

# THE MINERAL INDUSTRY OF BOSNIA AND HERZEGOVINA

By Walter G. Steblez

In 1996, Bosnia and Herzegovina began a process of recovery from the war that was fought from 1992 to 1995. Before the outbreak of the civil war, the country was a major producer of minerals and heavy industrial products in the former Yugoslavia. By yearend 1995 many of the industries that produced these products were severely damaged by the war, as well as the country's infrastructure. The repair of damaged industrial facilities could cost as much as US\$20 million. The country's overall economic downturn was significant with the gross domestic product in 1996 having declined by 75% compared with that of the pre-war level of 1991 (Foreign Broadcast Information Service 1996a). According to information supplied by sources in Serbia and Montenegro, the Serbian-controlled areas of Bosnia and Herzegovina, known as the "Srpska republic," controlled substantial proportions of Bosnia and Herzegovina's mineral resources. The share of mineral resources under exploitation within Serbian-dominated areas of Bosnia and Herzegovina was as follows: bauxite, 12%; brown coal, 37%; gypsum, 88%; iron ore, 68%; lead and zinc ore, 35%; lignite, 12%; and quartz, 89% (Foreign Broadcast Information Service, 1994).

In 1996, the Government of Bosnia and Herzegovina reported plans to rehabilitate the country's aluminum and steel industries in 1997. To help achieve these ends, at yearend an agreement was signed between the Governments of Bosnia and Herzegovina and Iran on technical cooperation between their respective steel industries. A provision of this agreement called for Iranian shipments of equipment to Bosnia and Herzegovina for use in smelting operations at the Zenica steel mill in return for shipments of iron and steel products to Iran (Foreign Broadcast Information Service 1996b).

Statistical information on the country's mineral production for 1992-96 was not available because of the war. Presumably, when and where possible, the Government provided assistance to industries, including those in the minerals sector, that could help maintain employment and assist in the country's defense. Estimates were based on known capacities and status of industrial operations in the country. (See *table 1.*) Moreover, detailed official information concerning foreign trade for 1994-95 also was unavailable. Table 2, which lists the apparent administrative bodies as well as subordinate production units of the main branches of the country's mineral industry for 1996, was based on known industrial capacities prior to the outbreak of the civil war. (See *table 2.*)

Before the dissolution of the Federal Republic of Yugoslavia,

Bosnia and Herzegovina was a major center for metallurgical industries in the former Yugoslavia. The Rudarsko Metalurški Kombinat plant at Zenica, the country's major steel making facility, had an installed production capacity in excess of 2 million metric tons per year of crude steel before the war. The country also was a major producer of bauxite, alumina, and aluminum in the former Yugoslavia. Production of bauxite, alumina, and aluminum was administered by Energoinvest. Bauxite was produced at mines in Vlasenica, Jajce, and Bosanska Krupa, among others. The alumina refineries were at Birac-Zvornik and Mostar and the aluminum smelter was also at Mostar, which was the center of the aluminum-fabricating and aircraft industries in the former Yugoslavia. The production of other nonferrous metals included only a relatively small amount of lead and zinc ore mined and milled at Srebrenica. Bosnia and Herzegovina produced asbestos, barite, cement, clays, dimension stone, dolomite, gypsum, salt, sand and gravel, as well as other industrial minerals in quantities that were sufficient to meet most of the country's industrial needs.

Bosnia and Herzegovina's SOUR Titovi Rudnici Uglja Tuzla, the country's dominant coal producer, mined brown coal and lignite that were consumed primarily by the country's thermal electric power stations. Bosnia and Herzegovina's petroleum refineries, operated by Energoinvest at Bosanski Brod, were entirely dependent on deliveries of petroleum from outside the country. The Bosanski Brod refineries were extensively damaged during the war. Petroleum pipelines were 174 kilometers in length; however, data for natural gas pipelines were not available.

The eventual transformation of Bosnia and Herzegovina's economy to a market-based system will require a reevaluation of the country's mineral resources from a market perspective. For a detailed explanation of the system that was used to determine reserves in the former Yugoslavia, see the reserve section in "The Mineral Industry of Russia" report in this publication series.

## References Cited

- Foreign Broadcast Information Service, 1994, East Europe: Foreign Broadcast Information Service, Daily Report EEU-94-071, April 13, p. 40.
- 1996a, East Europe: Foreign Broadcast Service, Daily Report EEU-96-118, June 8 (Accessed from World Wide Web, <http://fbis.fedworld.gov/nts/login.html>).
- 1996b, Near East: Foreign Broadcast Information Service, Daily Report NES-96-245, Dec. 18, 1996 (Accessed from World Wide Web, <http://fbis.fedworld.gov/nts/login.html>).

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

(Metric tons unless otherwise specified)

Commodity 2/	1992	1993	1994	1995	1996
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite	200,000	100,000	75,000	75,000	75,000
Alumina	100,000	50,000	50,000	50,000	50,000
Metal, ingot; primary and secondary	30,000	15,000	15,000	15,000	15,000
<b>Iron and steel:</b>					
<b>Ore and concentrate:</b>					
Ore, gross weight	500,000	250,000	200,000	150,000	100,000
Ore, Fe content	150,000	70,000	70,000	52,000	35,000
Agglomerate	200,000	50,000	50,000	50,000	40,000
<b>Metal:</b>					
<b>Ferrous:</b>					
Ferrosilicon	5,000	1,000	1,000	1,000	1,000
Silicon	2,000	200	200	200	100
Pig iron	150,000	100,000	100,000	100,000	100,000
Crude steel:	135,000	115,000	115,000	115,000	115,000
Semimanufactures	200,000	150,000	100,000	100,000	100,000
<b>Lead:</b>					
<b>Mineral concentrator output:</b>					
Ore, gross weight (Pb Zn ore)	50,000	10,000	10,000	10,000	10,000
Pb content of ores	800	200	200	200	200
Pb concentrate	2,000	400	400	400	400
Metal, smelter, primary and secondary	250	100	100	100	100
<b>Manganese ore:</b>					
Gross weight	10,000	2,000	2,000	2,000	2,000
Mn content	3,500	600	600	600	500
<b>Zinc:</b>					
Zinc content of Pb-Zn ore	2,000	350	300	300	300
Concentrate output, gross weight	3,000	600	600	600	600
<b>INDUSTRIAL MINERALS</b>					
Asbestos, all kinds	500	500	500	500	500
Barite concentrate	3,000	2,000	2,000	2,000	2,000
Cement	thousand tons	150	150	150	150
<b>Clays: 3/</b>					
Bentonite	1,000	800	800	800	800
Ceramic clay, crude	20,000	20,000	20,000	20,000	20,000
<b>Kaolin:</b>					
Crude	3,000	3,000	3,000	3,000	3,000
Calcined	1,500	1,500	1,500	1,500	1,500
<b>Gypsum:</b>					
Crude	50,000	30,000	30,000	30,000	30,000
Calcined	4,000	3,000	3,000	3,000	3,000
Lime	thousand tons	50	50	50	50
Magnesite, crude	2,000	2,000	2,000	2,000	2,000
Nitrogen, N content of ammonia	5,000	2,000	2,000	2,000	500
Quartz, quartzite, glass sand: Glass sand	50,000	50,000	50,000	50,000	50,000
Salt, all sources	70,000	50,000	50,000	50,000	50,000
Sand and gravel, excluding glass sand	thousand cubic meters	500	500	500	500
<b>Sodium compounds:</b>					
Soda ash	25,000	20,000	20,000	10,000	10,000
Caustic soda	20,000	10,000	10,000	10,000	10,000
Sodium bicarbonate	2,000	1,000	1,000	1,000	1,000
<b>Stone, excluding quartz and quartzite: Dimension, crude:</b>					
Ornamental	square meters	50,000	20,000	20,000	20,000
Other	cubic meters	5,000	2,000	2,000	2,000
Crushed and brown, n.e.s.	thousand cubic meters	500	500	500	500
Sulfur: Byproduct of metallurgy	2	1	1	1	1
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
<b>Coal:</b>					
Brown coal	thousand tons	2,500	1,000	1,000	1,000
Lignite	do.	2,000	1,500	1,500	1,000
Coke	150	100	100	100	--
Petroleum refinery products	thousand 42-gallon barrels	2,000	--	--	--

1/ Table includes data available through Apr. 1997.

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

TABLE 2  
BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Energoinvest	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
Coal:			
Brown	SOUR Titovi Rudnici Uglja, Tuzla	Mines in BiH	12,000
Lignite	do.	do.	7,000
Cement	Gik Hidrogradnja, Tvornica Cementa BiH	Plant at Kakanj	650
Ferroalloys	Elktrobosna, Elektrohemijska i Eletrotermijska Industrija	Plant at Jajce	80
Iron ore	Rudarsko Metalurski Kombinat 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:			
Refined	thousand barrels per day	Energoinvest: Rafinerija Nafte Bosanski Brod	100
Pig iron		Rudarsko metalurski Kombinat Zenica (RMK Zenica)	2,250
Do.		do.	100
		Electric reduction furnaces at Iljas	100
Salt	cubic meters per year	Hemijski Kombinat "Sodaso," Rudnik Soli i Solni Bunari	120,000
Do.	do.	do.	2,000,000
		Production from brine at Tuzla, BiH	2,000,000
Steel, crude		Rudarsko Metalurski Kombinat Zenica	2,060