

THE MINERAL INDUSTRY OF

TURKEY

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Turkey's economy remained plagued by a combination of factors, including public sector debt, rapid devaluation of the Turkish lira, and high levels of political uncertainty, inflation, and unemployment (Barham, 1997, 1998; Middle East Economic Digest, 2000). The extremely complex geology of Turkey 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. A wide variety of primary metallic minerals were produced as well, but output generally was not considered to be large compared with that of other countries. Chromite was the most significant mineral in the metal sector. Turkey was a major world producer of processed mineral commodities, including refined borates and related chemicals, cement, ceramics, and glass, and was a significant producer of ferrochromium and steel.

The primary mineral sector's contribution to the economy traditionally has been slightly more than 1% of the gross domestic product (GDP), which totaled about \$199 billion¹ in 1998 (World Bank, September 8, 1999, Turkey at a glance, accessed January 28, 2000, via URL <http://www.worldbank.org/data/countrydata/countrydata.html>). Total mineral industry (primary mineral commodities plus secondary mineral commodities, including cement, glass, refined petroleum products, steel, and certain inorganic chemicals) revenues were estimated to be about 10% of the GDP.

Government Policies and Programs

The Turkish economy was burdened by an inflation rate that dropped to about 84% in 1998 down from 86% in 1997 (World Bank, September 8, 1999, Turkey at a glance, accessed January 28, 2000, via URL <http://www.worldbank.org/data/countrydata/countrydata.html>). Mining was regulated by mining law No. 3213 of 1985. Hydrocarbon activities were regulated under law No. 6326 of 1954, law No. 6556 of 1955, law No. 6987 of 1957, law No. 1702 of 1973, and law No. 2808 of 1983.

In June, Parliament reduced corporate tax rates to 30% from 40%. The Court of Accounts ruled that the exchange-rate guarantee on the capital investment of the international oil companies was not legal. The Treasury had converted submitted funds to lira and deposited them with the Central Bank. The exchange-rate guarantee had protected the deposited funds from inflation.

¹Where necessary, values have been converted from Turkish lira to U.S. dollars at the rate of TL261,886=US\$1.00 for 1998, TL152,578=US\$1.00 for 1997, and TL81,699=US\$1.00 for 1996.

Trade

As shown in table 1, Turkey produced a wide variety of mineral commodities. Mineral and chemical commodities accounted for about 21% of total Turkish exports, which were valued at \$26.9 billion in 1998 compared with \$26.2 billion in 1997. Turkey was a significant exporter of steel and ferrochromium and exported limited quantities of chromite, copper, and zinc ores and refined metals and also exported a wide variety of industrial minerals and derived chemicals, the value of which decreased to \$598 million in 1998 compared with \$613 million in 1997. The value of Turkish aluminum exports increased to \$272 million in 1998 up from \$217 million in 1997. Borates exports dropped to \$129 million in 1998 compared with \$143 million in 1997. Copper exports decreased to \$176 million in 1998 compared with \$219 million in 1997. Ferrochromium exports also decreased to \$40 million in 1998 compared with about \$68 million in 1997. Glass exports increased to \$349 million in 1998 compared with \$341 million in 1997. Iron and steel exports decreased in 1998 to \$2.2 billion compared with \$2.5 billion in 1997. Dimension stone increased to \$129 million in 1998 compared with \$119 million in 1997 (State Institute of Statistics, March 5, 1999, Provisional foreign trade figures—December 1998, accessed January 28, 2000, at URL <http://www.die.gov.tr/ENGLISH/SONIST/DISTICIST/050399.htm>; Istanbul Chemicals and Chemical Products Exporters' Association, [undated], Statistical data by product group (annually), accessed January 28, 2000, at URL <http://www.immib.org.tr/Eng/kimya/stat/urun.html>; Istanbul Ferrous and Non-ferrous Metals Exporters' Association, [undated], Ferrous & non-ferrous metal export by product group of the 1998 year, accessed January 28, 2000, at URL <http://www.immib.org.tr/Eng/demir/stat/urun.html>; Istanbul Mineral Exporters' Association, [undated], Ürün Grubu İtibariyle İstatistik Verileri Türkiye Geneli (Yıllık), accessed January 28, 2000, at URL <http://www.immib.org.tr/maden/stat/urun.html>).

In 1998, the United States was the major individual market, in terms of value, for Turkish metals. Imports were valued at about \$314 million, down from \$325 million in 1997. Regionally, the countries of Central Eurasia and Europe received \$1.2 billion of Turkey's metal exports in 1998 compared with \$1.02 billion in 1997. The countries of Asia and the Pacific accounted for \$197 million of Turkey's metal exports in 1998, significantly down from \$718 million in 1997.

Turkey's mineral imports were dominated by crude oil and refined mineral fuels, valued at \$4.5 billion, as well as a variety of ferrous scrap, metallic ores, steel, and other metals. The Turkish steel industry depended on imported scrap as feed for the country's many electric-arc minimills and the country's

unmet demand for flat steel products resulted in Turkish iron and steel imports being valued at \$2.78 billion in 1998 (State Institute of Statistics, March 5, 1999, Provisional foreign trade figures—December 1998, accessed January 28, 2000, at URL <http://www.die.gov.tr/ENGLISH/SONIST/DISTICIST/050399.htm>).

Structure of the Mineral Industry

The mining sector has been estimated to comprise 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 the public and private sectors were small by world standards.

Despite the divestment of state-owned minerals sector holdings to domestic and foreign investors, the Government remained a significant factor in most sectors of the Turkish minerals industry through various parastatal (state-owned) industrial corporations and shareholdings in a number of private companies. The privatization process was temporarily postponed at yearend.

State-owned Etibank Madencilik Genel Müdürlüğü was broken up into a number of companies under Eti Holding A.Ş. Subsidiaries of Eti Holding included Eti Alüminyum A.Ş., Eti Bakir A.Ş., Eti Bor A.Ş., Eti Elektrometalurji A.Ş., Eti Gümüş A.Ş., and Eti Krom A.Ş. In May 1998, Sivas Demir Çelik İşletmeleri A.Ş., a steel company, was sold to private investors.

Hard coal was mined by Türkiye Taşkömürü Kurumu Genel Müdürlüğü, and much of the lignite output was produced by Türkiye Kömür İşletmeleri Kumumu. About 78% of Turkey’s total output of crude petroleum and all its natural gas were produced by Türkiye Petrolleri Anonim Ortaklığı (TPAO) and its subsidiaries. Türkiye Petrol Rafinerileri A.Ş. was by far the largest oil refiner in the country. Boru Hatları ile Petrol Taşıma A.Ş. (Botas), the petroleum pipeline company, controlled virtually all the pipeline transport of mineral fuels. In 1998, however the Ministry of Energy and Natural Resources initiated the restructuring of Botas into an import company, a transmission firm, and a distribution enterprise.

Maden Tetkik ve Arama Genel Müdürlüğü was the state agency responsible for geologic exploration, mapping, and research in Turkey.

Commodity Review

Metals

Aluminum.—In June, dissatisfied with the bids, the Government canceled the second tender for the expansion to 100,000 metric tons per year of Eti Holding’s Seydisehir aluminum smelter. The original request for bids for the 4-year smelter modernization and upgrade program had been canceled by Etibank in September 1997 for similar reasons (Metal Bulletin, 1997, 1998b, c; Reuters Ltd., June 10, 1998, Turkey cancels aluminium smelter upgrade tender, accessed June 15, 1998, at URL http://biz.yahoo.com/finance/980610/turkey_sme_1.html).

Copper.—Operations ground to a halt at the Çayeli copper

mine in mid-October when employees went out on strike. Production resumed in early December. Despite the 2-month lapse, 708,000 metric tons (t) of ore were milled, from which 27,200 t of copper and 32,300 t of zinc was recovered (Canada NewsWire Portfolio, February 15, 1999, Inmet Mining announces fourth quarter results, sent February 15, 1999, from e-mail portfolio@newswire.ca).

Gold.—Eurogold Madencilik Ticaret ve Ltd. A.Ş., a joint venture of Mine Or S.A. (66.6%) and Inmet Mining Corp. of Canada (33.3%), continued to have legal problems at the Ovacık prospect near Bergama. A Turkish court affirmed the ruling that the proposed use of sodium cyanide for heap-leaching at Ovacık posed a public health risk (Reuters, November 30, 1998, Turkish court upholds verdict on cyanide leaching, accessed December 4, 1998, at URL <http://biz.yahoo.com/rf/981130/f6.html>). The ruling was not expected to affect sodium cyanide use at the state-owned 100 Yil Gümüş Maden İşletmeleri Müessesesi Müdürlüğü (Centennial Silver Mine).

Tüprağ Metal Madencilik San. ve Tic. Sti., a subsidiary of Eldorado Gold Corp. of Canada, completed the prefeasibility study on the Efemçukuru project and began obtaining permits for the project. Tüprağ also drilled the Kisladag gold prospect (Eldorado Gold Corporation, 1999).

In January, Woodco Resources Inc. of Canada completed the acquisition of Anatolia Minerals Development Corp. of the Cayman Islands, renaming the combined companies the Anatolia Minerals Development Ltd. In September, Anatolia Minerals formed a joint venture with Rio Algom Ltd. of Canada to explore for base metals and gold on its nine properties, including the Armutbeli, the Bulancak, the Saimbeyli/Tufanbeyli, and the Yenipazar prospects (Anatolia Minerals Development Limited., 1998, Northern Miner, 1998).

Silver.—Eti Holding’s Centennial Silver Mine proposed to build a new grinding plant at its Kutahya facility. The estimated \$7 million expansion project should increase the operation’s production capacity to 122 t of silver from 105 t (Turkish Daily News, July 9, 1998, Two proposals for the Eti Holding grinding facility, accessed July 10, 1998, at URL http://www.turkishdailynews.com/tdn/free_daily_tdn/latest/dom.htm).

Mineral Fuels

Turkey imported nearly 88% of its crude oil demand. Most of Turkey’s oil exploration and production were in the southeastern region. In 1998, TPAO accounted for about 76% of domestic oil production, with 653 active wells; drilled 42 wells, including 23 exploration wells; and had 2 new field discoveries, the Akgün-1 and the Adiyaman 3-R oil wells. About 20 companies were exploring in Turkey, including the joint venture of Aladdin Middle East Ltd., Ersan Petrol Sanayii A.Ş., EEX Corp. of the United States, and White World Exploration LLC; the joint venture of Alarko Alsim Corp. and Shell Exploration B.V.; Amoco Development Co.; BP Exploration Operating Co.; Chevron International Ltd.; Mobil Oil Corp.; Tur-Kan Petrol Ltd., a subsidiary of Trans-Dominion Energy Corp. of Canada; N.V. Turske Perenco; and Petrol Exploration Mediterranean Inc. The international operators

were responsible for an additional 11 wells drilled in Turkey (Turkish Petroleum Corp., 1998 annual report, accessed January 28, 2000, at URL <http://www.tpao.gov.tr/rpte/JOINT.HTM>).

In 1998, Shell Co. of Turkey announced its interest in divesting its 27% equity interest in the Anadolou Tasfiyehanesi A.Ş. (ATAS) refinery at Mersin. ATAS produced about 13% of Turkish refined petroleum products in 1998 (Turkish Petroleum Corp., 1998 annual report, accessed January 28, 2000, at URL <http://www.tpao.gov.tr/rpte/activities.html>).

About 1 million barrels per day of Iraqi oil was exported through Turkey's Ceyhan oil terminal under the United Nations oil-for-food exchange program (Resolution 986). In addition to the crude oil, Iraqi diesel fuel was brought across the border into Turkey at Habur (Jon Hemming, January 12, 1999, Turk diesel trade with Iraq flows on amid tension, accessed January 13, 1999, at URL <http://biz.yahoo.com/rf/990112/8u.html>). In June, the Government increased the duty rate on imported Iraqi diesel to 80% from 60% and, in July, formed Silopi A.Ş., which received the exclusive right to sell the imported Iraqi diesel (Middle East Economic Digest, 1998c; Turkish Daily News, July 28, 1998, Silopi A.S. established for Habur diesel trade, accessed July 29, 1998, at URL http://www.turkishdailynews.com/free_daily_tdn/latest/dom2.htm).

Reserves

Turkey's mineral inventory is diverse and large, but many of the deposits, especially for metallic minerals, are small (Erseçen, 1989). 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, most significant of which are barite, boron, clays, limestone and marble, magnesite, perlite, pumice, strontium, and trona. The country has large lignite reserves. The crude oil reserves were hosted in a large number of small fields.

Infrastructure

Turkey's extensive road and railroad infrastructure was heavily used for the transport of mineral commodities. A 124-kilometer (km) railway was proposed to link Kars, Turkey, with Tbilisi, Georgia. 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 Ceyhan oil-loading facility at Yumurtalık in southeastern Turkey. Ceyhan was also the terminus for a 447-km pipeline to the refinery in Kırıkkale. There were no reports of significant damage to the Ceyhan petroleum facilities by the 6.2 magnitude earthquake in June 1998.

The oil port at Dörtöyl, 28 km north of Iskenderun, 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. A 303-km natural gas pipeline linking the Iranian natural gas system to Erzurum, Turkey, was under construction. In 1998, the 1,003-km extension of the Erzurum line to Ankara was begun. In western Turkey, Botas proposed to build a 215-km natural gas pipeline extension from Karacabey south to

Izmir and to extend the pipeline west to Çanakkale.

In 1998, Amoco Corp. and affiliates of GE Capital Structured Finance Group and Bechtel Enterprises Inc. of the United States formed the TransCaspian Gas Pipeline System, which proposed to construct a 1,200-km natural gas pipeline from Turkmenistan to Turkey. The various proposed Turkmenistan gas pipeline routes through Azerbaijan and Georgia and through Iran were subject to economic constraints and political negotiations (Journal of Commerce, 1998; Lelyveld, 1998; Middle East Economic Digest, 1998a; Middle East Economic Digest, 1998b; PRNewswire, June 29, 1998, Consortium formed to develop and operate new TransCaspian gas pipeline will transport natural gas from Turkmenistan to Turkey, accessed June 30, 1998, at URL <http://www.newspage.com/cgi-bin/pnp.GetStory?story=p0629104.500&topic=726&date=19980630>; Turkish Daily News, August 17, 1998, Natural gas in the 21st century, accessed August 18, 1998, at URL http://www.turkishdailynews.com/free_daily_tdn/latest/dom.htm; Turkishpress.com, October 30, 1998, Turkmen natural gas agreement signed. . . ., accessed November 2, 1998, at URL <http://www.turkishpress.com/aa/index.html>; Kiyoshi Takenaka, February 27, 1998, Focus—Oil pipeline to run to Turkey - Azerbaijan, accessed March 2, 1998, at URL http://biz.yahoo.com/finance/980227/oil_pipeli_1.html).

The Government was negotiating to purchase 16 billion cubic meters per year of natural gas from Turkmenistan (Turkish Press, October 20, 1998, Turkey and Turkmenistan to initial a natural gas agreement on Tuesday in Ashkhabad, accessed October 20, 1998, at URL <http://www.turkishpress.com/aa/index.html>). The Government also approved the 1,200-km "Blue Stream" pipeline to transport additional Russian natural gas under the Black Sea from Izobilnoye, Russia, to landfall at Samsun, Turkey.

Turkey had many ports capable of handling mineral-commodity shipments. Major coal-importing ports included Ereğli and Iskenderun. Chromite was shipped from various Anatolian ports on the Marmara coast, as well as from Antalya and Iskenderun, which handled all Turkey's ferrochrome exports. Steel, steel scrap, and iron ore imports also were handled at many ports, particularly Aliağa, Ereğli, Iskenderun, and Mersin, and at various sites in the Istanbul-Izmit 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, Rize, and Iskenderun. Marine terminals at Ambarlı were used to ship cement. To reduce its shipping costs, Karabük Demir ve Çelik A.Ş. (Kardemir) proposed to build a \$150 million port at Filyos, near Zonguldak, on the Black Sea (Metal Bulletin, 1998a). Kardemir had been using the port at Iskenderun, about 1,000-km south of the steel plant, to import raw materials and export products.

Because of electrical power demand has been growing at an estimated 8% to 10% per year, Turkey was in the process of greatly expanding its electrical generating capacity. In 1998, electrical generating capacity was 22,000 megawatts (Dünya Online, Energy sector in Turkey, accessed February 24, 1999, at URL <http://www.dunya.com/energy/enrap.html>). Additional capacity would be generated by hydroelectric and coal-, natural gas-, and nuclear-fueled powerplants.

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Major Sources of Information

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TABLE 1
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998 e/
METALS					
Aluminum:					
Bauxite 2/	445,020	232,278	544,513	369,482 r/	458,028 3/
Alumina:					
Gross weight	155,299	171,978	159,298	164,333	156,825 3/
Metal, smelter	59,750	61,514	60,000 e/	62,019	60,000
Antimony:					
Ore, mine output:					
Gross weight	1,415	7,856	5,384	585 r/	500
Sb content	75	416	285	31 r/	30
Concentrates:					
Gross weight	90 e/	1,163	700	500 e/	100
Sb content	55 e/	291	175	125 e/	20
Cadmium	22	23 e/	42	89 r/	69 3/
Chromite:					
Gross weight (34% to 43% chromic oxide)	1,270,431	2,080,043	1,279,032 r/	1,702,623 r/	1,404,470 3/
Salable product e/	501,851 3/	1,460,000	900,000 r/ e/	1,300,000	1,000,000
Copper:					
Mine output (exclusive of pyrite): 4/					
Gross weight	3,346,490	3,185,628	3,518,754	3,797,874 r/	4,052,175 3/
Cu content of ore	34,902	40,085	33,792	36,460 r/	40,000
Concentrates (exclusive of pyrite):					
Gross weight	139,919	141,000 e/	133,350	142,928 r/	160,000
Cu content	28,891	24,000 e/	29,580	31,923 r/	32,000
Metal:					
Smelter output (primary + secondary)	30,400	33,700 e/	38,600 e/	32,491	35,000
Refined e/	82,700	98,500	120,000	120,000	120,000
Gold, byproduct of base metals refining e/ 5/	996 kilograms	1,200	1,000	1,000	1,000
Iron and steel:					
Iron ore:					
Gross weight	5,755	4,931	6,404	5,986 r/	5,885 3/
Fe content e/	3,148	2,750	3,500	3,239 r/ 3/	3,200
Metal:					
Pig iron and ferroalloys:					
Ferrosilicon	4,930	4,900	4,460	4,730 r/	4,810 3/
Pig iron	394,168 r/	330,070 r/	489,516 r/	577,427 r/	456,465
Steel, crude including castings	12,074	12,744	13,382	13,644	13,351 3/
Lead:					
Mine output, Pb and Pb-Zn ores:					
Gross weight	232,140	253,100	234,541	262,260 r/	292,065 3/
Pb content	11,158	10,376	10,971	13,113 r/	13,500
Concentrates:					
Gross weight	5,683	5,318	4,494	12,063 r/	12,100
Pb content	1,279	1,196	3,140	7,912 r/	7,900
Metal, refined e/	5,100	4,000	4,000	7,000	7,000
Manganese ore, gross weight 6/	34,500	37,000 r/	37,000 e/	31,160 r/	53,283 3/
Silver, mine output, Ag content e/ 7/	65,000 kilograms	70,000	70,000	90,200	110,000
Zinc:					
Mine output, Zn and Pb-Zn ore:					
Gross weight	297,252	73,110	104,819	79,035 r/	45,795 3/
Zn content	26,300 e/	9,118	14,921	11,255 r/	6,000
Concentrates:					
Gross weight	30,000 e/	9,760 e/	9,981	7,525 r/	5,000
Zn content	10,000 e/	5,774	5,529	4,169 r/	3,000
Metal, smelter, primary	18,567	17,050	22,392	37,074 r/	35,716 3/
INDUSTRIAL MINERALS					
Aluminum sulfate (alunite)	12,165	9,763	6,625	8,323 r/	10,624 3/
Barite, run of mine	116,220	153,719	104,872	226,594 r/	160,042 3/
Boron minerals:					
Run of mine	2,092,032	1,768,919	2,400,635	2,602,386 r/	2,754,082 3/
Concentrates	1,139,980	1,143,994	1,446,697	1,568,571 r/	1,650,000

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998 e/
INDUSTRIAL MINERALS--Continued					
Cement, hydraulic	29,493	33,153	35,214	36,035 r/	38,200 3/
Clays:					
Bentonite	516,187	602,499	515,452	521,158 r/	565,708 3/
Kaolin	179,775	489,635	449,561	472,646 r/	403,733 3/
Other	956,012	1,649,192	6,405,377	6,400,000 e/	6,000,000
Emery	12,000	14,149	11,092	12,345 r/	19,027 3/
Feldspar, run of mine	502,608	760,250	910,814	1,011,542 r/	1,089,483 3/
Fluorspar	6,671	8,873	4,828	5,000 e/	5,000
Glass, crude e/	1,300	1,150	1,133 3/	1,369 3/	1,400
Graphite, run of mine e/	20,000	20,000	20,000	15,000	15,000
Gypsum, other than that for cement	596,962	596,967	754,277	413,802 r/	351,557 3/
Lime 8/	1,800 e/	897	1,023	1,170 r/	1,066 3/
Magnesite, run of mine	1,279,614	1,928,064	2,339,138	1,409,768	2,703,343 3/
Meerschbaum	2,350	1,000	500	400	-- 3/
Nitrogen, N content of ammonia e/	350,000	366,000 3/	518,800	558,000	560,000
Perlite, run of mine	164,582	171,058	157,580	103,416 r/	124,312 3/
Pumice 9/	947,174	845,000 r/	774,000	681,000 r/	579,000
Pyrites, cupreous, gross weight	50,000 e/	307,992	538,140	559,500 r/	699,408 3/
Silica sand, gross weight 10/	741	755	779	900 r/	1,107 3/
Sodium compounds:					
Salt, NaCl, all types	1,353	1,444	2,068	2,344 r/	2,170 3/
Soda ash (trona) e/	385	385	400	500 3/	500
Sodium sulfate, concentrates	307,049	314,192	328,953	300,000 e/	300,000
Stone:					
Dolomite	378,004	425,877	981,683	689,989 r/	829,775 3/
Limestone, other than for cement	11,000 e/	20,496	40,456	49,108 r/	52,355 3/
Marble e/	750	272	1,287	1,166 r/	1,704 3/
Quartzite	1,350,299	1,364,558	2,807,279	1,878,339 r/	2,301,270 3/
Strontium minerals, celestite: e/					
Run of mine	45,000	50,000	50,000	50,000	50,000
Concentrates	25,000	30,000	30,000	30,000	30,000
Sulfur: e/					
Native, other than Frasch	16,673 3/	17,000	--	--	--
S content of pyrites	27,000	163,000	255,000	250,000 r/	350,000
Byproduct:					
Petroleum	25,000	26,000	25,000	20,000	15,000
Other	5,000	20,000	25,000	20,000	20,000
Total	73,673	226,000	305,000	290,000	385,000
Talc e/	4,000	4,000	4,000	4,000	5,000
MINERAL FUELS AND RELATED MATERIALS					
Asphalt, natural	108,364	219,848	126,751	117,310 r/	157,334 3/
Carbon black	35,000 e/	39,975	39,273	39,061 r/	39,971 3/
Coal:					
Hard coal, run of mine	4,211	3,377	3,582	3,646 r/	3,336 3/
Lignite, run of mine	55,038	56,031	57,532	56,780 r/	66,499 3/
Coke and semicoke	2,799	3,021	2,297	2,335 r/	2,144 3/
Gas:					
Natural, marketed	198,630	181,515	203,967	250,804	561,995 3/
Coal, manufactured e/	35,000	35,000	37,000	35,000	15,000
Petroleum:					
Crude	26,399	24,124	25,015	24,696 r/	23,072 3/
Refinery products:					
Liquefied petroleum gas	8,503	9,185	9,580	8,418 r/	8,774 3/
Gasoline	29,521	31,746	30,950	55,248 r/	59,043 3/
Naphtha	10,761	12,110	13,227	13,644 r/	15,917 3/
Jet fuel	10,380	12,119	11,324	13,445 r/	13,767 3/
Kerosene	819	605	726	578 r/	583 3/
Distillate fuel oil 11/	55,197	59,556	55,838	40,987 r/	38,532 3/
Lubricants e/	2,000	2,000	2,000	4,177 r/ 3/	4,714 3/
Residual fuel oil	50,640	52,043	49,459	10,148 r/	8,973 3/
Asphalt	5,389	5,940	7,233	8,029	10,912 3/
Unspecified e/ 12/	6,700	6,700	4,000	33 r/ 3/	26 3/
Total	179,910	192,004	184,337	154,707 r/	161,241 3/

See footnotes at end of table.

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

e/ Estimated. r/ Revised.

1/ Table includes data available through January 24, 2000. Large quantities of construction materials (clay, sand, and gravel) are quarried. Also quarried are basalt, diabase, granite, onyx, sandstone, serpentine, slate, and travertine for building stone and limestone and gypsum for cement manufacture; information is, however, 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/ Copper mines produce a copper concentrate (of about 22% Cu) and a cupreous pyrite concentrate (about 0.7% Cu). Copper is not recovered from the cupreous pyrite concentrate.

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

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

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

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

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

10/ Previously reported as estimated production of washed silica sand, in tons: 1994--415,000; 1995--310,000; and 1996--385,000.

11/ Diesel fuel and special heating oil.

12/ Includes refinery fuel and losses.