

SERBIA AND MONTENEGRO

By Walter G. Steblez

In 1994, the economy of Serbia and Montenegro continued to decline because of the international trade embargo established against it, stemming from ongoing military conflict in Bosnia and Herzegovina and the general political instability in the former Yugoslav region. The country, with significant European capacities to produce refined aluminum, copper, lead, silver, and zinc, however, did appear to arrest the steep economic decline that was reported in 1993 (a 30% decline in the gross domestic product and more than a 35% decline in industrial output). According to the Federal Statistical Office of Serbia and Montenegro, the physical volume of industrial output in 1994 increased slightly compared with that of 1993, but in terms of value, industrial production declined by 6%.¹ The performance of the country's minerals industries for 1994 showed mixed results. In the energy sector, output, in terms of physical volume, increased in coal mining by 2%; it declined, respectively, by 9% and 7% in crude petroleum and natural gas extraction and refinery products production.

The metals sectors showed declines of 64% and 21% for iron ore mining and processing and steel production, respectively. However, production in the nonferrous mining and processing and smelting and alloying operations rose by 3% and 13%, respectively, compared with that of 1993. On balance, the industrial minerals sectors showed the greatest recovery during the year, registering production increases of 10%, 11%, and 19%, respectively, in the extraction of nonmetallic mineral ores, sand and gravel, and building materials.

In 1994, the main activities in the country's minerals industry included the discovery of a major copper deposit in the Bor region and the formal opening of a basalt mine in the Mount Kopaonik region.

Government Policies and Programs

The Government of Serbia and Montenegro continued to maintain the operation, to the extent possible, of the country's heavy industries, including those in the minerals sector, to ensure the availability of needed raw materials and equipment to the economy and to prevent potentially large-scale social unrest from occurring because of rapid industrial closures and bankruptcies. The principal activities of the Government during the year involved international political issues related to the civil war that occurred in the former Yugoslavia. The usual efforts and programs of the

Government, dealing with long-term economic reform and environmental protection and reclamation issues, were subordinated to the needs of a virtual war economy. The civil war, fought from 1991 through 1994 in the former Yugoslavia, had dislocated routine domestic and foreign commerce because of the international embargo as well as the physical destruction of commercial and residential properties in large areas of Bosnia and Herzegovina and, to a lesser extent, Croatia. Without access to former domestic customers in the other republics of the former Yugoslavia, nor to international markets, large stockpiles of industrial goods had reportedly accrued during the year, which necessitated sporadic as well as long-term closures of the country's production capacities during the year.

Environmental Issues

Given the civil war that occurred on the territory of the former Yugoslavia, little information was made available about the industry-generated environmental pollution or the status of environmental remediation. On the other hand, it has been reasonable to categorize the environmental situation in Serbia and Montenegro as being similar to that of other former centrally planned economy countries where environmental protection issues obtained a much lower status and level of concern in past years than in Western European market economy countries. Significant soil, water, and atmospheric contamination had been caused by the country's heavy industry, including mining and other minerals industry branches.² The use of low grades of coal and lignite at the country's industrial and electric-power generating facilities has raised the emission of sulfur dioxide (SO₂) to levels that reportedly were twice that in Western Europe. Concentrations of both SO₂ and nitrogen oxide (NO_x) had been consistently far in excess of safety guidelines set by the World Health Organization. Uncontained emissions from the country's nonferrous metals processing plants and smelters also contributed to acid rain, which has damaged many outlying forested areas.

Because of the civil war and associated international economic embargo of Serbia and Montenegro, funds necessary for even routine maintenance of tailings ponds and hazardous waste dumps were no longer available and the likelihood of a widespread ecological disaster of occurring has significantly increased.

Production

Because of international trade sanctions, Serbia and Montenegro continued to curtail the production of various mineral commodities and durable goods, albeit to a lesser degree than in 1993. Compared with the sharp decline in industrial output registered in 1993, industrial performance in 1994 did show some marked improvement. However, recovery to production levels of 1991 may not be achieved in the near term as long as international sanctions are maintained against Serbia and Montenegro. Additionally, the Government's post-embargo policies aimed at establishing a market economy within the country also could serve as a break on high output growth rates in the mineral industry. (See table 1.)

Trade

The issue of Serbia and Montenegro's official foreign commerce and trade was moot from 1992 through 1994 because of the international trade embargo. In the years preceding the dissolution of Yugoslavia and the subsequent civil war, the country was an important minerals trader in both Eastern and Western Europe.

Structure of the Mineral Industry

Table 2 lists the administrative bodies as well as subordinate production units of the main branches of the country's mineral industry for 1992. (See table 2.)

Commodity Review

Metals

Aluminum and Bauxite.—Serbia and Montenegro's bauxite mining, alumina refining, and aluminum smelting facilities were located chiefly in Montenegro. Rudnici Boksita Niksic operated bauxite mines in Montenegro, and RB Kosovo Klina operated mines in Serbia. The entire output of the latter operation in the past had been exported because of the unsuitability of the bauxite for domestic refineries. Apart from the deposits exploited by RB Kosovo Klina, which contained a refractory-grade diaspore material, Montenegro's monohydrate (boehmitic) bauxite deposits were suitable for metallurgical end use. These deposits are lenticular or irregular-shaped bodies occurring in Triassic and Eocene carbonate rocks. According to official sources, in 1994, the production of bauxite practically ceased. Output of bauxite in 1993 already had declined by about 87% compared with that of 1992. In 1994, the production of aluminum declined by about 73% compared with that of 1993.³

Copper.—Serbia and Macedonia were the former Yugoslavia's principal copper-producing areas. Rudarsko Topionicki Bazen's (RTB) Bor mining, beneficiation, and

smelting complex in Serbia accounted for all of the country's mine output of copper from its Bor, Majdanpek, and Veliki Krivelj open pit mines. On balance, the country's copper industry in 1994 appeared more robust than other branches of the metals-producing sector. Compared with that of 1993, the production of copper ore in 1994 remained at about the same level. However, the output of electrolytic copper for the same period increased by more than 40%.

In the first half of 1994, Serbia and Montenegro announced the discovery of new deposits of copper in the Bor copper producing region. The new deposits with 700 million metric tons (Mmt) of ore, reportedly, could yield as much as 4 Mmt of copper and significant amounts of gold, platinum, and silver. The potential annual output of copper at these deposits reportedly could raise the production of copper at the Bor Mining and Beneficiation Complex by 50,000 metric tons (mt).⁴

Iron and Steel.—Serbia and Montenegro's iron and steel industry was among the sectors of the country's minerals industry that continued to show a strong decline in 1994. The production of pig iron and crude steel declined by 73% and 25%, respectively, compared with that of 1993. Denied the important formerly domestic markets in the republics of Bosnia and Herzegovina, Croatia, Macedonia, and Slovenia, and well as access to international commerce, the country's steel industry was forced into rapid contraction, marked by several industrial closures.

Lead and Zinc.—Serbia and Montenegro's share of the former Yugoslavia's total mine production of lead-zinc ore constituted slightly more than 40% in 1990. The hydrothermal metasomatic lead-zinc deposits are irregular but compact bodies in limestone and siliceous rocks that reportedly range from several thousand to several Mmt. The Trepca deposit in the Kosovo province of Serbia was the country's largest lead-zinc deposit. Reportedly, since the mid-1960's, some lead-zinc ores and concentrates had been imported to meet the needs of the country's smelters and refineries. Additionally, some of Serbia and Montenegro's refinery capacity had been used to toll refine lead for foreign consumers. In 1994, mine production of lead-zinc ore declined by about 20% and the output of lead and zinc declined by about 30% and 44%, respectively, compared with output levels of 1993.

Industrial Minerals

Serbia and Montenegro produced a large number of industrial minerals that included barite, bentonite, gypsum, kaolin, magnesite, and pumice for domestic needs as well as exports.

Reportedly, at yearend 1994, the startup of operations was begun at the basalt quarry at Stragari near Kursumlija in Serbia. A crushing unit was installed at the site in 1993 and the material mined at Stragari is to be used in the production of insulation. Potential resources of basalt at this site were

estimated at 5 million cubic meters (Mm³).

Mineral Fuels

The negative trends that were discernible in the country's economy and minerals industry during the year were generally less descriptive of the country's fuel and energy sectors. The decline in the output of coal, natural gas, and petroleum, based on yearend results, was considerably less than that in the extraction and processing of metallic ores and nonmetallic minerals.⁵ This was largely because of the "necessity" status of mineral fuels for the economy of Serbia and Montenegro. In past years, the country was a net importer of energy, mainly in the form of natural gas and petroleum that had been embargoed since 1992. Consequently, greater priority was given for the domestic production of fuels. Reportedly, the embargo did deny the country's petroleum industry needed imports of chemicals, and spare parts, which caused problems for this sector throughout the year.⁶

Reserves

The eventual development and transformation of Serbia and Montenegro's economy to a market-based system would require a reevaluation of the country's mineral resources from a market perspective. Reserves, as defined by market economies, are mineral deposits that can be mined at a profit under existing conditions with existing technology. In centrally planned and other non-market economy countries, such as the former Yugoslavia, political rather than economic consideration was paramount in formulating policies for industrial development. Political directives to discover exploitable mineral resources may have resulted in possible overestimations and other distortions of collected field data. For a detailed explanation of the system that was used for measuring reserves, see the chapter on Russia in this volume.

Infrastructure

Serbia and Montenegro had 49,966 kilometers (km) of railroads and highways. The country's inland waterway system was another important component of this network. Although the total length of the inland waterway system was officially reported, a total of 11.6 Mmt of freight was carried on this system in 1991. The railroad system consisted of

3,947 km of 1.435-meter gauge track, of which double track and electrified track were 277 km and 1,339 km, respectively. The highway and road system consisted of 46,019 km of paved, gravel, and earth-surfaced road, of which paved, gravel and earth-surfaced roads, respectively, were 26,949 km, 10,373 km, and 8,697 km. The country's merchant marine fleet consisted of 43 ships amounting to 1,449,049 deadweight tons. Pipelines for crude petroleum were 415 km in length, while those for refinery products and natural gas were 130 km and 2,110 km, respectively.

Outlook

Serbia and Montenegro in the long term could remain an important European producer of minerals because of its resources of a number of metalliferous and industrial minerals. The political future of the country and the types of government structures that will emerge are difficult to foresee. However, in the post-civil war and/or post-embargo period, Serbia and Montenegro will require extensive modernization of its infrastructure, giving added value to the construction materials and structural steels sectors in the country.

¹INDEX (Belgrade), No. 2, Feb. 1995, pp. 2-7.

²Federal Secretariat for Development, Environment Division. Yugoslavia, National Report to the United Nations Conference on Environment and Development, 1991.

³Work cited in footnote 1, p. 11.

⁴Mining Journal, London, June 18, 1993, p.441.

⁵FBIS. EEU-93-093, May 17, 1993, p.45, from Belgrade Domestic Service, 0752 GMT May 15, 1993.

⁶Work cited in footnote 5.

Major Sources of Information

Privredna Komora Jugoslavije (Yugoslav Chamber of Economy) 11001 Belgrade, Terazije 15-23 P.O. Box 1003

Savezni Geoloski Zavod (Federal Geological Institute), Belgrade, Yugoslavia

Major Publications

Indeks (Index), published monthly.
Statisticki Godisnjak (Statistical Yearbook).

TABLE 1
SERBIA AND MONTENEGRO: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/ METALS	1990	1991	1992	1993	1994 e/
Aluminum:					
Bauxite, gross weight	940,000	900,000	792,000	102,000	-- 4/
Alumina, calcined, gross weight	269,000	208,000	197,000 r/	12,000	12,000
Metal, ingot, primary and secondary	81,000	75,800 r/	66,900 r/	25,800	6,850 4/
Antimony:					
Mine and concentrate output:					
Ore, gross weight	20,000 e/	--	--	--	--
Sb content of ore	405	--	--	--	--
Concentrate, gross weight	530 e/	--	--	--	--
Metal	248	19	10	-- 5/	-- 5/
Bismuth, metal	85	70	60	30	20
Cadmium kilograms	100,000 e/	59,600	8,140	6,300	3,000
Chromite, concentrate (produced largely from imported ores)	11,600	4,250	--	--	--
Copper:					
Mine and concentrator output:					
Ore, gross weight thousand tons	26,500	25,800	23,100	18,200	17,900 4/
Cu content of ore	132,000	122,000	97,800	68,000	65,000
Concentrate, gross weight	542,000	519,000	423,000	298,000	300,000
Metal:					
Blister and anodes:					
Primary	106,000	95,800	80,000	44,100	60,000
Remelted	68,300	58,700	48,000	13,300	20,000
Total	174,000	155,000	128,000	57,400	80,000
Refined:					
Primary	102,000	95,100	78,600	43,400	61,000
Remelted	49,200	39,100	36,200	7,890	11,100
Total	151,000	134,000	115,000	51,300	72,100 4/
Gold, refined kilograms	8,170	6,920	7,330	3,330	4,000
Iron and steel:					
Ore and concentrate: Agglomerate	1,200,000	704,000	551,000	106,000	32,000
Metal: Ferroalloys:					
Ferronickel	11,900	11,800	6,480	1,280	1,400
Pig iron	767,000	526,000	512,000	62,500	17,000 4/
Crude steel	1,010,000	715,000	665,000	183,000	137,000 4/
Semimanufactures	1,860,000	867,000	733,000	174,000	174,000 4/
Lead:					
Mine and concentrate output:					
Ore, gross weight (Pb, Zn ore)	1,570,000	1,240,000	804,000	337,000	270,000 4/
Pb content of ore	39,000	33,900	22,700	9,230	7,500
Concentrate, gross weight	46,000	43,100	25,500	10,700	8,500
Pb content of concentrate	15,200 e/	14,200	8,820	3,510	2,800
Metal:					
Smelter, primary and secondary	70,000	51,000	30,300	8,590	6,500
Refined, primary and secondary	48,000	44,100	23,300	6,390	4,460
Magnesium: Metal	5,790	5,360	4,060	--	2,000
Nickel: Metal, Ni content of Fe Ni	4,200 e/	4,200	1,860	443	450
Platinum-group metals:					
Palladium kilograms	130	155	130	72	70
Platinum do.	21	22	19	10	10
Selenium do.	59,200	64,100	57,800	27,700	25,000
Silver do.	85,900	69,900	66,400	25,100	18,300 4/
Zinc:					
Zn content of Pb, Zn ore	33,000	31,400	19,700	9,700	7,700
Concentrator output, gross weight	51,000	52,600	31,800	14,900	12,000
Zn content of concentrate	9,500 e/	10,100	5,950	1,920	1,800
Refined zinc	61,300	38,600	14,200	6,990	3,900 4/
INDUSTRIAL MINERALS					
Asbestos fiber, all grades	1,350	1,770	1,180	314	250
Cement thousand tons	2,720	2,410	2,040	1,090	1,610 4/
Clays:					
Bentonite	5,000	260	200	110	100
Ceramic clay	61,000	51,200	50,300	23,400	20,000

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity 3/	1990	1991	1992	1993	1994 e/	
INDUSTRIAL MINERALS--Continued						
Clays:--Continued						
Fire clay:						
Crude	68,000	67,200	96,600	18,500	18,000	
Calcined	20,300	16,600	30,000	4,830	4,500	
Kaolin:						
Crude	143,000	153,000	112,000	36,600	50,000	
Washed	18,000 e/	11,700	9,300	4,800	5,000	
Feldspar, crude	12,700	9,310	5,110	2,680	2,800	
Gypsum, crude e/	45,500	42,600	47,900	--	20,000	
Lime	thousand tons	671	680	565	318	369 4/
Magnesite:						
Crude	do.	252	210	185	55	68 4/
Caustic calcined		9,260	10,000	13,000	7,810	
Mica, all grades		802	541	281	68	75
Nitrogen, N content of ammonia		179,000	170,000	148,000	99,900	150,000
Pumice and related volcanic materials, volcanic tuff		150,000	102,000	109,000	74,200	80,000
Quartz, sand-thousand tons		1,470	1,250	922	270	300
Salt, all sources		43,800	34,600	46,900	38,900	32,100 4/
Sand and gravel excluding glass sand	thousand cubic meters	8,660	7,040	5,340	1,670	1,810 4/
Sodium compounds:						
Caustic soda		88,400	51,300	23,200	4,090	4,750 4/
Sodium sulfate		20,000 e/	19,000	10,900	3,670	3,500
Stone, excluding quartz and quartzite:						
Dimension: Crude:						
Ornamental	square meters	356,000	234,000	278,000	213,000	213,000 4/
Crushed and broken, n.e.s.	thousand cubic meters	4,220	4,060	2,870	1,770	1,800
Other	cubic meters	13,600	10,400	10,000 e/	5,000	5,000
Sulfur: e/						
Sulfur content of pyrite	thousand tons	219 4/	61 4/	3 4/	1 4/	1 4/
Sulfur--Continued: e/						
Byproduct:						
Metallurgy		155	140	130	110	110
Petroleum		1	1	1	1	1
Total		375	202	134	114	112
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand tons	137	122	102	73	82 4/
Brown	do.	676	690	703	531	529 4/
Lignite	do.	44,700	39,600	39,300	36,800	37,700 4/
Natural gas, gross production	million cubic meters	646	749	846	962	824 4/
Petroleum:						
Crude:						
As reported	thousand tons	1,060	1,100	1,170	1,150	1,080 4/
Converted	thousand 42-gallon barrels	7,890	8,160	8,640	8,520	8,000 4/
Refinery products e/	do.	55,000	45,000	25,000	15,000	13,800

e/ Estimated.

1/ Table includes data available through May 1995.

2/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

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/ Reported figure.

5/ Less than 0.25 ton.

TABLE 2
SERBIA AND MONTENEGRO: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(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 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 Stena	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"	Opencast 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 Proizvodnju Nafte i Gasa	Natural gasfields in Serbia: Kikinda and others	30,000
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	Metalurški 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