resources  
(T.C. Enerji ve Tabii Kaynaklar Bakanlığı)  
Emek Mah., Konya Yolu  
No. 2 Beştepe,  
06520 Ankara, Turkey  
Telephone: (90) 312-213-4951  
Fax: (90) 312-213-8451

TABLE 1  
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite 2/	483,598	419,872	538,439	445,020	232,278 3/
<b>Alumina:</b>					
Gross weight	159,091	156,474	169,195	155,299	171,978 3/
Al content	83,290	81,570	88,195	80,952	91,000
Metal, smelter	55,821	58,550	58,503	59,750 r/	55,000
<b>Antimony:</b>					
<b>Ore, mine output:</b>					
Gross weight	5,649	5,065	2,100	1,415 r/	1,800
Sb content	288	309	111	75 r/	100
<b>Concentrates:</b>					
Gross weight	394	218	93	90 e/	90
Sb content e/	236	131	59 3/	55	55
<b>Cadmium</b>					
	22	23	31	22	23
<b>Chromite:</b>					
Gross weight (34% to 43% chromic oxide)	1,371,567	758,732	767,313	1,270,431 r/	1,925,812 3/
Salable product	940,000 e/	531,112	642,376	501,851 r/	770,000
<b>Copper:</b>					
<b>Mine output (exclusive of pyrite):</b>					
Gross weight	3,836,746	3,158,674	3,343,532	3,346,490 r/	3,185,628 3/
Cu content of ore	41,797	38,554	39,163	34,902 r/	37,900
Cu content of pyrite e/	920	620	500	500	500
<b>Concentrates (exclusive of pyrite):</b>					
Gross weight	178,406	143,196	140,165	139,919 r/	141,000
Cu content	28,545	26,500 e/	23,879	28,891 r/	24,000
<b>Metal:</b>					
Smelter output (primary + secondary)	32,401	31,568	39,638	30,400 r/	33,700
Refined e/	80,800	104,000	92,400	82,700 r/	98,500
Gold, byproduct of base metals refining e/ 4/ kilograms	970	1,250	1,110	996 e/	1,200
<b>Iron and steel:</b>					
<b>Iron ore:</b>					
Gross weight thousand metric tons	4,962	5,917	6,480	5,755 r/	4,964 3/
Fe content e/ do.	2,396	3,200	3,324	3,148 r/	2,700
<b>Metal:</b>					
<b>Pig iron and ferroalloys:</b>					
Ferchromium	84,651	85,755	90,030	97,585	95,000
Ferrosilicon	1,736	1,250	4,680	4,930 r/	4,900
Pig iron and other ferroalloys thousand metric tons	4,594	4,508	4,353	4,604	5,000
Steel, crude including castings do.	9,336	10,343	11,838	12,074	12,744 3/
<b>Lead:</b>					
<b>Mine output, Pb and Pb-Zn ores:</b>					
Gross weight	276,248	233,944	179,731	232,140 r/	253,100 3/
Pb content	12,145	10,800 e/	11,448	11,158 r/	12,000
<b>Concentrates:</b>					
Gross weight	24,031	28,000 e/	8,021	5,683 r/	5,700
Pb content	7,651	7,000 e/	2,571	1,279 r/	1,300
Metal, refined e/	8,500	9,000	5,000	5,100	4,000
Manganese ore, gross weight 5/	500	10,000 e/	37,491	34,500 r/	35,000
Mercury kilograms	25,119	5,000	--	--	--
Silver, mine output, Ag content e/ 6/ do.	63,800	103,000	103,000	65,000	65,000
<b>Zinc:</b>					
<b>Mine output, Zn and Pb-Zn ore:</b>					
Gross weight	349,289	306,960	231,756	297,252	300,000
Zn content	32,879	32,514	20,500 e/	26,300 e/	30,000
<b>Concentrates: e/</b>					
Gross weight	33,541 3/	37,000	23,000	30,000	40,000
Zn content	13,000	13,000	8,000	10,000	15,000
Metal, smelter, primary	17,370	18,770	18,500	18,567 r/	20,000

See footnotes at end of table.

TABLE 1--Continued  
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/	
<b>INDUSTRIAL MINERALS</b>						
Abrasives, natural, emery	23,833	41,474	10,988	12,000 r/	12,000	
Barite, run of mine	248,911	311,335	118,367	116,220	153,719 3/	
Boron minerals:						
Run of mine	1,814,205	1,796,100	1,892,356	2,092,032	1,768,919 3/	
Concentrates	1,209,887	1,058,885	1,079,135	1,139,980 r/	1,100,000	
Cement, hydraulic	thousand metric tons	26,091	28,607	31,241	29,493 r/	33,153 3/
Clays:						
Bentonite	67,640	123,516	456,597	516,187 r/	500,000	
Kaolin	219,211	134,416	210,356	179,775 r/	180,000	
Other	399,743	500,000 e/	665,351	956,012 r/	950,000	
Feldspar, run of mine	234,831	464,736	366,166	502,608 r/	500,000	
Fluorspar	5,000 e/	3,074	4,000 e/	6,671 r/	6,700	
Glass, crude	thousand metric tons	1,127	1,171	1,300 e/	1,400 e/	1,400
Graphite, run of mine	26,570	20,978	20,000 e/	20,000 e/	20,000	
Gypsum, other than that for cement	323,649	278,402	492,705	500,000 e/	500,000	
Lime 7/	thousand metric tons	1,581	1,582	1,767	1,800 e/	1,800
Magnesite, run of mine	1,324,229	1,224,900	525,640	1,279,614 r/	2,184,681 3/	
Meerschaum	kilograms	3,500	3,000	3,050	2,350 r/	2,350 3/
Nitrogen, N content of ammonia	356,574	344,275	325,800	350,000 e/	350,000	
Perlite, run of mine	133,942	280,883	147,864	164,582 r/	165,000	
Phosphate rock (salable product)	3,630	64,803	77,671	-- r/	--	
Pumice 8/	682,293	736,316	1,224,114	947,174 r/	1,000,000	
Pyrites, cupreous, gross weight	79,935	89,000	50,000 e/	50,000 e/	50,000	
Salt, NaCl, all types	thousand metric tons	1,438	1,418	1,526	1,353 r/	1,400
Silica sand, washed product e/	do.	592 3/	510	350	415	310
Sodium compounds, n.e.s.:						
Soda ash (trona) e/	do.	385	385	385	385	385
Sulfate, concentrates	115,000 e/	75,058	170,680	307,049 r/	300,000	
Stone:						
Dolomite	311,502	255,310	376,518	378,004 r/	380,000	
Limestone, other than for cement	thousand metric tons	6,784	6,937	10,852 e/	11,000 e/	11,000
Marble e/	do.	405	550	730	750	750
Quartzite	942,857	1,310,259	1,205,694	1,350,299 r/	1,350,000	
Strontium minerals, celestite:						
Run of mine	105,000	59,000	68,000 e/	45,000 e/	50,000	
Concentrates	70,000	37,940	43,700 e/	25,000 e/	30,000	
Sulfates, n.e.s., aluminum sulfate (alunite)	19,826	9,278	13,500	12,165 r/	13,000	
Sulfur:						
Native, other than Frasch	23,476 r/	22,700	17,400 e/	16,673 r/	17,000	
S content of pyrites	42,685	40,000	26,758	27,000 e/	27,000	
Byproduct:						
Petroleum	16,910	16,861	21,000	25,000 e/	26,000	
Other e/	5,000	5,000	5,000	5,000	5,000	
Total e/	88,071 r/	84,561	70,158	73,673 r/	75,000	
Talc	3,186	3,918	4,000 e/	4,000 e/	4,000	
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Asphalt, natural	138,879	249,535	309,348	108,364 r/	219,848 3/	
Carbon black e/	30,000	35,000	34,878 3/	35,000	35,000	
Coal:						
Hard coal, run of mine	thousand metric tons	5,209	5,225	4,609	4,211 r/	7,139 3/
Lignite, run of mine	do.	50,769	50,439	51,359	55,038 r/	57,152 3/
Coke and semicoke	do.	3,381	3,257	2,899	2,799 r/	3,021 3/
Gas:						
Natural, marketed	thousand cubic meters	202,713	197,796	199,739	198,630 r/	195,000
Coal, manufactured	do.	43,046	38,789	35,000 e/	35,000 e/	35,000
Petroleum:						
Crude	thousand 42-gallon barrels	31,875	30,656	27,871	26,399	24,124 3/

See footnotes at end of table.

TABLE 1--Continued  
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/	
<b>MINERAL FUELS AND RELATED MATERIALS--Continued</b>						
<b>Petroleum--Continued:</b>						
<b>Refinery products:</b>						
Liquefied petroleum gas	thousand 42-gallon barrels	7,742	7,755	8,197	8,503	9,185 3/
Gasoline	do.	22,466	23,846	27,808	29,521	31,746 3/
Naphtha	do.	9,497	10,588	10,617	10,761	12,110 3/
Jet fuel	do.	4,431	5,495	9,015	10,380	12,119 3/
Kerosene	do.	1,137	1,125	1,282	819 r/	605 3/
Distillate fuel oil 9/	do.	47,717	49,570	54,103	55,197	59,556 3/
Lubricants	do.	1,803	1,985	2,000 e/	2,000 e/	2,000
Residual fuel oil	do.	56,920	57,705	57,981	50,640	52,043 3/
Asphalt	do.	5,280	5,657	7,812	5,389	5,940 3/
Unspecified 10/	do.	5,417	7,007	6,700 e/	6,700 e/	6,700
Total	do.	162,410	170,733	185,515 e/	179,910 e/	192,004

e/ Estimated. r/ Revised.

1/ Table includes data available through Aug. 2, 1996. Large quantities of construction materials (clay, sand and gravel) are quarried, as are limestone and gypsum for cement manufacture; however, information is inadequate to make estimates of output levels.

2/ Data are for public sector only. Data for private-sector production are not available, but production is believed to be approximately 30,000 metric tons per year.

3/ Reported figure.

4/ Data are estimated content of Turkish copper refinery tankhouse slimes.

5/ Does not include manganiferous iron ore from the Deveci Mine, production of which amounts to several hundred thousand tons annually and has a manganese content of 3% to 5%.

6/ Includes estimated content of base metals refinery tankhouse slimes.

7/ Data are lime produced for steel production and do not include the widespread artisanal production of lime for whitewash and for sanitation purposes.

8/ Turkish pumice production is officially reported in cubic meters and has a density reported to range from 0.5 to 1.0 ton per cubic meter. Values in this table have been converted using 1 cubic meter=0.75 ton.

9/ Diesel fuel and special heating oil.

10/ Includes refinery fuel and losses.



TABLE 2  
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Major commodities	Major operating companies and major equity owners <sup>1 2</sup>	Location of main facilities	Annual capacity
Aluminum and bauxite	Etibank Milas Boksit İşletmeleri Müdürlüğü (Etibank, 100%)	Open pit mine at Milas, 127 kilometers southwest of Denizli	150 diaspore.
Do.	Etibank Seydişehir Alüminyum Tesisleri Müessesesi Müdürlüğü (Etibank, 100%)	Doğankuzu and Mortaş bauxitemines at Madenli, 25 kilometers south of Seydişehir	450 bauxite.
Do.	do.	Alumina refinery and aluminum smelter at Seydişehir	200 alumina, 60 aluminum.
Barite	Barit Maden Türk A.Ş.	Mines near Sivas and Adana	220 ground barite.
Do.	Baser Maden Sanayi ve Ticaret A.Ş.	Mines at Isparta and Konya	90 ground barite.
Do.	Emas Endüstri Mineralleri A.Ş.	Mine at Muş	100 ground barite.
Do.	Etibank Beyşehir Barit İşletmesi (Etibank, 100%)	Mine at Beyşehir, 72 kilometers southwest of Konya	70 barite ore.
Do.	Etibank Antalya Elektrometalurji Sanayi İşletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Grinding plant at Antalya	100 ground barite.
Do.	Polbar Barit Endüstrisi A.Ş.	Mine near Antalya	120 ground barite.
Boron minerals	Etibank Bigadiç Madencilik İşletmeleri (Etibank, 100%)	Bigadiç, 38 kilometers southeast of Balıkesir	200 colemanite concentrate, 128 ulexite concentrate.
Do.	Etibank Emet Kolemanit İşletmeleri (Etibank, 100%)	Espey and Hisarcık Mines near Emet, 62 kilometers west-southwest of Kütahya	510 colemanite concentrate.
Do.	Etibank Kestelek Kolemanit İşletmeleri (Etibank, 100%)	Kestelek, 80 kilometers west-southwest of Bursa	100 colemanite concentrate.
Do.	Etibank Kırka Boraks İşletmeleri Müessesesi Müdürlüğü (Etibank, 100%)	Kırka, 61 kilometers north of Afyon	800 tincal concentrate.
Cement	Adana Çimento Sanayii T.A.Ş. (Army Mutual Fund), 48.74%, other Government, <sup>3</sup> 47.28%)	12 kilometers east of Adana	1,850 cement.
Do.	Akçimento Ticaret A.Ş. (Sabancı Group)	Büyükçekmece, 30 kilometers west of İstanbul	2,750 cement.
Do.	Aslan Çimento A.Ş. (Lafarge Coppée, 86%)	Darıca, 40 kilometers southeast of İstanbul	1,300 cement.
Do.	Baştaş Başkent Çimento Sanayii ve Tic. A.Ş.	Elmadağ, 35 kilometers east of Ankara	1,320 cement.
Do.	Batı Anadolu Çimento Sanayii A.Ş.	Bornova, 10 kilometers northeast of İzmir	2,550 cement.
Do.	Çanakkale Çimento Sanayi A.Ş.	Near Ezine, 40 kilometers south of Çanakkale	3,000 cement.
Do.	Yibitaş Holdings-Lafarge JV (50% each)	Çorum, Sivas and Yozgat plants	2,000.
Do.	Nuh Çimento Sanayi A.Ş.	Near Hereke 30 kilometers west of İzmit	1,000.
Do.	Rumeli Çimento Sanayi ve Tic. A.Ş.	Bartın, Gaziantep, Ladik, Trabzon, and Şanlıurfa plants	2,215.
Do.	Sabancı Group	İskenderun, Mersin and Niğde plants	2,500.
Do.	Set Group Holding (Soc. des Ciments Français, France, 100%)	5 plants in Marmara and Aegean coast regions	3,300 cement.
Do.	Türkiye Çimento ve Toprak Sanayii T.A.Ş. (ÇİTOSAN) (Government, 100%)	7 plants	4,000 cement. <sup>4</sup>
<b>Chromium:</b>			
Chromite ores and concentrates	Etibank Şark Kromları İşletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Mines at Güleman, 40 kilometers southeast of Elazığ	150 lump ore, 70 concentrate.
Do.	Etibank Üçköprü Maden İşletmesi Müessesesi Müdürlüğü (Etibank, 100%)	8 mines in Göcek District, west of Fethiye	15 lump ore, 30 concentrate.
Do.	Birlik Madencilik Ticaret ve Sanayi A.Ş.	Mines in Kayseri, Erzurum, and Erzincan Provinces	240 lump ore.

See footnotes at end of table.

TABLE 2—Continued  
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Major commodities	Major operating companies and major equity owners <sup>1 2</sup>	Location of main facilities	Annual capacity
<b>Chromium—Continued:</b>			
Chromite ores and concentrates— Continued:	Akpaş Madencilik ve Paz. ve Ticaret A.Ş.	Mines in Erzurum, Erzincan, and Kayseri Provinces	200 lump ore, 70 concentrate.
Do.	Bilfer Madencilik A.Ş.	Mines in Kayseri and Sivas Provinces	350 lump ore.
Do.	Türk Maadin Şirketi (AŞ)	Mines at Köyceğiz, 56 kilometers northwest of Fethiye, and at Eskişehir	24 lump ore, 88 concentrate.
Do.	Dedeman Madencilik Turizm Sanayi ve Ticaret A.Ş.	Kayseri Province	56 lump ore.
Do.	Egemetal Madencilik A.Ş.	Mines in Bursa, Mersin, Eskişehir, and Erzurum Provinces	250 lump ore, 40 concentrate.
Do.	Pinar Madencilik ve Turizm A.Ş.	Mines in Kayseri and Adana Provinces	25 lump ore, 14 concentrate.
Do.	Akdeniz Madencilik Ticaret ve Sanayi A.Ş.	Adana	25 lump ore. <sup>e</sup>
Do.	Other (9) private producers	Mines in Köyceğiz, Bursa, Adana, İskenderun, and Eskişehir Provinces	114 lump ore, 12 concentrate.
Ferrochrome	Etibank Elazığ Ferrochrom İŞletmesi (Etibank, 100%)	Ferrochrome plant, 50 kilometers east of Elazığ	150 high-carbon ferrochrome.
Do.	Etibank Antalya Elektrometalurji Sanayi İŞletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Ferrochrome plant at Antalya	11 low-carbon ferrochrome.
<b>Coal:</b>			
Hard coal	Türkiye Taşkömürü Kurumu Genel Müdürlüğü (TTK) (Government, 100%)	Mines on 5 coalfields near Zonguldak	7,000. <sup>e</sup>
Lignite	Türkiye Kömür İŞletmeleri Kurumu (TKİ) (Government, 100%)	38 mines throughout Turkey	49,000. <sup>e</sup>
Do.	Private-sector producers	About 200 small mines throughout Turkey	8,000. <sup>e</sup>
Copper	Etibank Küre Bakırlı Pirit İŞletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Open pit copper and pyritemine at Küre, 14 kilometers south of İnebolu	90 copper concentrate, 460 pyrite concentrate.
Do.	Çayeli Bakır İŞletmeleri A.Ş. (Inmet Mining Corp., 49%, Etibank, 45%, Gama Endüstri, 5%, and Gama Holding, 1%)	Çayeli Mine, 85 kilometers east of Trabzon	24 copper concentrate.
Do.	Etibank Ergani Bakır İŞletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Open pit mine and smelter at Ergani, 59 kilometers southeast of Elazığ	16 blister copper. <sup>4</sup>
Do.	Karadeniz Bakır İŞletmeleri A.Ş. (Etibank, 99.91%)	Mine and concentrator at Murgul near Artvin; mines at Sürmene and Espiye near Trabzon	175 copper concentrate, <sup>e</sup> 20 blister copper. <sup>e 4</sup>
Do.	do.	Open pit Kutlular Mine near Trabzon	15 copper concentrate. <sup>e</sup>
Do.	do.	Underground mine near Küre	95 ore. <sup>e</sup>
Do.	Karadeniz Bakır İŞletmeleri A.Ş. (Etibank, 99.91%)	Smelter and acid plant at Samsun	38 blister copper.
Do.	Rabak Elektrolitik Bakır ve Mam. A.Ş.	İstanbul	35 refined copper.
Do.	Sarkuysan Elektrolitik Bakır Sanayii ve Ticaret A.Ş.	Gebze, 40 kilometers west of Izmit	70 refined copper.
Do.	Er-Bakır Elektrolitik Bakır Mam. A.Ş.	Denizli	18 refined copper.
<b>Iron and steel:</b>			
Iron ore	Türkiye Demir ve Çelik İŞletmeleri Genel Müdürlüğü (TDCİ) (Government, 100%)	Divriği Mines, 115 kilometers northwest of Elazığ	3,000 ore; <sup>e</sup> 1,100 pellets; 600 concentrate; 500 lump ore.
Do.	do.	Deveci Mine at Hekimhan, 112 kilometers west of Elazığ	750 ore. <sup>e</sup>
Do.	Bilfer Madencilik A.Ş.	Mines near Divriği	1,500 ore.

See footnotes at end of table.

TABLE 2—Continued  
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Major commodities	Major operating companies and major equity owners <sup>1 2</sup>	Location of main facilities	Annual capacity
<b>Iron and steel—Continued:</b>			
Steel	Türkiye Demir ve Çelik İşletmeleri Genel Müdürlüğü (TDÇI) (Government, 100%)	İskenderun	2,200 crude steel.
Do.	Karabük Demir ve Çelik A.Ş.	Karabük	680 crude steel.
Do.	Makina ve Kimya Endüstrisi Kurumu (MKEK) (Government, 100%)	Kırıkkale, 62 kilometers east of Ankara	60 crude steel.
Do.	Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) (Government, <sup>3</sup> 46.53%, others, 53.47%)	Ereğli	2,000 crude steel.
Do.	Çolakoğlu Metalurji A.Ş.	Gebze, 40 kilometers west of İzmit	650 crude steel, 1,050 semi- finished steel.
Do.	Çukurova Çelik Endüstrisi A.Ş.	Aliğa, 40 kilometers north-northeast of İzmir	2,000 semifinished steel.
Do.	Diler Demir Çelik Endüstri ve Ticaret A.Ş.	İzmit	310 semifinished steel.
Do.	Ekinciler Demir ve Çelik Sanayi A.Ş.	Arc furnace and 1 rolling mill at İskenderun. Rolling mills at Adana, Karabük, and near İskenderun (Payas)	600 semifinished steel.
Do.	Habaş Sinai ve Tibbi Gazlar İstihsal Endüstrisi A.Ş.	Aliğa	600 semifinished steel.
Do.	İzmir Demir Çelik Sanayi A.Ş. (İDÇ) (İş-Bakansi, 60%, others, 30%)	do.	550 semifinished steel.
Do.	Kroman Çelik Sanayii A.Ş.	Gebze, 40 kilometers west of İzmit	420 semifinished steel.
Do.	Metaş İzmir Metalurji Fabrikası T.A.Ş.	İzmir	450 special and semifinished steel.
Do.	Sivas Demir-Çelik İşletmeleri A.Ş.	Sivas	450 semifinished steel.
Do.	Other private-sector companies.	Plants near Bursa, İzmir, and İstanbul	1,448 semifinished steel.
Magnesite	ÇİTOSAN Konya Krom Magnezit Tuğla Sanayii A.Ş. (Government, 100%)	Konya	40 dead-burned magnesite, 38 bricks, 12 mortar.
Do.	Kümaş Kütahya Manyezit İşletmeleri A.Ş. (Zeytunoğlu Holding A.S., 97.44%)	Kütahya	144 dead-burned magnesite, 46 bricks.
Do.	Comag Continental Madencilik Sanayii Tic. A.Ş.	Mines at Tavşanlı, 40 kilometers northwest of Kütahya, and near Bursa	40 dead-burned magnesite.
Do.	Magnesit A.Ş. (Veitscher Magnesitwerke AG, Austria)	Mine at Margı, 50 kilometers northeast of Eskişehir	80 dead-burned magnesite.
Mercury	metric tons	Etibank Haliköy Maden İşletmesi (Etibank, 100%)	Mine near Ödemiş, about 70 kilometers southeast of İzmir
Do.		Etibank Konya Çıva İşletmesi (Etibank, 100%)	Mine at Sarayönü, 47kilometers north of Konya
<b>Petroleum and natural gas:</b>			
Crude petroleum		Türkiye Petrolleri Anonim Ortaklığı (TPAO) (Government, 100%)	Production from 34 fields, mostly in Diyarbakır, Gaziantep, and Siirt Provinces
Do.	thousand 42-gallon barrels	do.	do.
Do.	do.	N.V. Turkse Shell (Royal Dutch/Shell) <sup>5</sup>	Production from 27 fields, all in Diyarbakır and Siirt Provinces
Do.	do.	Other producers (private sector and in joint venture with TPAO)	Production from 9 fields, mostly in Diyarbakır, Gaziantep and Siirt Provinces
Refined petroleum	do.	Türkiye Petrol Rafinerileri A.Ş. (TÜPRAS) (Government, <sup>3</sup> 100%)	Refinery at Batman
Do.	do.	do.	Refinery at Aliğa

See footnotes at end of table.

TABLE 2—Continued  
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Major commodities		Major operating companies and major equity owners <sup>1 2</sup>	Location of main facilities	Annual capacity
<b>Petroleum and natural gas—Continued:</b>				
Refined petroleum—Continued:		do.	Refinery at İzmit	91,000 crude input.
	thousand 42-gallon barrels			
Do.	do.	do.	OAR refinery at Kırıkkale	35,000 crude input.
Do.	do.	Anadolu Tasfiyehanesi A.Ş. (ATAŞ)	Refinery at Mersin	30,800 crude input.
Natural gas	thousand cubic meters	Türkiye Petrolleri A.O. (TPAO) (Government, 100%)	Çamurlu Field, Siirt Province	800. <sup>e</sup>
Do.	do.	do.	Hamitabat Field in Thrace	205,000. <sup>e</sup>
Do.	do.	do.	Umurca Field in Thrace	10. <sup>e</sup>
Silver	kilograms	Etibank 100. Yıl Gümüş Madeni İşletmeleri Müessesesi Müdürlüğü (Etibank, 100%)	Aktepe Mine near Gümüşköy, 20 kilometers west-northwest of Kütahya	75,000. <sup>e</sup>
Strontium		Barit Maden Türk A.Ş.	Mine at Akkaya, 25 kilometers south of Sivas	100 celestite concentrate. <sup>e</sup>
Sulfur		Keçiborlu Kükürt İşletmesi Müessesesi Müdürlüğü (Etibank, 100%)	Mine at Keçiborlu, 30 kilometers northwest of Isparta	55.
Do.		Türkiye Petrol Rafinerileri A.Ş. (TÜPRAŞ) (Government, <sup>3</sup> 100%)	Recovery plants at company oil refineries	23.
Zinc		Çayeli Bakır İşletmeleri A.Ş. (Inmet Mining Corp., 49%, Etibank, 45%, Gama Endustri, 5%, and Gama Holding, 1%)	Çayeli Mine, 85 kilometers east of Trabzon	36 zinc concentrate.
Do.		Çinko Kurşun Metal Sanayii A.Ş. (ÇINKUR) (Etibank, 99.91%)	Zinc-lead smelter at Kayseri	34 zinc, 125 tons cadmium.

<sup>e</sup>Estimated.

<sup>1</sup>Turkish private-sector ownership unless otherwise noted.

<sup>2</sup>Etibank refers to the 100% Government-owned group administered by Etibank Genel Müdürlüğü.

<sup>3</sup>Shares are held by the Public Participation Fund Administration (PPFA) for eventual privatization.

<sup>4</sup>Facility was idle in 1995.

<sup>5</sup>N.V. Turkse Shell's production was sold to Perenco Plc. effective Jan., 1996.