# SERBIA AND MONTENEGRO

### By Walter G. Steblez

Serbia and Montenegro began 1999 with the largest mining and mineral-processing industries of all the republics of the former Yugoslavia. By the end of 1999, however, the status of Serbia and Montenegro's mining and mineral-processing industries was no more clear than the very political and territorial status of the country itself. By the middle of 1998, the demands of the ethnic Albanian citizens of Serbia's Kosovo Province for a return of political autonomy did not meet with accommodation by Serbia's Government.

Following a mass exodus of many Kosovar Albanians to neighboring Albania and Macedonia and a rejection by Serbia of demands by the North Atlantic Treaty Organization (NATO) to allow an internationally supervised return of Albanian refugees to Kosovo, a de facto state of war began, followed by a lengthy NATO bombing campaign, which was focused on major industries and industrial infrastructure that could benefit Serbia and Montenegro's military effort. Severe bombing damage in Kosovo itself was sustained by the ferronickel plant in Glogovac, and minor damage was sustained by the lead and zinc mining, beneficiation, smelting, and refining complex at Trepca.

In the rest of Serbia and Montenegro, roads, bridges, electric power stations, steel mills, and other industrial plant and infrastructure were heavily damaged. By yearend, Serbia and Montenegro had lost effective control of branches of its minerals industries, which were involved with Kosovo's production of lead and zinc, ferronickel, tinplate, as well as a substantial portion of the country's lignite-producing coal mines.

A result of the conflict was a marked decline of Serbia and Montenegro's gross domestic product in 1999, which fell by 19% compared with that of 1998. In terms of the physical volume of output, total industrial production fell by 22%. In the energy sector, output by the coal mining, electric power generation, petroleum extraction, and petroleum refining branches declined by 16%, 7%, 15%, and 64%, respectively, compared with production levels attained in 1998. In the metals sector, the output of ferrous and nonferrous ores declined by 59% and 18%, respectively, and that of iron and steel and nonferrous metals contracted by 76% and 27%,. Also, the production of industrial minerals and construction materials declined by 33% and 29% (Federal Statistical Office, 2000, p. 8-9).

Generally, most exports of minerals fell in comparison with those of 1998. Substantial decreases in exports during 1999 were noted for coal, iron and steel, refined petroleum products, and nonferrous metals. At the same time import of iron and steel products and coalincreased significantly relative to imports for 1998 (Federal Statistical Office, 2000, p. 25-26).

The country's principal bauxite mines, which were operated by Rudnici Boksita Niksic, were in Montenegro. Primary aluminum also was produced in Montenegro by DP Kombinat Aluminjuma, which had smelting facilities at Podgorica. Although the vicinity of the Podgorica smelter was subjected to bombing, the facility apparently was undamaged and reportedly continued operating without serious interruptions (Platt's Metals Week, 1999). The Podgorica aluminum smelter, which had the capacity to produce more than 100,000 metric tons per year (t/yr) of primary aluminum, however, did face some supply and transportation difficulties during the closure of the port of Bar by Serbia and Montenegro's navy. Mine production of bauxite doubled in 1999 in comparison with 1998, and the production of alumina and aluminum rose by 2% and 21%, respectively. Exports of aluminum and aluminum alloys, however, amounted to 9,943 metric tons, or about 9% less than in 1998 (Federal Statistical Office, 2000, p. 27).

Rudarsko Topionicki Bazen's (RTB) Bor mining, beneficiation, and smelting complex in Serbia accounted for all of Serbia and Montenegro's total mine output of copper from its Bor, Majdanpek, and Veliki Krivelj open pit mines. The NATO bombing campaign severely disrupted the Bor complex's electricity supply, which resulted in its closure from May through June and a decline in the production copper ore and refined copper by 20% and 47%, respectively (Mining Journal, 1999). Although exports of such copper products as anode and cathode declined in 1999 (3,450 tons compared with 5,302 tons exported in 1998), by yearend, Serbia and Montenegro managed to boost total exports of refined copper wire and tubes to about 70,000 t from 61,394 t in 1998 (Federal Statistical Office, 2000, p. 27).

At yearend, RTB Bor announced the start up of mine production of lead and zinc at the Madjanpek Mine, which has been known solely as a producer of copper ore. RTB Bor reportedly invested US\$1.5 million to devlop the new lead and zinc production capacities at Madjanpek. The new operation was planned to produce 1 millions metric tons per year (Mt/yr) of lead and zinc ore per year and about 35,000 t/yr of zinc, 8,500 t/yr of lead, and precious metals in concentrates. The lead and zinc concentrates produced at Bor were to be designated for export (American Metal Market,1999b; Mining Journal, 1999).

Also, Bor's copper operations were enhanced by a new US\$2.5 million flotation unit at the Veliki Krivelj Mine, that would raise ore processing capacity by 18% to about 10.6 Mt/yr. The new processing capacities allowed Bor to plan a production increase of copper in concentrates to 85,000 t/yr from 70,000 t/yr and to raise the production of cathode to 67,000 (t) in 2000, or about 24% more than that produced in

1998 (American Metals Market, 1999a).

Rudarsko-Metalursko-Hemijski Kombinat za Olovo i Cink Trepca (Trepca) in Serbia's Kosovo Province was the country's and perhaps the region's largest lead and zinc mining, beneficiation, smelting, and refining complex. Although Trepca sustained only minor damage during the 1999 war, it was closed during the conflict mainly because of frequent interruptions of electricity supplied by powerplants that came under heavy air attack (Metal Bulletin, 1999e). With the exception of the zinc plant, Trepca was reopened in July, but only the lead plant resumed production based entirely on previously stockpiled lead concentrates. Before the war, Trepca also produced such associated metals as antimony, bismuth, cadmium, gold, and silver. In 1999, output levels of lead and zinc ore fell by 72%, and lead and zinc metals fell by 84%, and 76%, respectively, compared with those of 1998.

By yearend, the full restart of operations at Trepca proved to be a formidable task. Disputed ownership and/or management rights as well as a lack of capital apparently, were the main obstacles to full resumption of operations. Among the claimants to management rights at Trepca was Mytilineos S.A., a metals trading company, based in Athens, that had negotiated joint venture agreements with Trepca's Serbian authorities in 1998. Trepca's production at yearend was largely limited to smelting stockpiled imported lead concentrates (Metal Bulletin, 1998, 1999g).

Magnesium metal production at the Bela Stena magnesium plant reportedly ceased during the year, owing to severe shortfalls in fuel oil deliveries. Although the 5,000-t/yr plant was not damaged during the conflict, nevertheless, it was not expected to return to production in the near term (Metal Bulletin, 1999b). In 1999, magnesium production declined by about 70% compared with that of 1998. Exports of magnesium metal declined by about 32% to 3,030 tons in 1999 from 4,451 tons in 1998. Precious metals production (mainly byproducts of nonferrous metals mining and processing) also declined proportionally, and exports of silver declined by more than 50% (Federal Statistical Office, 2000, p. 27).

Serbia and Montenegro's iron and steel industry did not suffer major damage during the war. A production slowdown at Sartid AD-Smederevo (Sartid), which was the country's large integrated steel mill, according to company sources, was chiefly the result of modernization downtime. Facility modernization (blast furnace) began in March and was scheduled for completion in May (Metal Bulletin, 1999a). The degradation of Serbia and Montenegro's infrastructure (ways, communications, electric power stations, etc.), however, delayed deliveries of raw materials and electricity, which, in turn, delayed or prevented needed deliveries of cold-rolled products and coil to Sartid's downstream subsidiaries (Metal Bulletin, 1999d). Production at Sartid resumed in July.

Production was suspended at the Sabac tin plate works at Zorka, a subsidiary of Sartid, because Sartid had not been able to produce sufficient amounts of cold-rolled steel to meet Sabac's needs. Before the war, Sabac produced from about 15,000 to 20,000 t/yr of tinplate (Metal Bulletin, 1999c). Meanwhile, the situation at Sartid's other subsidiary steel plants also was uncertain. Owing to its financial involvement with Serbia's Sartid steelworks, Duferco, which was a Swiss trading company, announced plans to reopen three of Sartid's subsidiaries that were operating in Kosovo–a tube and pipe mill in Urosevac, a galvanizing line in Vucitrn, and a radiator plant in Gneilane. Duferco indicated that it would seek to maintain a supply of coil from Sartid (Metal Bulletin, 1999f). Similar supply problems affected Zeljezara Niksic DD in Montenegro, the country's other major steel producer.

The other major metallurgical facility in Kosovo was Ferro-Nickel D.D. Glogovac (Glogovac), which was Serbia and Montenegro's sole mine producer of nickel ore and smelter producer of ferronickel. Glogovac, which was closed in 1998 because of the increasing social and political instability in the region, sustained significant damage from the conflict in 1999 and has since remained closed. The Kosovo-based ferronickel producer, however, was not totally destroyed. Ownership and/or management rights questions, as with many other commercial properties in Kosovo, have remained salient issues.

Serbia and Montenegro's production of industrial minerals included such commodities as clays (bentonite, fire clay, and kaolin), feldspar, gypsum, magnesite, and pumice, that generally have met domestic and foreign trade needs but that would acquire greater significance for the domestic economy as the country's reconstruction process progresses.

With reserves exceeding 17 billion metric tons, Serbia and Montenegro was among the major producers of coal in the region. Lignite composed more than 98% of the coal produced, which primarily was surface mined in the Kostolac, the Kolubara, the Kosovo, the Metohija, and the Pljevlja basins. About 30% of total coal resources are in the Kosovo and the Metohija basins in Kosovo, and in recent years, they had accounted for about 25% of total coal production in Serbia and Montenegro. The lignite mined in Kosovo, in general, was known and valued for its low-sulfur content (U.S. Energy Information Administration, 1999). Although the mines were not seriously affected by the war, the country's system of electric power distribution was markedly degraded during the conflict. About 66% of electric power generation in Serbia was coal based. In Montenegro, the share of coal used for electric power generation amounted to only 29%.

Small quantities of petroleum and natural gas were produced in Serbia's northern Vjvodina Province. The country's major sources of natural gas and petroleum supply, however, were obtained through the Adria and Bratstvo pipelines, respectively. Apart from international embargoes placed on oil and gas deliveries to Serbia and Montenegro in 1999, most of the country's refineries and oil storage facilities were destroyed during the conflict (U.S. Energy Information Administration, 1999).

#### **References Cited**

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### TABLE 1 SERBIA AND MONTENEGRO: PRODUCTION OF MINERAL COMMODITIES $1/\,2/$

#### (Metric tons unless otherwise specified)

Commonity 3         1996         1997         1998         1999           Anraination:							
METALS           Amminum:           Genes weight         35.512         196.534         140000         152.619 r/         156.012           Samaia         60.000         232.000         470.000         222.000 r/         72.505           Mental, inger, primary and secondary         169.991         37.436         65.743         60.000 r/         72.505           Mine and concentrator output:         640         11/9         79.195         80.000 e         17.320 r/         -           Concent         Concent         60.000         21.000 r/         7.320 r/         -         -           One genes weight         fibaruant uns         80.323         82.500         84.621 r/         62.777 r/         -           Concentario for output         70.074         59.940         59.000 e'         101.000 r/         54.000           Reinded         71.314         54.400         40.000         40.925 r/         47.712           Reinded         71.345         53.237         69.000 e'         101.000 r/         40.000           Reinded         71.345         59.940         90.000 e'         101.935 r/         1.9302           Reinded         71.345         59.940         70.051	Commodity 3/		1995	1996	1997	1998	1999
Aturnina:         <	METALS						
Gross weight         35,312         186,354         60,000         152,619         156,012           Busicio         60,000         323,000         470,000         252,600         72,505           Animory, netal         16,091         37,436         65,743         60,000         152,619         r/         72,505           Animory, netal         0,000         21         2.00         r/         10,070         72,505           More and concentrator output:         0,000         20,006         20,0517         19,939         r/         15,975           Or, concent of ore         87,757         85,256         82,500         84,607         62,7712           Concentate, gross weight         70,074         59,500         72,000         72,172         72,172           Concentate, Gross weight         70,745         65,527         60,000         101,250         44,702           Prinary         70,745         55,246         65,000         73,54         54,000         101,250         44,900           Rended         17,354         55,247         0,000         64         101,257         44,900           Total         87,410         123,227         100,000         13,534         94,3607         <	Aluminum:						
Autmins, calcined         35.312         186.354         160,000         32.3100         470,000         22.019 tr         150.012           Maintony, netal         60,000         32.300         470,000         22.60,007         500,000           Autimany, netal         60,000         10.991         37.436         65.743         00,000 tr         72.505           Galaxian         66         21         20 tr         430 tr         -         -           Galaxian         68         21         20 tr         430 tr         -         -           One concentrator output.         60         20,505         20,507         19,939 tr         15.975           One concentrator output.         70,575         32,527         19,000 tr         221,107 tr         221,717           Concentrator output.         70,074         59,000 tr         71,000 tr         72,101 tr         721,107 tr         721,017 tr         721,007 tr         721,007 tr         721,007 tr         721,007 tr         721,000 tr         721,	Gross weight:						
Busite         60.000         323.000         470.000         220.000         500.000           Metal, ingo, finanzy and acondary         60.000         323.000         470.000         220.000         72.505           Antinomy, metal         60.000         21         20         4         30.00         72.505           Simoth, metal         60.000         21         20         4         30.00         72.505           Cadration         60.000         21         20         4         30.00         72.505           Oregoes:         000         51.735         82.526         82.500         84.027 $0.27.77$ Concentrac, Grue sweight         0000         73.600         70.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         71.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000         72.000<	Alumina, calcined		35,312	186,354	160,000	152,619 r/	156,012
Metal insport, primary and secondary         16.591         37,436         65,743         00.990 r         72.505           Banuch, medal         kilogram         66         21         20 e <sup>2</sup> 430 r         -           Cardinium         doi:         10.791         79,155         80,000 e <sup>2</sup> 17,230 r         -           Corpert:	Bauxite		60,000	323,000	470,000	226,000 r/	500,000
Antimoving, metal         (4)         (5)         (5)         (5)         (5)         (5)         (5)         (5)         (5)         (5)         (5)         (5)         (6)         (6)         (6)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)         (7)	Metal, ingot, primary and secondary		16,991	37.436	65.743	60.090 r/	72.505
Bismuth, metal         kilograms         86         21         20 et         430 et         -           Captainin         do.         11,079         79,195         80,000 et         17,329 et         -           Ore, gross weight         thosand tors         20,206         20,0216         20,207         19,939 et         15,975           Curcontent of ore         53,375         82,526         82,500         84,4627         42,777           Curcontent of ore         74,600         99,500         72,600         70,070 et         51,710           Curcontent of ore         74,600         99,500         72,600         70,070 et         51,700           Meah         Bilter and anoles:         71,714         59,940         59,000 et         101,000 et         44,000           Primary         70,074         59,940         0,533         54,000 et         49,972           Total         12,527         119,000 et         42,000 et         49,092         49,972           Code, refined         kilograms         3,441         4,000 et         42,000 et         4,000 et         4,000 et         1,922           Total         Stopping et         5,044         4,000 et         5,051 et         14,143 et	Antimony, metal		(4/)	(4/) e/			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Bismuth metal	kilograms	86	21	20 e/	/30 r/	
Contain         One         1/1.93 </td <td>Codmium</td> <td>do</td> <td>11.070</td> <td>70 105</td> <td>20 C/</td> <td>430 1/ 17 220 r/</td> <td></td>	Codmium	do	11.070	70 105	20 C/	430 1/ 17 220 r/	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Connor	<u>uo.</u>	11,079	79,195	80,000 6/	17,520 1/	
June and concentration output:         thousand tors         20,206         20,025         20,507         19,939         r         15,975           Curcontent of ore         0,000         27,753         82,526         82,500         84,627         r         62,777           Curcontent of ore         0,000         72,600         72,600         72,000         r         62,777           Concentrate, Curcontent         0,000         r         10,000         r         54,000         r         72,172         72,773         82,526         82,500         86,710         62,777         86,710         72,000         r         72,000         r         72,000         r         72,000         r         72,000         r         72,000         r         73,782         72,777         82,717	Copper.						
Dre gross weight         inovasiant loss         20,200         20,205         20,205         20,205         20,206         20,207         159/75           Concentrate, gross weight         33,322         337,861         361,600         372,103 $v$ 22,217           Concentrate, gross weight         74,000         69,500         59,000 $v'$ 10,000 $v'$ 24,000           Metal         10,000 $v'$ 59,940         59,000 $v'$ 10,000 $v'$ 54,000           Reneled         17,364         65,947         60,000 $v'$ 10,000 $v'$ 54,000           Primary         71,014         125,277         119,000 $v'$ 54,000 $v'$ 74,000 $v''$ 74,450         94,306 $v''$ 10,02 $v'''$ 74,450         94,300         44,300         14,900         10,02 $v''''''''''''''''''''''''''''''''''''$	Mine and concentrator output:	1 1.	20.204	20.026	20 505	10.020	15.075
Cure content of ore $87,3/5$ $82,3/5$ <	Ore, gross weight	thousand tons	20,206	20,026	20,507	19,939 r/	15,975
Concentrate, gross weight         363,322         37,861         361,000         372,103 $272,172$ Metal         74,660         75,640         70,000 $272,172$ $71,000$ Metal         74,660         59,000 $e^{0}$ ,500 $276,640$ $70,900$ $272,172$ Metal         74,660         59,000 $e^{0}$ ,1000 $e^{0}$ ,2000 $e^{0}$ ,202,925 $e^{0}$ ,4000           Refined:         71,304         59,940         70,534         54,000 $e^{0}$ ,48,000 $1,002$ Total         71,417         44,060         45,000 $e^{0}$ ,49,936 $e^{0}$ ,49,930 $1,022$ Toral discle:         71,417         44,060         40,000         1,225 $e^{-0}$ Crude steel         110,113         50,000 $e^{-0}$ 51,25 $e^{-0}$ Seminamanfactures         110,113         50,000 $e^{-0}$ 51,45 $e^{-0}$ Metal         Ferronalogs, ferronickel <t< td=""><td>Cu content of ore</td><td></td><td>87,575</td><td>82,526</td><td>82,500</td><td>84,627 r/</td><td>62,777</td></t<>	Cu content of ore		87,575	82,526	82,500	84,627 r/	62,777
Concentrate, Cu content         74,600         69,500         73,600         70,000 $e^{-}$ 51,700           Metal:         Prinary	Concentrate, gross weight		363,332	337,861	361,000	372,103 r/	272,172
Metal:         Hister and anodes: $70.74$ $59.940$ $59.000$ $e'$ $101.000$ $r'$ $54.000$ Remeded         17.336 $65.287$ $60.000$ $e'$ $101.925$ $r'$ $101.925$ $r'$ $r''$ $r''''''''''''''''''''''''''''''''''''$	Concentrate, Cu content	=	74,600	69,500	73,600	70,900 e/	51,700
Bitser and anodes:         Primary         70.074         59.940         59.000 e'         101.000 r/         54.000           Remelted         17.336         65.287         60.000 e'         101.252 r/         49.782           Refined:         77.410         125.227         119.000 e'         202.925 r/         103.782           Refined:         71.147         44.060         45.000 e'         48.000         49.902           Gold, refined         110.113         50.000 e'         2.02.925 r/         1.902         78.451           Ore and concentrate, aggiomenate         78.451         104.000         113.554         94.306 r/         49.902           Gold, refined         110.113         50.000 tf e'         5.125 tf         2.088           Metal         -         24.14         6.501         6.500 e'         1.215 tf         -           Perionitose, ferronickel         110.113         50.000 tf e'         5.125 tf         2.2088         0.440.000         1.740.000 tf         226.300           Metal         -         107.836         553.000         973.000         94.8314 tf         226.300           Gold, refined         116.720         29.000         1.248.852 tf         3.457         10.9000 tf <td< td=""><td>Metal:</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Metal:						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Blister and anodes:						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Primary		70,074	59,940	59,000 e/	101,000 r/	54,000
Total $$7,410$ $125,227$ $19,000$ $202,925$ $t'$ $103,782$ Refined: $?$ $?$ $13,044$ $59,940$ $70,534$ $54,000$ $t'$ $48,000$ Remehed $?$ $?$ $147$ $44,060$ $43,000$ $40,396$ $t'$ $19902$ Total $?$ $?$ $71,167$ $44,060$ $43,000$ $40,396$ $t'$ $49,902$ Gold, refined $kilograms$ $30,400$ $4,000$ $4,000$ $2,684$ $t'$ $1260$ Toral concentrate, agglomerate $110,7836$ $53,5000$ $97,9000$ $948,314$ $t'$ $226,240$ Metal $107,836$ $53,5000$ $97,9000$ $948,314$ $t'$ $226,340$ Least: $107,836$ $53,500$ $97,9000$ $948,314$ $t'$ $226,340$ Least: $116,720$ $29,009$ $31,000$ $t'$ $24,750$ $t'$ $45,556$ $t'$ $40,000$ $12,000$	Remelted		17,336	65,287	60,000 e/	101,925 r/	49,782
Refined:         Triany         Total	Total		87,410	125,227	119,000 e/	202,925 r/	103,782
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Refined:		· · · · · · · · · · · · · · · · · · ·	· · · ·		· · · · · · · · · · · · · · · · · · ·	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Primary		71.304	59,940	70.534	54.000 r/	48,000
Total         78,451         104,000         113,534         94,396 r/         49,902           Gold, refined         kilograms         3,040         4,000         4,000         2,684 r/         1,260           Tora and sconcentrate. agg/omerate         110,113         50,000 r/e/         2,5000 r/e/         5,125 r/         2,088           Metal:         24,14         6,501         6,500 e/         1,215 r/         -           Pig iron         107,836         535,000         907,000         82,314 r/         226,200           Semimanufactures         242,000         860,000         1,460,000         1,740,000 r/         296,300           Lead:         116,879         23,327         27,000 e/         24,750 r/         4,553           Concentrate gross weight         11,689         23,342 5/         10,000         1,248,852 r/         348,605           Pb content of concentrate e/         11,468         30,317         23,632         23,756 r/         4,077           Refined         11,468         30,317         23,632         23,756 r/         4,077           Refined         2,550         2,640 r/         -         -         1200         3,200           Miteau, primary and secondary:         11,46	Remelted		7.147	44.060	43,000	40.396 r/	1.902
Gold, refined         kilograms         3,040         4,000         4,000         2,684 r/         1,250           Gold, refined         110,113         50,000 r/ e'         25,000 r/ e'         5,125 r/         2,088           Metal:         - <td>Total</td> <td></td> <td>78 451</td> <td>104 000</td> <td>113 534</td> <td>94 396 r/</td> <td>49 902</td>	Total		78 451	104 000	113 534	94 396 r/	49 902
Solor Finited:         Indigital         Find and sele:         Indigital           Ore and concentrate, agglomerate         110,113 $50.00$ $t'e'$ $25.00$ $t'e'$ $5.125$ $t'$ $2.088$ Metal:         2.414 $6.500$ $e'e'$ $5.125$ $t'$ $2.088$ Trade steel         10.113 $50.000$ $t'e'$ $5.125$ $t'$ $-e$ Pig iron         107.836 $535.000$ $970.000$ $825.916$ $t'$ $134.882$ Crude steel         180.496 $679.000$ $979.000$ $948.314$ $t'$ $226.320$ Lead:         242.000 $860.000$ $1.460.000$ $1.740.000$ $t'$ $23.691$ $t'$ $45.353$ Concentrate, gross weight $16.720$ $29.327$ $72.000$ $e'$ $24.750$ $t'$ $4.553$ Concentrate, gross weight $16.720$ $29.327$ $10.000$ $12.000$ $3.200$ Mingaesium, metal $2.550$ $2.440$ $t'$ $40.777$ $865 t'$ $4.077$ Refined $11.468$ $30.317$ $23.652$ $t'$ $3.96 t'$ $3.965 t'$ $4.077$ <td>Gold refined</td> <td>kilograms</td> <td>3 040</td> <td>4 000</td> <td>4 000</td> <td>2 684 r/</td> <td>1 260</td>	Gold refined	kilograms	3 040	4 000	4 000	2 684 r/	1 260
Info and concentrate, agglomerate       110,113 $50,000 \ t'e'$ $25,000 \ t'e'$ $5,125 \ t'$ $2,088$ Metal:       - </td <td>Iron and steel:</td> <td>Kilograms</td> <td>5,040</td> <td>4,000</td> <td>4,000</td> <td>2,004 1/</td> <td>1,200</td>	Iron and steel:	Kilograms	5,040	4,000	4,000	2,004 1/	1,200
One and concentrate aggionizatio         110,113         30,000 free         2,000 free         3,12,10         2,008           Ferroalloys, ferronickel	Ora and concentrate, agglemerate		110 112	50,000	25 000 - 10	5 1 25/	2 088
Internal loys, ferronickel         2,414         6,501         6,500         e'/         1,215         r/         -           Pig iron         107,836         535,000         907,000         825,916         r/         134,882           Cruds steel         180,496         679,000         979,000         948,314         r/         226,200           Semimanufactures         242,000         860,000         1,460,000         1,740,000         r/         296,300           Lead:	Motel:		110,115	J0,000 1/ C/	25,000 1/ 6/	5,125 1/	2,088
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Formoallous formonialeal		2 414	6 501	6 500 a/	1.215/	
Pig ron         10,835         533,000         970,000         82,9316 r/         134,882           Crude steel         180,496         679,000         979,000         948,314 r/         226,240           Seminanufactures         242,000         860,000         1,460,000         1,740,000 r/         296,300           Lead:			2,414	6,301	0,500 e/	1,213 1/	
Crude steel         180,496         6 69,000 $9/9,000$ $9/8,314$ $y$ $226,240$ Seminanufactures         242,000         860,000         1,460,000         1,740,000 t'         296,300           Lead:	Pig iron		107,836	535,000	907,000	825,916 r/	134,882
Seminanufactures         242,000         860,000         1,460,000         1,740,000         296,300           Lead:	Crude steel		180,496	679,000	979,000	948,314 r/	226,240
Lead:	Semimanufactures		242,000	860,000	1,460,000	1,740,000 r/	296,300
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Lead:						
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Mine and concentrate output:						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Ore, gross weight (Pb-Zn ore)		510,942	856,468	1,049,000	1,248,852 r/	348,605
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Pb content of ore		11,689	22,327	27,000 e/	24,750 r/	4,553
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Concentrate, gross weight		16,720	29,009	31,000 e/	32,691 r/	6,536
Metal, primary and secondary:         Image: Secondary for the second	Pb content of concentrate e/		3,342 5/	10,000	11,000	12,000	3,200
Smelter         19,231         44,600         41,000         35,576         r/         4,077           Refined         11,468         30,317         23,632         23,756         r/         3,690           Magnesium, metal         Nicotel, metal         2,560         2,500         e/         3,965         r/         1,203           Nickel, metal, Ni content of Fe Ni         962         2,556         2,440         r/         466         r         -           Platinum-group metals:         962         2,556         2,440         r/         466         r/         -           Platinum         do.         6         3         3 e/         3 e/         3         3         e/         3         3         se/         3         3         Selenium         9,276         20,080         31,054         68,805         42,640         34,474         r/         9,276         20,080         21,297         37,012         35,000         e/         40,530         r/         10,286           Zn content of Pb-Zn ore         11,515         21,765         25,000         e/         4,329         24,544         14,415         r/         3,409           Kefined         3,195         12,	Metal, primary and secondary:						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Smelter		19.231	44,600	41.000	35.576 r/	4.077
Magnesium, metal       2,560       2,500       e'       2,500       e'       1,203         Nickel, metal, Ni content of Fe Ni       962       2,556       2,440       r/       466       r/          Palladium       kilograms       46       56       55       e/       3       e/       3         Palladium       do.       6       3       3       e/       3       e/       3         Palladium       do.       6       3       3       e/       3       e/       3         Palladium       do.       6       3       3       e/       3       e/       3         Selenium       do.       39,810       37,840       38,000       e/       40,866       r/       20,080         Silver       do.       31,054       68,805       42,640       34,474       r/       9,276         Zin content of Pb-Zn ore       11,515       21,765       25,000       e/       20,285       r/       4,329         Concentrator output, gross weight       21,297       37,012       35,000       e/       40,530       r/       10,286         Zn content of concentrate       1,915       22,000 <t< td=""><td>Refined</td><td></td><td>11.468</td><td>30.317</td><td>23.632</td><td>23.756 r/</td><td>3.690</td></t<>	Refined		11.468	30.317	23.632	23.756 r/	3.690
Integratum metal.       1,050 ° 2,050 ° 2,050 ° 2,050 ° 1,050	Magnesium metal		2 560	2 500 e/	2 500 e/	3 965 r/	1 203
Nicka, inclar, in control of trying $j_{02}$ $2,500$ $2,440$ $i_{00}$ <	Nickel metal Ni content of Fe Ni		962	2,500 6	2,300  c/ 2 440 r/	/66 r/	1,205
Palladium       kilograms       46       56       55 e/       54 r/       21         Platinum       do.       6       3       3 e/       3 e/       3 e/       3       e/       3         Selenium       do.       39,810       37,840       38,000 e/       40,866 r/       20,080         Silver       do.       31,054       68,805       42,640       34,474 r/       9,276         Zinc:	Platinum group metals:		762	2,330	2,440 1/	400 1/	
Platinum       40       30       13 6'       34 1'       21         Platinum       do.       6       3       3 e'       3       3       6'       3         Selenium       do.       39,810       37,840       38,000 e'       40,866 r/       20,080         Silver       do.       31,054       68,805       42,640       34,474 r/       9,276         Zinc:	Dalladium	kilograma	16	56	55 0/	51 -	21
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		do	40	50	35 6/	J4 1/	21
Selenum       do. $39,810$ $37,840$ $38,000$ $e'$ $40,866$ $7'$ $20,080$ Silver       do. $31,054$ $68,805$ $42,640$ $34,474$ $r/$ $9,276$ Zinc:		<u> </u>	20.010	37.940	3 e/	5 e/	20,000
Silver       do.       31,054       68,805       42,640       34,474 r/       9,276         Zinc:	Selenium	<u>do.</u>	39,810	37,840	38,000 e/	40,866 r/	20,080
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Silver	d0.	31,054	68,805	42,640	34,474 r/	9,276
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Zinc:						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Zn content of Pb-Zn ore		11,515	21,765	25,000 e/	20,285 r/	4,329
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Concentrator output, gross weight		21,297	37,012	35,000 e/	40,530 r/	10,286
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Zn content of concentrate		3,195	12,000	13,000	14,000	5,000
INDUSTRIAL MINERALS           Asbestos fiber, all grades         497         509         765 r/         1,452 r/         361           Cement         thousand tons         1,696         2,205         2,011         2,253 r/         1,575           Clays:         192         95         100 e/         68 r/         77           Ceramic clay         192         95         36,021         35,000 e/         40,033 r/         29,420           Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         4,000	Refined		5,976	29,954	29,454	14,415 r/	3,409
Asbestos fiber, all grades         497         509         765 r/         1,452 r/         361           Cement         thousand tons         1,696         2,205         2,011         2,253 r/         1,575           Clays:	INDUSTRIAL MINERALS						
Cement         thousand tons         1,696         2,205         2,011         2,253 r/         1,575           Clays:         Bentonite         192         95         100 e/         68 r/         77           Ceramic clay         192         95         36,021         35,000 e/         40,033 r/         29,420           Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         20,988         43,005         51,000         40,000         4,000           See footnotes at end of table.         5/         8,000         10,000         10,000         4,000	Asbestos fiber, all grades		497	509	765 r/	1,452 r/	361
Clays:         192         95         100 e/         68 r/         77           Ceramic clay         28,095         36,021         35,000 e/         40,033 r/         29,420           Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         10,000         4,000	Cement	thousand tons	1,696	2,205	2,011	2,253 r/	1,575
Bentonite         192         95         100 e/         68 r/         77           Ceramic clay         28,095         36,021         35,000 e/         40,033 r/         29,420           Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         4,000           See footnotes at end of table.         20,288         43,053         51,000         4,000	Clays:						
Ceramic clay         28,095         36,021         35,000 e/         40,033 r/         29,420           Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         4,000           See footnotes at end of table.         20,200         10,000         4,000	Bentonite		192	95	100 e/	68 r/	77
Fire clay:         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         10,000         4,000           See footnotes at end of table.         4,091 5/         8,000         10,000         4,000         4,000	Ceramic clay		28,095	36,021	35,000 e/	40,033 r/	29,420
Crude         20,988         43,053         51,000         45,319 r/         25,766           Calcined e/         4,091 5/         8,000         10,000         10,000         4,000           See footnotes at end of table.         4,091 5/         8,000         10,000         4,000         4,000	Fire clay:		-				
Calcined e/         4,091 5/         8,000         10,000         10,000         4,000           See footnotes at end of table.         4,091 5/         8,000         10,000         4,000         4,000	Crude		20,988	43.053	51,000	45.319 r/	25,766
See footnotes at end of table.	Calcined e/		4.091 5/	8,000	10.000	10.000	4,000
	See footnotes at end of table.		,	- , - 0 0	- ,	- , - • •	,

### TABLE 1--Continued SERBIA AND MONTENEGRO: PRODUCTION OF MINERAL COMMODITIES $1/\ 2/$

#### (Metric tons unless otherwise specified)

Commodity 3/	1995	1996	1997	1998	1999
INDUSTRIAL MINERALSContinued					
ClaysContinued:					
Kaolin:					
Crude	56,926	60,000 e/	60,000 e/	75,092 r/	40,321
Washed e/	4,900 5/	6,000	6,000	6,000	4,000
Feldspar, crude	5,441	4,801	4,880	4,280 r/	3,453
Gypsum, crude	40,342	44,257	32,124	27,778 r/	33,962
Line thousand tons	418	456	460	480 r/	381
Magnesite:					
Crude do.	75	89	98	949 r/	31
Caustic calcined	4,078	10,601	6,327	7,044 r/	2,000
Mica, all grades	199	200 e/	200 e/	247 r/	229
Nitrogren, N content of ammonia	135,401	235,070	235,000	166,152 r/	75,788
Pumice and related volanic materials, volcanic tuff	117,664	120,135	120,000 e/	120,000 e/	50,000
Quartz sand thousand tons	307	361	366	353 r/	253
Salt, all sources	13,500	21,646	28,000	78,148 r/	63,834
Sand and gravel excluding glass sand thousand cubic meters	2,070	3,291	2,351	3,060 r/	2,006
Sodium compounds:					
Caustic soda	7,252	20,214	64,713	63,344 r/	13,720
Sodium sulfate	7,178	7,000 e/	5,000 r/	1,896 r/	1,321
Stone, excluding quartz and quartzite, dimension, crude:					
Ornamental square meters	237,000	219,000	206,000	258,000 r/	182,000
Crushed and broken, n.e.s. thousand cubic meters	1,886	2,263	2,665	3,085 r/	1,937
Other, stone blocks cubic meters	9,916	12,196	9,817	1,630 r/	786
Sulfur, byproduct: e/					
Metallurgy thousand tons	110	110	100	100	100
Petroleum do.	1	1	1	1	1
Total do.	111	111	101	101	101
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Bituminous do.	57	63	92	105	49
Brown do.	560	539	512	390 r/	413
Lignite do.	39,939	37,828	42,313	43,577 r/	30,967
Total do.	40,556	38,430	42,917	44,072 r/	31,429
Natural gas, gross production million cubic meters	906	671	688	715	731
Petroleum:					
Crude:					
As reported thousand tons	1,066	1,030	979	913 r/	705 5/
Converted thousand 42-gallon barrels	8,000	7,600	7,500	6,800 e/	5,200
Refinery products e/ do.	13,000	12,500	12,000	20,000 r/	8,000

e/Estimated. 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 June 2000.

3/ 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.

4/ Less than 0.25 metric ton.

5/ Reported figure.

## TABLE 2 SERBIA AND MONTENEGRO: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

#### (Thousand metric tons unless otherwise specified)

				Annual
Commodity		Major operating companies	Location of main facilities	capacity
Alumina		Kombinat Aluminijuma Titograd	Plant at Titograd, Montenegro	200.
Aluminum		do.	Smelter at Titograd. Montenegro	100.
Antimony, ores and concentrate	es	Zajaca, Rudarsko Tapionicarski Bazen	Mines and mills near Zajaca, Serbia	80.
Do.		do.	Mines and mill at Raijceva Gora. Serbia	300.
Antimony, metal		do	Smelter at Zajaca, Serbia	4.
Bauxite		Rudnici Boksita, Niksic	Mines in Montenegro at Kutsko Brdo,	650.
			Zagrad, Biocki Stan, Durakov Dol,	
			and other locations	
Coal:				
Bituminous		Ibarski Rudnici Kamenog Uglja	Mines at Jarando and Usce, near Balievac 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	14,000.
		L	Kolubarski Rudnici Lignita), near	
			Vreoci, Serbia	
Do.		SOUR Elektroprivreda Kosova, RO	Opencast mines: Dobro Selo and	2,000.
		Kosovo, Proizvodnja Separacija i	Belacevac, near Obilic, Serbia	
		Transport Uglja		
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
$\frac{D0}{D0}$		do	Mine and mill at Bor. Serbia	5.000 ore
$\frac{D0}{D0}$		do	Mine and mill at Maidannek Serbia	15 000 ore
 		do	Mine and mill at Veliki Kriveli	8 000 ore
20.		uo.	Serbia	0,000 010.
Lead-zinc ore		Rudarsko-Metalursko-Hemijski	Mines at Aivalija Kopanaonik	5 000
		Kombinat za Olovo i Cink Trepca	Trepca, Blagodat, Lece; Veliki Majdan, Tisovak; and Kisnica, Rudnik, Suplja Stijena	3,000.
Do.		do.	Mills at Kriva Feja, Lece, Rudnik, Badovac, Leposavic, Zvecan,	3,160.
		TT '' 1 T 1 . '' 77 1	and Maravce, Supija Stijena	
Do.		Hemijska Industrija Zorka:		500
		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	Smelter at Zvecan, Serbia	180.
		Kombinat za Olovo i Cink Trepca		
Do.		do.	Refinery at Zvecan, Serbia	90.
Magnesite, concentrate		Rudnici Magnezita "Sumadija"	Mine and plant at Sumadija, 20	120.
			kilometers northwest of Cacak, Serbia	
Do.		Rudnik i Industrija Magnezita	Opencast mine at Beli Kamen,	300.
		"Strezovce"	Strezovce, near Itiova Metrovica, Serbia	
Do.		do.	Sinter plant at Strezovce	40.
Do.		Magnohrom, Rudnik Magnezita	Mine at Bela Stena, Baljevac na Ibru,	30.
		"Magnezit"	Serbia	
Natural gas	million cubic feet	Naftaplin (Naftagas), RO za	Natural gasfields in Serbia Kinkinda and	30,000.
		Istrazivanje, i Prozvodnju Nafte	others	
		i Gasa		
Petroleum:				
Crude	thousand barrels per day	Naftagas, Naftna Industrija	Oilfields in Serbia: Kikinda and others	30.
Refined	do.	Naftagas, Naftna Industrija:	-	
Do.	do.	Rafinerija Nafte Pancevo	Refinery at Pancevo, Serbia	110.
Do.	do	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 Hemiiski	Electrolytic plant at Titoya Metrovica	40.
		Kombinat Olova i Cinka Trenca	Serbia	
		Metalurgija Cinka	Seron	
 		Hemiiska Industrija Zorka	Electrolytic plant at Sabac Serbia	40
D0.		nonnjoka maaonija 201ka	Electory the prain at Sabac, Scrola	TU.