THE MINERAL INDUSTRIES OF

THE ADRIATIC BALKANS

ALBANIA, BOSNIA AND HERZEGOVINA, CROATIA, MACEDONIA, SERBIA AND MONTENEGRO, AND SLOVENIA

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Europe's Adriatic Balkan region is part of the southern portion of the Mediterranean Alpine folded zone, which extends through the Dinarides of former Yugoslavia (Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, and Slovenia), the Albanides of Albania, and the Hellenides of Greece. Mining for base and precious metals may be traced through historical records to at least the 5th century B.C. Copper mining at Serbia's Bor deposit may have had prehistoric beginnings.

By the early 1930s and until 2000, mineral deposits in the region were well-defined. Commercial resources of major base metals included those of aluminum, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, and zinc. Such precious metals as gold, silver, palladium, and platinum were found mainly in association with such base metals as copper, lead, and zinc. Industrial minerals were represented by a broad range of carbonate and silicate rocks, gravels, and sands as well as by clays and volcanic materials. Mineral fuels comprised coal (lignite), natural gas, and petroleum.

Until the early 1990s, the mining, processing, and downstream exploitation of base metals established the region as a major European source of copper, lead, and zinc and a major world producer of chromite. The transition of the region from central economic planning to market economy systems between 1991 and 2001 also began a swift deconstruction of existing political and social structures. The ensuing political, social, and ethnic tensions and conflict destroyed or degraded much of the region's mineral industries and industrial infrastructure. In 2001, social and political tensions in the region centered in the Province of Kosovo in Serbia and Montenegro and in Macedonia.

The future status of the minerals industries in the countries of the Adriatic Balkan region would be clarified following political settlement and normalization not only among the states in the region, but also within such countries as Bosnia and Herzegovina, Croatia, Macedonia, and Serbia and Montenegro.

ALBANIA

In 2001, Albania's economy in terms of the gross domestic product (GDP) grew by 6.5% compared with that of 2000; this growth, however, was fueled in large measure by transfers from abroad (more than 25% of GDP) in the form of donations, remittances, and some inflow of international capital. Although industrial production registered a growth of 5% and represented about 11.5% of the GDP, the country's minerals industry continued to undergo major production shortfalls (International Monetary Fund, 2002, p. 3; Treichel, 2002, p. 2-9). Mineral deposits traditionally associated with Albania include those of chromite, copper ore, and nickeliferous iron ore as well as those of natural gas and petroleum. In 2001, of the metal-bearing deposits, only those of chromite were under exploitation, although production of marketable chromite (concentrate and direct shipping ore) declined by about 30% compared with that of 2000, and the output of ferrochromium declined by about 4.8%. Such industrial minerals as dolomite, gypsum and marble, and phosphate rock have been worked only intermittently during the past several years. Albania's production of coal, natural gas, and petroleum also declined by about 20%, 4%, and 2%, respectively (table 1). The level of foreign investment in Albania's minerals sector had not changed appreciably since 2000. The ferrochromium plant at Elbasan was under the operational management of Italian ferrochomium producer Darfo S.p.A. The Turkish copper smelting concern Ber-Ober Madencilik San ve Tic As, which in 2000 was granted a 30-year concession to operate Albania's copper industry (mines and processing facilities in the Lezhe, Midrite, and Puke Districts), continued its work, although copper production during the year was not reported (European Bank for Reconstruction and Development, 2001a, p. 17; Kocibelli, 2002).

Albania's energy production was based on coal, hydropower, natural gas, and petroleum. The downturn in production of mineral fuels coupled with drought, which reduced electric power generation, placed the country's future developmental plans in doubt. Given Albania's recent history (1980s) as a net exporter of energy, the latest available data (2000) showed exports of mineral fuels as a percentage of total exports to have declined steadily to 1.9% from 3.4% in 1997. Imports of mineral fuels constituted about 9% of total imports, whereas they were 1.8% in 1997 (International Monetary Fund, 2001, p. 48-49). A proposed investment in Albania'a Patos Marinze oilfield by the International Finance Corporation (IFC) and other foreign investors aimed to modernize the country's petroleum extraction sector. The project, which was originally approved in 1998, was put on hold owing to a slump in oil prices in 1998 and 1999 but was reaffirmed in 2001. Successful implementation of this program would boost production to 23,000 barrels per day (bbl/d) from 7,000 bbl/d. The IFC would have a 15% interest in the project with a 26.1% contribution to the total cost ($197.5 million). The IFC projected that petroleum production at Patos Marinze would reach 10.8 million barrels (Mbbl) in 2003 from about 3.5 Mbbl (International Finance Corporation, 2001). The country reported that recoverable reserves of petroleum amounted to about 550 million metric tons (Mt).

BOSNIA AND HERZEGOVINA

The Federation of Bosnian Moslems and Croatians (FBC) and Republika Srpska (RS), which formed Bosnia and Herzegovina, continued to function as semiautonomous economic and political entities. The FBC administered about 51% of Bosnia and Herzegovina's territory; the balance of the territory was administered by RS. In 2001, major progress to integrate the FBC and RS entities was not evident. This lack of progress continued to be reflected by a less-than-clear economic picture that resulted from disparate reporting by each side to the Agency for Statistics in Sarajevo (U.S. Central Intelligence Agency, 2002a).

Foreign financial assistance and transfers from abroad continued to be among the mainstays of economic growth. The growth rate of the GDP in 2000 was about 5.8% compared with that of 1999; a growth rate of about 5.6% was anticipated for 2001. Industrial output constituted about 26% of Bosnia and Herzegovina's GDP. The contribution to the GDP by the mining and quarrying and processing sectors of the FBC and RS amounted to about 2.8% and 1.3%, respectively (World Bank Group, 2002b, p. 1, 22, 40). The overall contribution of the private sector to Bosnia and Herzegovina's GDP was low (about 35%). Private ownership in the mining and quarrying and mineral-processing spheres in the FBC and RS was less than 1% of total privatized enterprises in the country. To correct this imbalance, the Governments of the FBC and RS agreed to accelerate the denationalization process of large-scale industrial enterprises and utilities with financial assistance from such international institutions as the European Union (EU), the World Bank, and the U.S. Agency for International Development (World Bank Group, 2001). These and other organizations formed the International Advisory Group on Privatization, which supported a plan to privatize 86 enterprises in the FBC and 52 in RS. Enterprises for metal processing, machine building, and construction materials manufacturing were among the proposed groups. The FBC's major steel producer BH Steel-Zeljezara in Zenica also was included in this plan.

In 2001, the major developments in Bosnia and Herzegovina's minerals industry took place mainly in the FBC. Aluminum (Mostar) bauxite and alumina (in the southern and western FBC), and coal (Tuzla and Zenica regions) were the leading minerals produced in the FBC. Lead and zinc ore had been produced at Olovo and Vares, but the mining status at these operations in 2001 remained uncertain. Iron ore production was centered at Jablanica and Vares, and manganese ore, at Bosanska Krupa. The FBC also has exploitable resources of barite, gypsum, magnesite, and rock salt. In 2001, the levels of output of these and other minerals commodities, however, were not adequately reported.

BH Steel announced plans for facility expansion in 2001. A contract was awarded to Danieli SpA of Italy to supply the steel mill with a new 100-metric-ton (t) electric arc furnace (EAF), a ladle furnace, and a five-strand high-speed billet caster [940,000 metric tons per year (t/yr)]. The new facility would produce basic and high-quality steels in the range of 130 to 180 millimeters. BH Steel became a major recipient of foreign investment in 1999 when the Government of Kuwait purchased 50% of the enterprise's shares of stock (Kohl 2001; Metal Bulletin, 2001b).

A major development in the country's nonferrous metals sector involved the modernization of FBC's aluminum producer Aluminij d.d. Mostar. The modernization program, which was valued at about $63 million and whose completion reportedly was scheduled for the third quarter of 2002, was to be carried out under the auspices of such EU companies as VAW Aluminium Technologie GmbH, Daimler-Chrysler, and Procedair Pollution Control. The modernization program was to include conversion of the 256-pot smelter to a center-worked pot system from side-worked Pechiney units, which had been installed in the early 1980s (Metal Bulletin, 2001a). The modernization program reportedly would protect the existing workforce and add additional jobs at the Mostar aluminum plant.

Another important development involved the continuing privatization of the FBC's cement industry. In 2001, D.D. Fabrika Cementa Lukavac became fully privatized through the sale of Government assets worth about 77% of total stock value. The Government's offer included the sale of about 67% of its shares through international tender; the balance, through the public sale of stock. In October, Alas International Baustoffproduktion AG of Austria obtained 51% of Lukavac's stock for $15.7 million. Lukavac, which had a production capacity (dry process) of 340,000 t/yr of cement, would continue to obtain all its limestone feedstock (up to 250,000 t/yr) from a nearby Government-owned limestone quarry. As part of the agreement, Alas International planned to invest about $52 million in the course of a 3-year period and would maintain the existing level of employment. Other bidders included Heidelberger Zement of Germany, which had acquired the country's other cement producer Tvornica cementa Kakanj in 2000 (Dani, 2001; Novac, 2001).

RS was known to mine coal and lignite and metal ores that included bauxite (aluminum), iron, and lead and zinc. Industrial mineral production included asbestos, ceramic and refractory clays, gypsum, limestone, magnesite, marble, and silica.

CROATIA

Croatia continued to produce minor quantities of metals and industrial minerals, mainly for domestic consumption. Petroleum extraction and refining were the major sectors of Croatia's minerals industry.

In 2001, the value of Croatia's total industrial production rose by 6% compared with that of 2000. The value of output of the mining and quarrying sector, as a whole, rose by about 2%. The petroleum and natural gas sector (less surveying), however, fell short of the 2000 level of output by about 3%. The gross value of output of coke and petroleum refinery products also declined (5%) compared with that of 2000 (CROSTAT, 2002). Actual production in this sector showed mixed results as natural gas output increased by 14% and that of petroleum declined by about 8%.

The gross value of output of the country's mining and quarrying operations, other than those associated with hydrocarbons, increased by about 11.3%, and that of processed industrial minerals, by 6.5% compared with that of 2000. The production, by weight, of such building materials as lime and cement increased by about 15% and 14%, respectively (CROSTAT, 2002).

The value of base-metals production increased by about 4.2%. In terms of units of physical output, the production levels of aluminum semimanufactures and ingot (primary and secondary) rose by 13% and 6%, respectively, compared with those of 2000. The production of crude steel (about 58,000 t) declined considerably (18%). In 2001, efforts to privatize the steel industry focused on Zeljezara Sisak d.d., which was located southwest of Zagreb. Prospective buyers included Russian, Slovak, and Swiss steel pipe producers and traders. The pace of privatization, however, was uncertain owing to Sisak's financial problems that arose during the period of civil strife in former Yugoslavia. Following bankruptcy, Sisak (mainly a producer of welded and seamless pipe) went into receivership and required court approval to privatize. Most of Sisak's shares were held by the power utility and several other Government agencies. In 2001, Sisak's production reportedly ranged from 5,000 to 7,000 metric tons per month, or about one-third of capacity (Metal Bulletin, 2001b).

Croatia's other principal steel producer Jadranska Zeljezara Split was located in Split on the coast of the Adriatic Sea. In 2001, Jadranska reported nearing the completion of a $9.7 million investment program, which required the closure of the operations in August. Operations were scheduled to restart in early 2002 and were to include a new EAF (about 82,000 t/yr), a modernized billet casting unit (80,000 t/yr), and a bar mill (76,000 t/yr). A program of facility expansion and full modernization of steel capacity at Jadranka was undertaken by Voest-Alpine Industrieanlagenbau of Austria (Metal Bulletin, 2001c).

Almost all categories of industrial minerals showed growth in 2001 compared with output levels of 2000. The primary activity in this sector involved conversion from fuel oil to coal as a fuel source at the Dalmacijaicement and Nasicecement D.D. cement plants (World Cement, 2001).

Croatia's state-owned oil company Industrija Nafte d.d. Zagreb (INA) continued to operate domestic gasfields and oilfields southeast of Zagreb near the Hungarian border and along the Adriatic coast. Imports, however, which were conveyed via the Adria pipeline, remained Croatia's chief source of petroleum. In early 2001, offshore oil and gas exploration yielded results in the northern Adriatic Sea with the discovery of a natural gas deposit at the Marcia 1 well. A total of four wells were drilled in that area (Oil & Gas Journal, 2001). The privatization of the oil and gas industry was a subject of study and recommendations by several international banking and consulting organizations; these recommendations included initial public stock offerings and strategic partnerships. The Government initially planned to restructure this sector into separate petroleum and natural gas commercial entities (Oil & Gas Journal, 2000; Seperic and Zivkovic, 2000).

In late 2001, a final protocol was signed by the Croatian and Russian Governments to initiate exports of Russia's Siberian petroleum through the Druzhba-Adria pipeline. The delivery of petroleum by the Druzhba-Adria route would allow Russian oil deliveries to bypass the Bosporus and Dardanelles Straits by transiting from Russia through Belarus, Ukraine, Slovakia, and Hungary; the pipeline's final outlet will be the Croatian port of Omisalj. Reportedly, severe restrictions on oil tanker tonnage that passes through the Bosporus and the Dardanelles were imposed by Turkey (Alexander's Gas & Oil Connections, 2002).

MACEDONIA

The Former Yugoslav Republic of Macedonia is well-endowed with mineral deposits necessary for the production of copper, iron, lead, precious metals, and zinc. A processing and fabricating infrastructure also was established that allowed the production of not only these metals and their alloys, but also such ferroalloys as ferrochromium, ferromanganese, and ferronickel. Also, such industrial minerals as bentonite, feldspar, gypsum, sand and gravel, and stone (carbonate and silicate) as well as cement and other construction materials that are based on quarried products were produced mainly for export. The strong economic recovery of Macedonia that began in 2000 ended in 2001 as the country experienced increased ethnic tensions and conflicts, which partly were the outcome of the conflict in recent years in neighboring Serbia's Kosovo Province.

In 2001, the country's GDP contracted by about 4% compared with that of 2000; industrial production fell by 8% (U.S. Central Intelligence Agency, 2002b). The available volume output indices for 2002, which were published by the State Statistical Office of Macedonia, showed that the total output of mining and quarrying had declined by about 1.8% compared with the 2000 output level (Drzhaven Zavod za Statistika, 2002). Individual subcategories of mining and quarrying, however, showed that mine output of lignite and metal ores remained at the same levels as those achieved in 2000, although mine production of industrial minerals showed a decline of about 5.5%. With respect to minerals processing, base metals, the production of coke and refined petroleum, and manufactured industrial minerals showed shortfalls of about 5.6%, 5.2%, and 1.0%, respectively.

Although mineral industry issues and events in 2001 were limited in scope, they included continuing interest in the Bucim cooper-gold open pit mine in the southern part of the country, which was privatized in 2000. Having conducted an audit of the mine in early 2001, CSMA Consultants Ltd. was hired to provide technical assistance to make the operation profitable (CSMA Consultants Ltd., 2002). In the steel sector, AD Makstil (a subsidiary of Duferco International Investment Holding Ltd.) reported that modernization of the steel shop and caster and the plate mill were nearing completion in 2001. Also, because of a favorable European plate market, Makstil reported overall good financial results at yearend (Duferco S.A., 2002).

The plan to build the Thessaloniki-Skopje crude petroleum pipeline, which won the approval of the European Bank for Reconstruction and Development to obtain a $50 million finance loan in December 2000, was finally adopted in January 2001. When completed, the pipeline would carry about 2.5 million metric tons per year of petroleum from the Greek port of Thessaloniki to the pipeline's terminus at the OKTA refinery in Skopje (European Bank for Reconstruction and Development, 2001b, p. 2).

SERBIA AND MONTENEGRO

In 2001, Serbia and Montenegro's postwar economy continued to recover, and the GDP was officially reported to have increased by 6.2% compared with that of the preceding year. Despite overall economic improvement, however, the total

volume of industrial production remained at about the level of output of 2000, and the output of the mining and quarrying component contracted by 13%. The mine output of oil and gas and coal declined by 18% and 8%, respectively; the production of metals and industrial minerals declined by 29% and 7%, respectively (Federal Statistical Office of Yugoslavia, 2002a, b). Owing to unresolved political and social issues in the Province of Kosovo, Serbia and Montenegro excluded official data about Kosovo's economy and minerals industry from official reports since 1999. Although the future of Kosovo's political status remains uncertain, its mineral wealth is not. Kosovo encompasses substantial portions of Serbia and Montenegro's kaolin, lignite, lead and zinc, nickel, and magnesium deposits. Other deposits with prospective commercial value include bauxite, chromite, limestone, marble, and quartz (Vukovic and Weinstein, 2002). With respect to RMHK Trepca, which was the lead and zinc mining and smelting complex in Kosovo, The United Nations Interim Administration Mission in Kosovo continued to work on environmental cleanup at the site and preparation for Trepca's eventual operation (Cundy, 2002). Trepca ceased operations during the Kososvo crisis in 1999 owing to war damage and ownership disputes.

In contrast to the output of most metals during the year, aluminum and alumina production registered gains of 14% and 9%, respectively, compared with 2000 production levels. Exports of primary aluminum and aluminum alloys amounted to 95,794 t, which was an increase of about 6%. In 2000, Kombinat Aluminijuma Podgorica (KAP) in Montenegro, which was the country's sole producer of primary aluminum, undertook a rationalization program that was instrumental in increasing output at the facility in 2001. KAP management and the Government of Montenegro reported plans to modernize the plant further in preparation for privatization (World Bank Group, 2002a).

In 2001, mine production of copper declined by about 45%, and the output of primary refined copper, by about 29% compared with 2000 production levels. Exports of copper, however, appear to have risen in 2001 by about 13% to 73,881 t (all forms). The year was marked by continuing financial difficulties at Bor that stemmed, in part, from damage sustained at several facilities during the Kosovo crisis of 1999 as well as by mineworker strikes over late wages. Apart from copper production from domestic sources, Bor also has been toll smelting copper concentrates for foreign producers in Greece and several other Balkan countries. General imports of copper concentrates in 2001 declined to 50,000 t from 68,000 t in 2000. Mytilineos SA of Greece was one of Bor's toll smelting contractors that expressed an interest in acquiring Bor's smelting and refining capacities in the course of the company's privatization (Metal Bulletin, 2001d; Federal Statistical Office of Yugoslavia, 2002a).

Lead and zinc ore production declined by 29%. Smelter and refinery production of lead appeared to be virtually moribund because no output was reported for either category in 2001. Refined zinc, however, was one of the few instances of an increase in metal production; it rose to 13,467 t from 8,291 t in 2000 and appeared to be nearing the most recent high output level in 1998. Other production shortfalls among metals were noted for silver (37%), magnesium (34%), and such ferrous metals as pig iron (18%), crude steel (12%), and steel semimanufactures (9%) (table 1).

A similar situation prevailed with respect to the output of industrial minerals and mineral fuels. Cement, however, was a major exception with output having risen by about 14% compared with that of 2000. A salient event in the industrial minerals sector was an announcement in late 2001 by Erin Ventures Inc. of British Columbia, Canada, that it would proceed with the development of the Piskanja borate deposit and study the entire Jadranol Basin (host to the Podrdjski borate deposit) pending final approval by Serbian Government authorities and finalization of discussions with an international chemical company to form a joint-venture partnership. The Government's studies undertaken in the late 1980s revealed that the Piskanja deposit had borate resources that amounted to at least 7 Mt, at a grade of 39.39% boron oxide (Erin Ventures Inc., 2001, 2002).

The production of all fossil fuels declined—coal by 5%, natural gas by 31%, and petroleum by 7%—compared with 2000 production levels. To overcome these shortfalls, official trade data for 2001 registered significant increases in the import of natural gas and petroleum. Petroleum imports rose to more than 1.8 Mt from 158,000 t in 2000; natural gas output increased to 847,000 t from 485,000 t. A significant development during the year involved the planned drilling for oil by Ramco Energy in a region of Macedonia believed to have commercially significant deposits of petroleum and natural gas (Alexander's Gas & Oil Connections, 2001).

SLOVENIA

Slovenia's GDP grew by about 3% in 2001compared with that of 2000, and total output of industry, by about 2.9% (Statistichi Urad Republike Slovenije [Statistical Directorate of the Republic of Slovenia], 2002, p. 60). The country's positive economic performance over several years to a large extent mirrored a political and social environment that was more stable than that of the rest of the republics that formed former Yugoslavia. Slovenia's industries and infrastructure also compared more favorably with those of the EU member countries than with those of its former Yugoslav partners.

Within the context of global and regional mineral production levels, Slovenia's modest minerals output included coal, natural gas, petroleum, and a variety of industrial minerals. Mineral raw materials required by the country's industries were met mainly through imports. Preliminary trade returns for 2001 show Slovenia's net import reliance (in value) on crude and refined petroleum (almost 100%), iron and steel (65%), and nonferrous metals (6.5%) (Statistichi Urad Republike Slovenije [Statistical Directorate of the Republic of Slovenia], 2002, p. 60).

In 2001, mining and quarrying as a percentage of GDP was reported to be 0.9%, which was a decline of more than 7% compared with that of 2000. The total volume of mine production showed a decline of about 8%. The output of basic metals and semimanufactures, however, showed a gain of about 6.7%. The year's mining results in the mineral fuels branch registered declines in natural gas, lignite, and brown coal production of about 10%, 8%, and 7%, respectively. Although a rise in production was indicated for crude petroleum, the actual output of this commodity was negligible (Statistichi Urad Republike Slovenije [Statistical Directorate of the Republic of

Slovenia], 2002, p. 60, 61). The contraction of mining and quarrying output correlated with the decline of 8.3%, 15.5%, 5.3%, and 2.6% in 2001, 2000, 1999, and 1998, respectively, in the sector's labor force. Employment increases, however, were recorded mainly in the service sectors of Slovenia's economy (Bednas, 2000, p. 142-143).

Slovenia's metallurgical sector largely consisted of primary aluminum production at Kidriçevo (Talum d.o.o.) and three steel mills. The state-owned holding company Slovenske Železarne (SŽ) maintained ownership of SŽAcroni Jesenice d.o.o. (Acroni) and SŽ Metal Ravne d.o.o. (Metal Ravne). In 2001, SŽ reported seeking foreign investors, preferably joint-venture arrangements, in its Acroni and Metal Ravne operations (Barrett, 2001, p. 19).

Acroni's total steelmaking capacity amounted to about 490,000 t/yr of which less than one-half had been utilized in recent years. An investment program to modernize Acroni from 2000 through 2004 ($52 million) was set to raise the plant's stainless production to 100,000 t/yr from 50,000 t/yr. The modernization of plant's process control system and the reheat furnace also was scheduled. Another major component of Acroni's investment program addressed the improvement of environmental aspects of steelmaking, which included dust abatement at EAF operations, upgrading the water treatment system, and dust removal and slag handling and processing (Barrett, 2001, p. 18). In addition to stainless steel, Acroni also produced alloy and carbon steels. Most of the planned investment at Metal Ravne for 2001 (about $4.5 million) was to go for the modernization of the plant's medium section mill. Metal Ravne produced about 150,000 t/y of carbon alloy and stainless steels.

Investment plans for 2001 (about $2.7 million) at Inexa Štore (formerly Jekla Štore; a subsidiary of the Inexa Group of Sweden since 1999) called for the modernization of the EAF and continuous caster; also, the construction of the smelter's dust-abatement technology was to begin in 2001 and be fully installed by 2003. Inexa Štore had a 145,000-t/y capacity to produce engineering, forging, and spring steels (Barrett, 2001).

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TABLE 1
ALBANIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1997	1998	1999	2000	2001
METALS					
Bauxite	4,454	4,128	4,624	5,000	5,000
Chromium:					
Chromite, gross weight e/	157,203	150,285	79,445	57,000 r/	55,000
Marketable ore, 41.6% Cr_2O_3	84,423	81,994	64,597	117,000 r/	86,000 3/
Concentrate	21,881	20,195	6,837	3,400 r/	-- 3/
Total marketable ore and concentrate	106,304	102,189	71,434	120,400 r/	86,000 3/
Ferrochromium	31,144	30,252	28,120	12,500 r/	11,900 3/
Copper:					
Ore:					
Gross weight	24,895	53,477	33,945	-- r/	--
Concentrate	869	2,294	8,691	-- r/	--
Cu content e/	220	3,200	900	-- r/	--
Metal, primary:					
Smelter, blister	--	1,632	1,281	-- r/	--
Refined, electrolytically	--	1,150	342	-- r/	--
Iron and steel :					
Pig iron e/	10,000	10,000	10,000	-- r/	--
Crude steel e/	20,533 r/	19,527 r/	15,600 r/	64,700 r/	94,100 3/
Rolled steel	43,000	42,000	8,700	-- r/	--
INDUSTRIAL MINERALS					
Cement, hydraulic thousand tons	100 r/	84 r/	106 r/	180 r/	--
Clay, kaolin e/	500	500	422 r/	420 r/	385 3/
Dolomite e/	50,000	50,000	50,000	50,000	50,000
Fertilizer, manufactured:					
Phosphatic	26,604	12,284	8,600	-- r/	--
Urea e/	3,000	3,000	3,000	--	--
Nitrogen, N content of ammonia e/	10,000	10,000	10,000	-- r/	--
Olivinite e/	300	300	300	200	200
Phosphate rock, 12%-15% P_2O_5 e/	1,000	1,000	1,000	-- r/	--
Pyrite, unroasted	--	--	--	--	
Salt e/	10,000	10,000	10,000	--	--
Sodium compounds n.e.s., soda ash, calcined e/	100	--	--	--	
Sulfuric acid e/	500	500	500	500	500
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bitumen, natural 4/ thousand tons	16,900	15,782	16,625	16,000 r/	15,000
Coal, lignite do.	38,900	49,000 r/	28,000 r/	20,600 r/	16,400 3/
Gas, natural, gross production 5/ thousand cubic meters	18,271	16,551	14,167	11,490 r/	10,980 3/
Petroleum:					
Coke	33,678	57,842	47,543	46,000 r/	45,000
Crude:					
Gross weight thousand tons	359,666	364,627	323,009	314,000 r/	308,000 3/
Converted e/ thousand 42-gallon barrels	2,400	2,000	2,400	2,100 r/	2,000
Refinery products	315,072	379,131	328,875	324,000	310,000

e/ Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. r/ Revised.

1/ Table includes data available through August 2002.

2/ In addition to the commodities listed, a variety of industrial minerals and construction materials (common clay, quartz, titanomagnetite, stone, and sand and gravel) are produced, but output is not reported quantitatively, and available information is inadequate to make reliable estimates of output levels.

3/ Reported figure.

4/ Includes asphalt and bitumen produced at petroleum refineries.

5/ Separate data on marketable production are not available, but gross and marketed output are regarded as being nearly equal.

TABLE 2
ALBANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001 1/

(Thousand metric tons unless otherwise specified)

Commodity	Location of main facilities (all state-owned)	Annual capacity
Cement	Elbasan, 32 kilometers southeast of Tirana; Kruje, 20 kilometers northwest of Tirana; Shkoder, 85 kilometers northwest of Tirana; and Vlore, southwest of Tirana	1,200
Chromite	Bater (including Bater I and II and Martanesh), 40 kilometers northwest of Tirana	450
Do.	Bulquize (including Bulquize south, Fush, Terrnove, and Todo Maco), 35 kilometers northwest of Tirana	450
Do.	Kalimash, 60 kilometers north of Tirana	250
Do.	Kam, 70 kilometers north of Tirana	100
Do.	Klos, 20 kilometers northeast of Tirana	50
Do.	Pogradec (including Katjiel, Memelisht, Pishkash and Pojske Prrenjas), 50 kilometers east of Tirana	100
Ferrochromium	Burrel, 35 kilometers northeast of Tirana	40
Do.	Elbasan, 32 kilometers southeast of Tirana	36
Copper:		
Ore	Fushe-Arrez, 80 kilometers north of Tirana	350
Do.	Gjejan, 100 kilometers northeast of Tirana	150
Do.	Golaj (including Nikoliq and Pus), 120 kilometers northeast of Tirana	150
Do.	Kurbnesh-Perlat, 55 kilometers northeast of Tirana	100
Do.	Rehove, 110 kilometers southeast of Tirana	100
Do.	Reps (including Gurch, Lajo, Spac, and Thurr), 55 kilometers north of tirana	350
Do.	Rreshen, 50 kilometers north of Tirana	50
Do.	Shkoder (including Palaj, Karma I and II), 85 kilometers northwest of Tirana	100
Smelter	Kukes, 110 kilometers northeast of Tirana	6
Do.	Lac, 35 kilometers northwest of Tirana	7
Do.	Rubik, 50 kilometers north of Tirana	4
Iron ore	Prrenjas (Bushtrica, Prrenjas, Skorska I and II), 70 kilometers southeast of Tirana	650
Do.	Guri i Kuq (including Cervenake, Grasishta, Guri i Kuq, Hudenisht and Guri Pergjrgjur), 25 kilometers east of Tirana	500
Steel	"Steel of the Party" Metallurgical Combine at Elbasan	150
Nickel, smelter	Elbasan	6
Coal, lignite	Maneze, Mezes, and Valias Mines in Tirana Durres area; Krabe Mine, 20 kilometers southeast of Tirana; Alarup and Cervnake Mines, in Pogradec area, 80 kilometers southeast of Tirana; Mborje-Drenove Mine in Korce area, 85 kilometers southwest of Tirana; and Memaliaj Mine in Tepelene area, 110 kilometers south of Tirana	2,500
Natural gas, million cubic feet	Gasfields on southwest Albania between Ballsh and Fier	16,000
Petroleum:		
Crude, 42-gallon barrels per day	Oilfields at Marineze, Ballsh, Shqisht, Patos, Kucova, Gorrisht, and others	35,000
Refined, do.	Ballsh, Cerrik, Fier, and Stalin Refineries	33,000

1/ A substantial portion of these enterprises have been operating significantly below capacity during the transition to a market economy; the capacities provided in this table only represent the latest available information and may not show the true status of these enterprises.

TABLE 3
BOSNIA AND HERZEGOVINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1997	1998	1999	2000	2001
METALS						
Aluminum:						
Bauxite		75,000	75,000	75,000	75,000	75,000
Metal, ingot; primary and secondary		40,000	38,000	70,000	94,500	100,000
Iron and steel:						
Ore and concentrate:						
Ore, gross weight		100,000	100,000	100,000	100,000	100,000
Ore, Fe content		35,000	35,000	35,000	36,000	36,000
Metal:						
Ferroalloys:						
Ferrosilicon		1,000	10,000 r/	15,000 r/	20,000	20,000
Pig iron		60,000 r/	58,000 r/	45,000 r/	57,000 r/	60,000
Crude steel:		72,000 r/	75,000 r/	60,000 r/	77,000 r/	80,000
Electric arc furnace		14,000	19,000	20,000	24,000	25,000
Opern hearth furnace		58,000	56,000	40,000	53,000	55,000
Semimanufactures		57,000 r/	67,000 r	75,000 r/	16,000 r/	60,000
Lead:						
Mineral concentrator output:						
Ore, gross weight (Pb-Zn ore)		10,000	10,000	10,000	10,000	10,000
Pb content of ores		200	200	200	200	200
Pb concentrate		400	400	400	400	400
Metal, smelter, primary and secondary		100	100	100	100	100
Manganese ore:						
Gross weight		2,000	2,000	2,000	2,000	2,000
Mn content		500	500	500	500	500
Zinc:						
Zinc content of Pb-Zn ore		300	300	300	300	300
Concentrate output, gross weight		600	600	600	600	600
INDUSTRIAL MINERALS						
Asbestos, all kinds		500	500	500	500	500
Barite concentrate		2,000	2,000	2,000	2,000	2,000
Cement	thousand tons	200	300	300	300	300
Clays:						
Bentonite		800	800	800	800	800
Ceramic clay, crude		20,000	20,000	20,000	20,000	20,000
Kaolin:						
Crude		3,000	3,000	3,000	3,000	3,000
Calcined		1,500	1,500	1,500	1,500	1,500
Gypsum:						
Crude		30,000	30,000	30,000	30,000	30,000
Calcined		3,000	3,000	3,000	3,000	3,000
Lime	thousand tons	50	50	50	50	50
Magnesite, crude		2,000	2,000	2,000	2,000	2,000
Nitrogen, N content of ammonia		500	500	500	500	500
Quartz, quartzite, glass sand: Glass sand		50,000	50,000	50,000	50,000	50,000
Salt, all sources		50,000	50,000	50,000	50,000	50,000
Sand and gravel, excluding glass sand	thousand cubic meters	500	500	500	500	500
Sodium compounds:						
Soda ash		5,000	5,000	5,000	5,000	5,000
Caustic soda		5,000	5,000	5,000	5,000	5,000
Sodium bicarbonate		500	500	500	500	500
Stone, excluding quartz and quartzite, Dimension, crude:						
Ornamental	square meters	20,000	20,000	20,000	20,000	20,000
Other	cubic meters	2,000	2,000	2,000	2,000	2,000
Crushed and brown, n.e.s.	thousand cubic meters	500	500	500	500	500
Sulfur, byproduct of metallurgy		1	1	1	1	1
MINERAL FUELS AND RELATED MATERIALS						
Brown coal and lignite	thousand tons	1,810 r/ 3/	1,764 r/ 3/	1,800	1,900 r/	1,900
Coke		--	--	--	--	
Petroleum refinery products	thousand 42-gallon barrels	500	500	500	500	500

r/ Revised.

1/ Table includes data available through March 2002. Estimated data are rounded to no more than three significant digits.

2/ In addition to commodities listed, common clay was also produced, but available information was inadequate to make reliable estimates of output.

3/ Reported figure.

TABLE 4
BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Aluminij d.d. Mostar	Plants at Birac-Zvornik	600
Do.	do.	Plant at Mostar	280
Aluminum	do.	Smelter at Mostar	92
Bauxite	do.	Mines at Vlasenica, Jajce, Bosanska Krupa, Posusje, Listica, Citluk, and other locations	2,000
Cement	Gik Hidrogradnja, Tvornica Cementa	Plant at Kakanj	650
Coal:			
Brown	SOUR Titovi Rudnici Uglja, Tuzla	Mines in BiH	12,000
Lignite	do.	do.	7,000
Ferroalloys	Elktrobosna, Elektrohemijska i Eletrotermijska Industrija	Plant at Jajce	80
Iron ore	Rudarsko Metalurski Kombinat Zenica (RMK Zenica)	Mines at Vares, Ljubija, and Radovan	5,000
Lead-zinc ore	Energoinvest	Mine and mill at Srebrenica	300
Manganese ore	Mangan-Energoinvest	Mine and concentrator at Buzim	100
Petroleum, refinedthousand barrels per day	Energoinvest: Rafinerija Nafte Bosanski Brod	Refinery at Bosanski Brod	100
Pig iron	RMK Zenica	Four blast furnaces at Zenica	2,250
Do.	do.	Two blast furnaces at Vares	100
Do.	do.	Electric reduction furnaces at Iljas	100
Salt cubic meters per year	Hemijski Kombinat "Sodaso," Rudnik Soli i Solni Bunari	Rock salt mines at Tusanj	120,000
Do. do.	do.	Production from brine at Tuzla	2,000,000
Steel, crude	BH Steel-Zeljezara (former RMK Zenica)	Plant at Zenica	2,060

TABLE 5
CROATIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1998	1999	2000	2001	2002
METALS						
Aluminum:						
Bauxite e/		--	--	--	--	-- 3/
Metal, ingot, primary and secondary		16,112	14,461	15,050	16,019	-- 3/
Alloys		2,191	843	977	823	812 3/
Semimanufactures, rolled		26,148	29,465	30,161	34,106	33,774 3/
Ferrochromium		11,771	--	15,753	361	-- 3/
Steel:						
Crude, from electric furnaces		104,854	77,213	71,021	57,993	33,851 3/
Semimanufactures:						
Bars and wire rod		42,357	46,665	42,388	31,583	2,078 3/
Strip, narrow and wide			--	--	--	-- 3/
Seamless tubes		56,637	40,719	36,432	35,297	23,435 3/
Welded pipe		63,844	44,873	26,405	39,935	37,509 3/
INDUSTRIAL MINERALS						
Cement	thousand tons	2,294	2,712	2,852	3,246	3,378 3/
Clays:						
Bentonite		7,581	8,441	10,013	10,580	11,204 3/
Ceramic clay e/		5,022	6,000	6,100	6,000	6,000
Fire clay, crude e/		3,500	3,000	--	--	--
Gypsum:						
Crude		107,800	137,991	150,765	130,861	145,000 3/
Calcined		1,259	1,236	1,176	1,217	1,200
Lime	thousand tons	216	198	220	253	269 3/

See footnotes at end of table.

TABLE 5--Continued
CROATIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1998	1999	2000	2001	2002
INDUSTRIAL MINERALS--Continued						
Nitrogen, N content of ammonia	thousand tons	248	306	328	263	249 3/
Pumice and related materials, volcanic tuff	do.	38	55	38	42	41 3/
Quartz, quartzite, glass sand		245,855	211,572	211,705 r/	252,013 r/	274,121 3/
Salt, all sources		24,087	18,477	33,668	32,585	36,885 3/
Sand and gravel, excluding glass sand	thousand cubic meters	4,316	3,644	3,480	3,865 r/	4,353 3/
Stone, excluding quartz and quartzite, dimension stone, crude:						
Ornamental	square meters	1,138,728	1,155,281	1,063,901 r/	1,044,944	1,127,948 3/
Crushed and brown, n.e.s.	thousand tons	11,360	11,871	10,801	12,941	14,736 3/
Other e/	cubic meters	20,000	20,000	25,000	25,000	25,000
Sulfur, byproduct of petroleum e/		15,000	15,000	15,000	15,000	15,000
MINERAL FUELS AND RELATED MATERIALS						
Carbon black		22,165	17,589	20,029	21,180	20,000
Coal, bituminous	thousand tons	51	15	--	--	-- 3/
Natural gas, gross production	million cubic meters	1,570	1,551	1,659 r/	2,010	2,122 3/
Petroleum, crude:						
As reported	thousand tons	1,389	1,293	1,214	1,121	1,108 3/
Refinery products		5,183,000	5,639,000	5,322,000	5,400,000	5,300,000

e/ Estimated; estimated data are rounded to no more than three significant digits. r/ Revised. -- Zero.
1/ Table includes data available through May 2003.
2/ In addition to commodities listed, common clay also was produced, but available information was inadequate to make reliable estimates of output levels.
3/ Reported figure.

TABLE 6
CROATIA: STRUCTURE OF THE MINERALS INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Jadral, Jadranski Aluminijum	Jadral Alumina Plant	150
Aluminum	Boris Kidric Tvornica Lakih Metala	Smelter at Sibenik	75
Do.	Top-Tvornica Olovni i Aluminjskikh	Semimanufactures producer at Savska	NA
Bauxite	Jadral, Jadranski Aluminijum	Mines in at Obrovac, Drnis, and other locations	450
Coal, bituminous	Istarski Ugljenokopi Rasa	Mines at Labin and Potpican	500
Cement	Dalmacija Cement	Sv. Jurai plant at Kastel Sucurac	1,300
Do.	do.	Sv. Kajo plant at Solin	750
Do.	do.	Majdan plant at Solin Majdan	780
Do.	Istra Cement International D.D.	Plant at Pula	70
Do.	Tvornica Cementa Koromacno	Plant at Koromacno	420
Do.	Tvornica Cementa Umag D.D.	Cement plant at Umag	480
Do.	Nasicecement D.D.	Nacise plant at Tajnovac	840
Natural gas million cubic feet	do.	Main natural gasfields at Bogsic Lug, and Molve	70,000
Petroleum, crude thousand barrels per day	Industrija Nafte d.d. Zagreb (INA)	Oilfields in Croatia and Slovenia: Benicanci, Zutica, Struzec, Ivanic Grad, Lendava, and other locations	70
Do. do.	do.	Refineries at Urinj and Rijeka	160
Do. do.	do.	Refinery at Sisak	150
Pig iron	Zeljezara Sisak d.d.	Two blast furnaces at Sisak	235
Salt cubic meters	Solana Pag, Solana Ante Festin	Marine salt: Pag Island	13
Steel, crude	Zeljezara Sisak d.d.	Plant at Sisak	401
Do.	Jadranska Zelejzara Split	Plant at Split	120

NA Not available.

TABLE 7
MACEDONIA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/		1997	1998	1999	2000	2001
METALS						
Aluminum, metal, ingot, primary and secondary		4,000	5,850 4/	5,000	4,500	4,000
Cadmium, smelter output	kilograms	50 4/	50	50	50	50
Chromite:						
Ore, gross weight		5,000	--	--	--	-- 4/
Concentrate (produced largely from imported ores)		3,000	--	--	--	-- 4/
Copper, mine and concentrator output:						
Ore:						
Gross weight	thousand tons	2,000	2,000	2,000	2,000	1,500
Cu content		8,000 4/	9,100 4/	10,200 r/	10,000	7,000
Concentrate:						
Gross weight		20,000	20,000	20,000	5,000	20,000
Cu content		13,000	9,100	9,000	6,000	9,000
Gold	kilograms	650	700	750 r/	750	500
Iron and steel:						
Iron ore:						
Gross weight		20,000	20,000	20,000	20,000	20,000
Fe content		1,000	1,000	1,000	1,000	1,000
Concentrate		15,000	15,000	15,000	15,000	10,000
Pellets		10,000	10,000	10,000	10,000	10,000
Agglomerate		5,000	5,000	5,000	5,000	5,000
Metal:						
Ferroalloys:						
Ferrochromium, low C		460 4/	-- 4/	-- 4/	--	--
Ferronickel, 38% Ni, gross weight		7,900	9,500 r/	5,000 4/	--	--
Ferrosilicon		55,000	96,700 r/	73,000	65000	60,000
Silicon		1,000	1,000	--	--	--
Total		64,400	107,200 r/ 4/	78,000	65,000	60,000
Steel, crude		30,000	-- r/	-- 4/	--	
Semimanufactures		60,000	65,000 r/	60,000	60,000	55,000
Lead:						
Mine output:						
Ore, gross weight, Pb-Zn ore		850,000	867,182 r/ 4/	670,000	850,000	600,000
Pb content		28,000	26,000	26,000 4/	26,000	11,000
Concentrate, Pb content		17,000	14,328 r/ 4/	12,300 r/ 4/	16,500	9,000
Primary and secondary:						
Smelter		20,000	20,000	20,000	20,000	8,000
Refined		26,046 r/ 4/	28,415 r/ 4/	19,738 r/ 4/	22,900	7,000
Nickel, metal, Ni content of FeNi		5,300 r/	5,800 r/	1,900 4/	--	--
Silver	kilograms	18,760 r/ 4/	20,000	22,000 r/	20,000	15,000
Zinc:						
Concentrate		15,800 r/	14,328 r/ 4/	8,000	12,200	5,000
Metal:						
Refined, primary and secondary:						
Smelter		7,000	7,000	7,000	7,000	7,000
Electrolytic		53,000	57,162 r/ 4/	49,608 r/ 4/	62,800	16,000
INDUSTRIAL MINERALS						
Cement	thousand tons	500 4/	461 r/ 4/	520 4/	585	450
Clays, bentonite		30,000	30,000	30,000	30,000	25,000
Diatomite		5,000	5,000	5,000	5,000	5,000
Feldspar		--	8,137 r/ 4/	11,000	10,000	8,000
Gypsum:						
Crude		25,000	25,000	25,000	25,000	20,000
Calcined		5,000	5,000	5,000	5,000	3,000
Lime		10,000 r/	924 r/	-- 4/	1,000	500
Pumice and related materials, volcanic tuff		100,000	100,000	150,000	150,000	50,000
Sand and gravel, excluding glass sand	thousand cubic meters	130	130	150	150	100
Stone, excluding quartz and quartzite, dimension, crude:						
Ornamental	square meters	190,000	190,000	200,000	200,000	150,000
Crushed and brown, n.e.s.	thousand cubic meters	400	400	400	400	300
Other	cubic meters	10,000	10,000	10,000	10,000	5,000

See footnotes at end of table.

TABLE 7--Continued
MACEDONIA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/		1997	1998	1999	2000	2001
INDUSTRIAL MINERALS--Continued						
Sulfur, byproduct of metallurgy	thousand tons	20,000	20,000	29,000	26,000	20,000
Talc:						
Crude		10,000	10,000	9,000	10,000	7,000
Washed		7,000	7,000	7,000	7,000	5,000
MINERAL FUELS AND RELATED MATERIALS						
Lignite	thousand tons	7,165 r/ 4/	8,180 r/	7,500	7,100	6,000
Petroleum refinery products	thousand 42-gallon barrels	6,000 r/	6,000	6,000	6,000	6,000

r/ Revised. -- Zero.
1/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.
2/ Table includes data available through July 2002.
3/ In addition to commodities listed, common clay also is produced, but available information was inadequate to make reliable estimates of output levels
4/ Reported figure.

TABLE 8
MACEDONIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity e/
Cement	Azbestcementa "Usje" Preduzece za Proizvodnju Cementa	Plant at Skopje	2,190
Chromite, concentrate	Jugohrom, Hemijsko-Elektrometakurski Kombinat (HEK)	Concentrator at Radusa	150
Copper ore	Bucim, Rabotna Organizacija za Rudarstvo i Metalurgija za Baker	Mine and mill at Bucim, near Radovis	7,000
Ferroalloys	Jugohrom, Hemijsko-Elektrometalurski Kombinat (HEK)-Jegunovce	Plant at Jegunovce	80
Iron ore	Skopje, Rudnici i Zeljezarnica Skopje	Mines at Tajmiste, Demir Hisar, and Damjan	1,000
Lead and zinc, ore	Prepobotuvacki, Kombinat Zletovo-Sasa: Sase, Rudnici za Olovo i Cink	Mine and mill near Kamenica	300
Do.	Zletovo, Rudnici za Olovo i Cink	Mine and mill near Probistip	700
Lead, metal	Zletovo, Topilnica za Cink i Olovo	Imperial smelter at Titov Veles	40
Do.	do.	Refinery at Titov Veles	40
Nickel: 1/			
Ore	Feni-Rudnici i Industrija za Nikel, Celik i Antimon	Mine and opencast mine near Kavadarci	2,300
Metal	do.	Ferronickel plant at Kavadarci	161
Pig iron	Skopje, Rudnici i Zeljezarnica Skopje	Five Elkem electric furnaces at Skopje	430
Steel, crude	do.	Plant at Skopje	980
Zinc, metal	Zletovo, Topilnica za Cink i Olovo	Imperial Smelter plant and refinery at Titov Veles	65

e/ Estimated; estimated data are rounded to no more than three significant digits.
1/ Nickel in ferronickel.

TABLE 9
SERBIA AND MONTENEGRO: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1997	1998	1999	2000	2001
METALS						
Aluminum:						
Alumina, calcined, gross weight		160,000	152,619	156,012	186,135 r/	200,660
Bauxite, gross weight		470,000	226,000	500,000	630,000	610,000
Metal, ingot, primary and secondary		65,743	60,090	72,505	88,151	100,176
Antimony, metal		--	--	--	--	--
Bismuth, metal	kilograms	20 e/	430	--	--	--
Cadmium	do.	80,000 e/	17,320	--	--	--
Copper:						
Mine and concentrator output:						
Ore:						
Gross weight	thousand tons	20,507	19,939	15,975	12,896	7,123
Cu content		82,500	84,627	62,777	52,000 e/	28,000 e/
Concentrate:						
Gross weight		361,000	372,103	272,172	200,000 e/	120,000 e/
Cu content		73,600	70,900 e/	51,700	41,000 e/	22,000 e/
Metal:						
Blister and anodes:						
Primary		59,000 e/	101,000	54,000	45,000 e/	34,000 e/
Remelted		60,000 e/	101,925	49,782	45,000 e/	35,000 e/
Total		119,000 e/	202,925	103,782	90,000	69,000
Refined:						
Primary		70,534	54,000	49,902 r/	45,632	32,365
Remelted		43,000	40,396	1,902	40,000 e/	30,000 e/
Total		113,534	94,396	51,804	95,632 e/	62,365 e/
Gold, refined	kilograms	4,000	2,684	1,260	1,121 r/	800 e/
Iron and steel:						
Ore and concentrate, agglomerate		25,000	5,125	2,088	-- r/	--
Metal:						
Ferroalloys, ferronickel		6,500 e/	1,215	--	--	--
Pig iron		907,000	825,916	134,882	563,000	461,000
Crude steel		979,000	948,314	226,240	682,000	598,000
Semimanufactures		1,460,000	1,740,000	334,000 r/	880,000 r/	801,000
Lead:						
Mine and concentrate output:						
Ore, gross weight (Pb-Zn ore)		1,049,000	1,248,852	884,000 r/	1,302,000 r/	926,000
Pb content of ore e/		27,000	24,750 3/	18,000	26,000	19,000
Concentrate, gross weight e/		31,000	32,691 3/	26,000	38,000	27,000
Pb content of concentrate e/		11,000	12,000	9,000	14,000	10,000
Metal, primary and secondary:						
Smelter		41,000	35,576	-- r/	1,500 r/	--
Refined		23,632	23,756	--	1,242	--
Magnesium, metal		2,500 e/	3,965	1,203	2,600 e/	1,700 e/
Nickel, metal, Ni content of ferronickel		2,440	466	--	--	--
Platinum-group metals:						
Palladium	kilograms	55 e/	54	21	21 e/	10
Platinum	do.	3 e/	3	3	3 e/	1
Selenium	do.	38,000 e/	40,866	20,080	20,000 e/	20,000
Silver	do.	42,640	34,474	7,643	9,068 r/	5,745
Zinc:						
Zn content of Pb-Zn ore		25,000 e/	20,285	19,000 r/ e/	29,000 e/	20,000 e/
Concentrator output, gross weight		35,000 e/	40,530	34,000 e/	50,000 e/	35,000 e/
Zn content of concentrate		13,000	14,000	20,000 e/	30,000 e/	20,000 e/
Refined		29,454	14,415	683	8,291	13,467
INDUSTRIAL MINERALS						
Asbestos fiber, all grades		765	1,452	361	563	194
Cement	thousand tons	2,011	2,253	1,575	2,117	2,418

See footnotes at end of table.

TABLE 9--Continued
SERBIA AND MONTENEGRO: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1997	1998	1999	2000	2001
INDUSTRIAL MINERALS--Continued						
Clays:						
Bentonite		100 e/	68	77	75 e/	75 e/
Ceramic clay		35,000 e/	40,033	29,420	30,000 e/	30,000 e/
Fire clay:						
Crude		51,000	45,319	25,766	30,000 e/	30,000 e/
Calcined e/		10,000	10,000	4,000	10,000 e/	10,000 e/
Kaolin, crude		60,000 e/	75,092	40,321	39,475 r/	40,000 e/
Feldspar, crude		4,880	4,280	3,453	4,254 r/	4,000 e/
Gypsum, crude		32,124	27,778	33,962	46,651 r/	45,000 e/
Lime	thousand tons	460	480	381	499 r/	467
Magnesite:						
Crude	do.	98	949	31	41	36
Caustic calcined		6,327	7,044	2,000	3,000 e/	2,500 e/
Mica, all grades		200 e/	247	229	230 e/	230 e/
Nitrogen, N content of ammonia		235,000	166,152	75,788	60,000 e/	65,900
Pumice and related volanic materials, volcanic tuff		120,000 e/	120,000	50,000	120,000 e/	100,000 e/
Quartz sand	thousand tons	366	353	253	418	301
Salt, all sources		28,000	78,148	63,834	78,277	61,646
Sand and gravel excluding glass sand	thousand cubic meters	2,351	3,060	2,006	2,675 r/	1,967
Sodium compounds:						
Caustic soda		64,713	63,344	13,720	7,415	7,984
Sodium sulfate		5,000	1,896	1,321	800 e/	800
Stone, excluding quartz and quartzite, dimension, crude:						
Ornamental	square meters	206,000	258,000	157,000 r/	158,000 r/	84,000
Crushed and broken, n.e.s.	thousand cubic meters	2,665	3,085	1,937	3,000 e/	3,000 e/
Other, stone blocks	cubic meters	9,817	1,630	786	1,000 e/	1,000 e/
Sulfur, byproduct: e/						
Metallurgy	thousand tons	100	100	100	100 e/	100
Petroleum	do.	1	1	1	1 e/	1
Total	do.	101	101	101	101	101
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	do.	92	105	49	88	70
Brown	do.	512	390	413	398	376
Lignite	do.	42,313	43,577	30,967	33,638	31,789
Total	do.	42,917	44,072	31,429	34,124	32,235
Natural gas, gross production	million cubic meters	688	731	143 r/	160 r/	111
Petroleum:						
Crude, as reported	thousand tons	979	913	705	805	746
Refinery products	do.	3,167 r/	2,549 r/	1,047 r	1,100 e/	2,000 e/

e/ Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. r/ Revised. -- Zero.
1/ Table includes data available through March 2002.
2/ In addition to commodities listed, common clay and diatomite also are produced, and tellurium may be recovered as a copper refinery byproduct, but available information is inadequate to make reliable estimates of output levels.
3/ Reported figure.

TABLE 10
SERBIA AND MONTENEGRO: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand of metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Kombinat Aluminijuma Titograd	Plant at Titograd, Montenegro	200.
Aluminum	do.	Smelter at Titograd, Montenegro	100.
Antimony, ores and concentrates	Zajaca, Rudarsko Tapionicarski Bazen	Mines and mills near Zajaca, Serbia	80.
Do.	do.	Mines and mill at Rajiceva Gora, Serbia	300.
Antimony, metal	do.	Smelter at Zajaca, Serbia	4.
Bauxite	Rudnici Boksita, Niksic	Mines in Montenegro at Kutsko Brdo, Zagrad, Biocki Stan, Durakov Dol, and and other locations	650.
Coal:			
Bituminous	Ibarski Rudnici Kamenog Uglja	Mines at Jarando and Usce, near Baljevac na Ibru, Serbia	250.
Lignite	SOUR Kolubara, Rudarsko Energetsko Industrijski Kombinat, RO	Opencast mines: Polje B and Polje D	10,000.
Do.	Kolubara Povrsinski Kopovi	Tamnavski Kopovi (also known as Kolubarski Rudnici Lignita) near Vreoci, Serbia	14,000.
Do.	SOUR Elektroprivreda Kosova, RO Kosovo, Proizvodnja Separacija i Transport Uglja	Opencast mines: Dobro Selo and Belacevac near Obilic, Serbia	2,000.
Cement	Becinska Fabrika Cementa	Plant at Beocin, Serbia	2,031.
Do.	Fabrika Cementa Novi Popovac	Plant at Popovac, Serbia	1,613.
Copper	Rudarsko Topionicki Bazen Bor	Smelter at Bor, Serbia	180.
Do.	do.	Electrolytic refinery at Bor, Serbia	180.
Do.	do.	Mine and mill at Bor, Serbia	5,000 ore.
Do.	do.	Mine and mill at Majdanpek, Serbia	15,000 ore.
Do.	do.	Mine and mill at Veliki Krivelj, Serbia	8,000 ore.
Lead-zinc ore	Rudarsko-Metalursko-Hemijski Kombinat za Olovo i Cink Trepca	Mines at Ajvalija, Kopanaonik, Badovac; Trepca, Blagodat, Lece; Veliki Majdan, Tisovak; and Kisnica, Rudnik, Suplja Stijena	5,000.
Do.	do.	Mills at Kriva Feja, Lece, Rudnik, Badovac, Leposavic, Zvecan, and Maravce, Suplja Stijena	3,160.
Do.	Hemijska Industrija Zorka: Brskovo, Rudnici Olova i Cinka	Mine at Brskovo, Montenegro	500.
Do.	Veliki Majdan Rudnik Olova i Cinka	Mine at mill near Krupanj, Serbia	250.
Lead, metal	Rudarsko Metalursko Hemijski Kombinat za Olovo i Cink Trepca	Smelter at Zvecan, Serbia	180.
Do.	do.	Refinery at Zvecan, Serbia	90.
Magnesite, concentrate	Rudnici Magnezita "Sumadija"	Mine and plant at Sumadija, 20 kilometers northwest of Cacak, Serbia	120.
Do.	Rudnik i Industrija Magnezita "Strezovce"	Open cast mine at Beli Kamen, Strezovce, near Itiova Metrovica, Serbia	300.
Do.	do.	Sinter plant at Strezovce	40.
Do.	Magnohrom, Rudnik Magnezita "Magnezit"	Mine at Bela Stena, Baljevac na Ibru, Serbia	30.
Natural gas million cubic feet	Naftaplin (Naftagas), RO za Istrazivanje, i Prozvodnju Nafte i Gasa	Natural gasfields in Serbia Kinkinda and others	30,000.
Petroleum:			
Crude thousand 42-gallon barrels per day	Naftagas, Naftna Industrija	Oil fields in Serbia: Kikinda and others	30.
Refined do.	Naftagas, Naftna Industrija: Rafinerija Nafte Pancevo	Refinery at Pancevo, Serbia	110.
Do. do.	Naftagas, Naftna Industrija: Rafinerija Nafte Novi Sad	Refinery at Novi Sad, Serbia	28.
Pig iron	Metalurski Kombinat, Smederevo	Blast furnace at Smederevo, Serbia	720.
Steel, crude	do.	Plant at Smederevo, Serbia	600.
Zinc, metal	Rudarsko Metalursko Hemijski Kombinat Olova i Cinka Trepca, Metalurgija Cinka	Electrolytic plant at Titova Metrovica, Serbia	40.
Do.	Hemijska Industrija Zorka	Electrolytic plant at Sabac, Serbia	40.

TABLE 11
SLOVENIA: APPARENT PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity		1997	1998	1999	2000	2001
METALS						
Aluminum, ingot, primary and secondary		74,400	73,803	77,200	83,800 r/	76,632 3/
Iron and steel, metal:						
Ferroalloys:						
Ferrochromium		9,232	10,621	560	--	--
Ferrosilicocalcium		200	200	200	200	100
Ferrosilicon		10,000	10,000	8,000	9,000	9,000
Crude steel from electric furnaces		372,700 r/	405,210	405,000	519,000 r/	500,000
Semimanufactures		380,000 r/	397,000 r/	418,000 r/	466,000 r/	450,000
Lead:						
Smelter, secondary e/		7,000	7,000	5,800	6,000	5,000
Refined, secondary		15,000	14,000	14,100 r/	15,300 r/	15,400 3/
Pb semimanufactures, rolled		300	300	300	300	300
INDUSTRIAL MINERALS						
Cement	thousand tons	1,113	1,149	1,224 r/	1,300	1,300
Clays:						
Ceramic clay, crude		2,500	2,500	2,500	2,500	2,500
Kaolin, crude		10,000	10,000	10,000	10,000	10,000
Lime	thousand tons	140	150	150	150	150
Pumice and related materials, volcanic tuff e/		40,000	40,000	40,000	40,000	40,000
Quartz, quartzite, glass sand:		210,000	210,000	210,000	210,000	200,000
Salt, all sources		5,000	5,000	5,000	5,000	2,000
Sand and gravel, excluding glass sand	thousand tons	10,412 r/	10,292 r/	12,419 r/	12,526 r/	12,500
Stone, excluding quartz and quartzite, crude: e/						
Dimension		82,000	91,000	104,000	78,000 r/	80,000
Other	cubic meters	3,000	3,000	3,000	3,000	3,000
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Brown coal	thousand tons	812	827	758	737 r/	685 3/
Lignite	do.	4,163	4,100	3,804	3,743 r/	3,448 3/
Natural gas	thousand cubic meters	12,100	12,500	5,700 r/	6,800 r/	6,100 3/
Petroleum, crude		1,100	900	800 r/	600 r/	700 3/

e/ Estimated; estimated data are rounded to no more than three significant digits. r/ Revised.
1/ Table includes data available through March 2002.
2/ In addition to commodities listed, common clay, coke, and petroleum products also were produced, but available information is inadequate to make reliable estimates of output levels.
3/ Reported figure.

TABLE 12
SLOVENIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Talum d.o.o.	Plant at Kidricevo	120
Aluminum	do.	Smelter at Kidricevo	72
Coal:			
Brown	SOZC, Rudarsko Energetski Kombinat E. Kardelj, Trobovlje, Slovenia	Mines: Sasavski Rudnici at Trbovlje, Hrastnik, Ojstro, Senovo, and Kanizarnica	1,300
Lignite	Rudarsko Energetski Kombinat Velenje, RO Rudnik Lignita-Velenje	Mine at Velenje	5,000
Cement	Salonit Anhovo	Plant at Anhovo	1,120
Lead metal	Rudnik Svinca in Topilnica, Mezica	Smelter at Mezica	35
Do.	do.	Refinery at Mezica	30
Petroleum, refined thousand 42-gallon barrels per day	Industrija Nafte (INA) Refinerija Nafte Lendava	Refinery at Lendava	16
Pig iron	Zdruzeno Podjetje Slovenske Zelezarne	Two blast furnaces at Zelazara Jesenice	300
Do.	Zelezara Store	Electric reduction furnaces at Store pri Celju	290
Steel, crude	Zdruzeno Podjetje Slovenske Zelezarne	Plant at Jesenica	500
Do.	do.	Plant at Ravne	162
Do.	do.	Plant at Store	140