

THE MINERAL INDUSTRY OF SERBIA AND MONTENEGRO

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Serbia and Montenegro continued to have significant European capacities to produce refined aluminum, copper, lead, silver, and zinc. The country also produced a broad range of industrial minerals, which included clays (bentonite and kaolin), feldspar, magnesite, mica, sand and gravel, and stone.

In 1996, the economy of Serbia and Montenegro showed recovery and expansion that was consonant with the cessation of economic sanctions by the United Nations in 1995. Owing to the sanctions, which were in place during the previous 3 years, the country's economy and minerals industry was effectively denied foreign commerce, which, when combined with the nearly total disruption of the preexisting Yugoslav domestic market, resulted in sharp declines of industrial production during the 1992-95 period. With the lifting of sanctions at yearend 1995, foreign trade resumed in 1996.

Compared with that of 1995, the value of total industrial output in 1996 rose by 8% (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997a). The combined value of output of the mining and quarrying sector (extraction of coal, crude petroleum and natural gas, and metallic and nonmetallic ores) increased by 1%; the manufacturing sector and the electric power industry reportedly increased output by 10% and 3%, respectively, compared with that of 1995 (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997a).

Serbia and Montenegro's metals mining and processing industries, generally, had very favorable results in 1996. Whereas the output of iron ore declined by 6% compared with that of 1995, the country's production of steel rose sharply, increasing by more than 370% by yearend (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997a). The growth in steel output was attributed largely to the resumption of exports, which amounted to 332,000 metric tons (t) of crude steel and 330,000 t of semimanufactures. The steel industry further announced plans to increase steel output in 1997 to 1.1 million tons, as well as raise the production of galvanized sheet and tinplate (Metal Bulletin, 1997).

The total value of production of nonferrous ores and metals increased by 25% and 24%, respectively, compared with that of 1995. Bauxite mining and processing (alumina refining and aluminum smelting) increased in terms of the value of output by 170% and 184%, respectively (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997b). Exports of unwrought aluminum and aluminum alloys in 1996 amounted to 39,139 t and nearly equaled the output of aluminum during the year. 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 metallurgical refining. Apart from the deposits exploited by RB Kosovo Klina, which contained a refractory-grade diaspore material, Montenegro's deposits of monohydrate (boehmitic) bauxite were suitable for metallurgical end use. These deposits are lenticular or irregular-shaped bodies occurring in Triassic and Eocene carbonate rocks.

In early 1996, Woralco and Balli Metal, trading companies based in the United Kingdom, both expressed interest in acquiring 51% of the stock in the country's alumina refinery and aluminum smelter, DP Kombinat Aluminijuma Podgorica in Podgorica (formerly Titograd), Montenegro. However, no decision had been made with respect to the sale and/or privatization of the aluminum sector by the end of the year (Metal Bulletin, 1996b,d).

The value of copper ore and metal production in 1996 declined by 7% and 2%, respectively, compared with that of 1995. Exports of refined copper during the year amounted to 67,000 t, or about 64% of total output. Additionally exports of pipes and wire of refined copper, respectively, amounted to 3,047 t and 10,342 t. Major recipients of copper from Serbia and Montenegro were Bulgaria, Greece, Hungary, Italy, and Ukraine (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997a; Mining Journal, 1996c). In early 1996, Rodarsko Tapionicki Bazen Bor (RTB), the country's copper mining beneficiation, smelting and refining complex, reestablished toll smelting and refining operations, which were interrupted during the U.N.-sanctioned trade embargo. In February, RTB, reportedly, secured contracts to process concentrates from Western European traders amounting to 105,000 t (Metal Bulletin, 1996a). RTB also applied for a listing on the London Metals Exchange for the RTB-BOR grade A brand copper cathode.

The value of output of lead and zinc ore declined by 7%, although the value of lead and zinc metal production increased by 256% and 482%, respectively, compared with that of 1995 (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997a). 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 range from several thousand to several million tons of ore. The Trepca deposit in the Kosovo Province of Serbia was the country's largest lead-zinc deposit and center of the lead and zinc mining and

processing industry. 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 before 1991 had been used to toll refine lead for foreign consumers. In late 1995, Rudarsko-Metalursko-Hemijski Kombinat za Olovo i Cink Trepca (Trepca), the Trepca lead and zinc mining, beneficiation, smelting, and refining complex in Kosovo, announced plans to combine all of the country's lead and zinc operations into one organization (Mining Journal 1996a). The Trepca enterprise also indicated plans to export about 80% of its production, amounting to about US\$250 million. In 1996, the reported total exports of lead (refined) and zinc (raw, unwrought, alloyed) amounted to 25,140 t and 21,812 t, respectively, or 82% and 72% of production (Federal Statistical Office of the Federal Republic of Yugoslavia, 1997b). Before the dissolution of Yugoslavia and the attendant civil war in the region, the main market for the country's lead and zinc production was domestic Yugoslav sales, largely for battery production. This market, however, had been totally disrupted, which resulted in the industry's current focus on exports. Reportedly, Trepca announced plans to double its output during the 1996-2001 period to a value of US\$500 million, of which US\$300 million was to be designated for export. Trepca's other foreign commercial activity during the year included an agreement with Atlas Copco of Sweden to modernize the company's mining operations. The deal reportedly was worth US\$20 million, and half of this amount was to be repaid by Trepca's shipment of batteries to Atlas Copco. Also, an agreement was reached with Mytilineos Holdings of Greece, worth US\$50 million, that called for the supply of 18,000 t of lead to Mytilineos Holdings through the end of 1997 (Mining Journal, 1996b).

In 1996, Serbia and Montenegro's lead and zinc industry announced that the Suplja Stena lead and zinc mine in Grac, near Pljevlja in Montenegro, resumed operation in August, after having been closed in October 1987. Trepca acquired 51% equity in the mine at the beginning of the year. The company anticipated production capacity at about 200,000 metric tons per year (t/yr) of ore. Additionally, proven reserves at Suplja Stena were put at 6.3 million tons of ore, grading 2% zinc and 0.63% lead, and potential reserves were estimated at 20 million tons (Metal Bulletin, 1996c).

Other activity in the country's metals sector saw the reemergence of magnesium sales on the world market. Almost the entire output of Magnochrome's Bela Stena magnesium metal operation was exported during the year. Exports of magnesium metal (apparently from the year's production and stocks), totaling 2,929 t, were shipped primarily to Western Europe (Metal Bulletin, 1996e).

Major industrial minerals remained in production and showed recovery during the year. The aggregated value of output for the industrial minerals mining and processing branch registered an increase of 25% compared with that of 1995 and the output of manufactured industrial mineral products, similarly, rose 27%. Cement, clays, magnesite, mica, sand and gravel, and stone were the major products of the country's industrial minerals sector. However, the mineral fuels sector of Serbia and Montenegro was less successful as the value of output of coal, natural gas, and petroleum declined respectively by 5%, 25%, and 4%.

Serbia and Montenegro was endowed with sufficient mineral resources to remain an important European source of mineral raw materials. The final status of the country's mineral industry will depend as much on the final resolution of the conflicts in the region as on policies concerned with denationalization of the economy and industrial restructuring.

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

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996
METALS					
Aluminum:					
Bauxite, gross weight	792,000	102,000	--	60,000	323,000
Alumina, calcined, gross weight	197,000	12,000	--	35,312	186,354
Metal, ingot, primary and secondary	66,947	25,778	6,850	16,991	37,436
Antimony, metal	10	(3/)	(3/)	(3/)	(3/)
Bismuth, metal	60	30	88	86	21
Cadmium kilograms	8,136	6,301	3,000	11,079	79,195
Copper:					
Mine and concentrator output:					
Ore, gross weight thousand tons	23,085	18,189	17,935	20,206	20,026
Cu content of ore	97,811	68,007	84,843	87,575	82,526
Concentrate, gross weight	423,490	297,878	354,916	363,332	337,861
Metal:					
Blister and anodes:					
Primary	79,953	44,112	69,111	70,074	59,940
Remelted	47,967	13,286	17,440	17,336	65,287
Total	127,920	57,398	86,551	87,410	125,227
Refined:					
Primary	78,560	43,410	66,308	71,304	59,940
Remelted	36,203	7,890	5,841	7,147	44,060
Total	114,763	51,300	72,149	78,451	104,000
Gold, refined kilograms	7,330	3,330	2,504 r/	3,040 r/	3,000 e/
Iron and steel:					
Ore and concentrate, agglomerate	704,340	106,301	32,000	110,113 r/	110,000 e/
Metal:					
Ferroalloys, ferronickel	6,481	1,283	1,763 r/	2,414 r/	6,501
Pig iron	512,005	62,490	16,763 r/	107,836 r/	536,000
Crude steel	664,934	183,383	136,962 r/	180,496 r/	679,000
Semimanufactures	733,000	174,000	174,000	242,000 r/	860,000
Lead:					
Mine and concentrate output:					
Ore, gross weight (Pb, Zn ore)	804,000	337,000	272,208	510,942	856,468
Pb content of ore	22,661	9,229	6,651	11,689	22,327
Concentrate, gross weight	25,504	10,672	7,500	16,720	29,009
Pb content of concentrate	8,820	3,510	2,667 r/	3,342 r/	10,000 e/
Metal:					
Smelter, primary and secondary	30,312	8,593	12,274 r/	19,231 r/	44,600
Refined, primary and secondary	23,265	6,393	4,458 r/	11,468 r/	30,317
Magnesium, metal	4,055	--	-- r/	2,560 r/	2,500 e/
Nickel, metal, Ni content of Fe Ni	1,860	443	663 r/	962	2,556
Platinum-group metals:					
Palladium kilograms	130	72	47	46	56
Platinum do.	19	10	7	6	3
Selenium do.	57,800	27,677	27,340	39,810	37,840
Silver do.	66,420	25,144	18,298	31,054 r/	68,805
Zinc:					
Zn content of Pb, Zn ore	19,718	9,704	6,794	11,515	21,765
Concentrator output, gross weight	31,829	14,944	7,500	21,297	37,012
Zn content of concentrate	5,950	1,910	1,609 r/	3,195 r/	5,500 e/
Refined	14,182	6,985	3,895	5,976	29,954
INDUSTRIAL MINERALS					
Asbestos fiber, all grades	1,175	314	498	497 r/	450
Cement thousand tons	2,036	1,088	1,612	1,696	2,205

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996	
INDUSTRIAL MINERALS--Continued						
Clays:						
Bentonite	200	110	215	192	95	
Ceramic clay	50,343	23,367	22,092	28,095	36,021	
Fire clay:						
Crude	96,643	18,481	34,080	20,988	43,053	
Calcined	--	4,825	5,376	4,091	8,000 e/	
Kaolin:						
Crude	111,782	37,627	69,927 r/	56,926 r/	60,000 e/	
Washed	9,300	4,800	7,110	4,900	6,000 e/	
Feldspar, crude	5,111	2,679	3,256 r/	5,441 r/	4,801	
Gypsum, crude	47,865	--	40,411	40,342	44,257	
Lime	thousand tons	565	318	156 r/	184 r/	236
Magnesite:						
Crude	do.	185	55	53	61	75
Caustic calcined		12,958	7,812	5,896	4,078 r/	1,061
Mica, all grades		281	68	158 r/	199 r/	200 e/
Nitrogen, N content of ammonia		148,000	99,900	158,518 r/	135,401 r/	235,070
Pumice and related volcanic materials, volcanic tuff		108,792	74,230	154,188 r/	117,664 r/	120,135
Quartz sand	thousand tons	922	270	280 r/	195 r/	239
Salt, all sources		46,945	38,867	32,086	13,500 r/	21,646
Sand and gravel excluding glass sand	thousand cubic meters	5,343	1,669	1,814	2,070 r/	3,291
Sodium compounds:						
Caustic soda		21,176	4,086	4,748	7,252 r/	20,214
Sodium sulfate		10,948	3,668	2,870 r/	7,178 r/	7,000 e/
Stone, excluding quartz and quartzite, dimension, crude:						
Ornamental	square meters	276,569	212,581	213,000	215,000 e/	250,000 e/
Crushed and broken, n.e.s.	thousand cubic meters	2,872	1,157	1,571	2,136 r/	2,468
Other e/	cubic meters	10,000	5,000	5,000	5,000	5,000
Sulfur: e/						
Sulfur content of pyrite	thousand tons	3 4/	1 4/	1	1	1
Byproduct:						
Metallurgy		130	110	110	110	110
Petroleum		1	1	1	1	1
Total		134	114	112	112	112
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand tons	102	73	82	57 r/	69
Brown	do.	703	531	529	560	539
Lignite	do.	39,300	36,829	37,740	39,939 r/	37,828
Total		40,105	37,433	38,351	40,556	38,436
Natural gas, gross production	million cubic meters	846	962	824	906 r/	671
Petroleum:						
Crude:						
As reported	thousand tons	1,165	1,148	1,078	1,066 r/	1,030
Converted	thousand 42-gallon barrels	8,640	8,520	8,000	8,000	7,600
Refinery products e/	do.	25,000	15,000	13,800	13,000	12,500

e/ Estimated. r/ Revised.

1/ Table includes data available through Sept. 1997.

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/ Less than 0.25 ton.

TABLE 2
SERBIA AND MONTENEGRO: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand of metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	DP Kombinat Aluminijuma Podgorica	Plant at Podgorica, Montenegro	200
Aluminum	do.	Smelter at Podgorica, Montenegro	100
Antimony, ores and concentrates	Zajaca, Rudarsko Tapioncarski 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	Tamnanski 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
Copper, ore	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 Naftaplina (Naftagas), RO za Istrazivanje, i Proizvodnju Nafta i Gasa	Natural gasfields in Serbia Kinkinda 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 Nafta Pancevo	Refinery at Pancevo, Serbia	110
Do.	do. Rafinerija Nafta 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