

# THE MINERAL INDUSTRY OF MACEDONIA

By Walter G. Steblez

Following secession from Yugoslavia in early 1992, Macedonia encountered serious difficulties with respect to international recognition, owing to Greece's demand that the term "Macedonia" be applied only to the northern province of Greece bordering with the former Yugoslav Republic of Macedonia. The political dispute with Greece over the "Macedonia" eponym resulted in a de facto trade embargo because of Greece's reported closure of its border to Macedonia coupled with the international economic sanctions placed against Serbia and Montenegro with which Macedonia has a common border.

The Republic of Macedonia had been a major producer of minerals in the former Yugoslavia. The country's output of major minerals in 1990 (the last year for which comparative statistical information was available) as a percent of total output for Yugoslavia, amounted to 12.3% for copper ore, and 36.9% for lead and zinc ore. Output of smelter and refined lead amounted to 25.6% and 26.7%, respectively, for the same period; silver amounted to 14.7%; and zinc smelter secondary and zinc refined output was 100% and 45.3%, respectively, of total production. Additionally, steel (electric furnace) production was 16.5% of total output. With respect to industrial minerals, Macedonia's production of bentonite, dolomite, gypsum, and pumice in 1990 amounted to 65.3%, 58.1%, 10.2%, and 48.7%, respectively, of the former Yugoslavia's total production.

The country's production of lignite in 1990 represented 10.4% of the former Yugoslavia's total output that year but was the only fossil fuel that was produced. The dislocation of the former Yugoslavia's mineral industry and commerce in 1992 continued through the end of 1995 resulting in apparently significant shortfalls in minerals production in Macedonia as well as in other former constituent republics.

Although the primary concern of the Government of Macedonia was reportedly the issue of international recognition, apparently some effort continued to be directed

at maintaining levels of industrial production that would ensure minimally acceptable levels of employment.

The production table for Macedonia was compiled from data presented in a variety of statistical publications of the former Yugoslavia through 1991. The major portion of the country's production statistics, however, was obtained from "Industrijska Proizvodnja," an annual statistical compendium published in Belgrade through 1990 that presented production data by constituent federal republics, as well as by total output for the former Yugoslavia. (*See table 1.*)

Owing to the de facto trade embargo that developed around Macedonia, very little detailed official information concerning foreign trade for 1993 was available.

Table 2 lists the apparent administrative bodies as well as subordinate production units of the main branches of the country's mineral industry in 1993. (*See table 2.*)

Apart from reports concerning several mineral industry closures at yearend, available reports dealing with the country's mineral production described substantial idle capacities in 1994 in both the iron and steel and nonferrous metals sectors of the country's mineral industry. Owing to the depletion of its coal stocks and inability to obtain supplies from outside the country, Fenimak, the country's nickel producer, announced the closure of its operations at yearend 1993.

Macedonia's inland system of ways and communications consisted of railroads, highways and waterways. Although information concerning the total lengths of the railroad and inland waterway systems was not yet available, the highway and road system reportedly consisted of 10,591 km of paved, gravel, and earth-surfaced road, of which 5,091 km was paved, 1,404 km was gravel, and 4,096 km was earth-surfaced. The country was entirely landlocked and possessed neither a merchant marine fleet nor pipelines for carriage of natural gas and petroleum.

TABLE 1  
MACEDONIA: APPARENT PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
<b>METALS</b>					
Aluminum: Metal, ingot, primary and secondary	5,000	4,000	2,000	2,000	2,000
Cadmium, smelter output kilograms	160	110	100	100	
Chromite:					
Ore, gross weight	6,000	6,000	5,000	5,000	5,000
Concentrate (produced largely from imported ores)	14,000	10,000	3,000	3,000	3,000
Copper: Mine and concentrator output:					
Ore, gross weight thousand tons	3,850 3/	3,000	2,500	2,000	2,000
Cu content of ore	9,200	7,200	7,000	6,500	6,500
Concentrate, gross weight	36,000	30,000	25,000	20,000	20,000
Iron and steel:					
Iron ore:					
Gross weight thousand tons	25,000	20,000	20,000	20,000	20,000
Fe content of ore	1,000	1,000	1,000	1,000	1,000
Concentrate	30,000	15,000	15,000	15,000	15,000
Pellets	25,000	10,000	10,000	10,000	10,000
Agglomerate	20,000	5,000	5,000	5,000	5,000
Metal:					
Ferroalloys:					
Ferrochromium, low C	3,360 3/	3,960 3/	4,380 3/	3,160 3/	3,200
Ferrosilicochromium	2,000	1,500	--	--	--
Ferrosilicon	35,000	30,000	20,000	15,000	15,000
Silicon	1,800	1,000	1,000	1,000	1,000
Total	42,160	36,460	25,380	19,160	19,200
Pig iron	50,000	20,000	20,000	20,000	20,000
Steel, crude:					
From oxygen converters	65,000	42,000	37,000	30,000	30,000
From electric furnaces	80,000	160,000	100,000	60,000	60,000
Total	145,000	202,000	137,000	90,000	90,000
Semimanufactures	45,000	20,000	20,000	20,000	20,000
Lead:					
Mine and concentrate output, ore gross weight (Pb, Zn ore)	900,000	400,000	400,000	400,000	400,000
Smelter, primary and secondary	18,000	10,000	10,000	10,000	10,000
Refined, primary and secondary	14,000	8,000	8,000	8,000	8,000
Nickel: Metal, Ni content of FeNi	--	450	3,500	3,500	3,500
Silver kilograms	12,000	10,000	10,000	10,000	10,000
Zinc: Metal:					
Zn, smelter, primary	50,000	30,000	30,000	30,000	30,000
Zn, refined, primary and secondary:					
Smelter	7,370 3/	7,000	7,000	7,000	7,000
Electrolytic	32,000	25,000	25,000	25,000	20,000
Cement 3/ thousand tons	606 r/	516 r/	499 r/	486 r/	500
Clays, bentonite 3/	45,000	40,000	35,000	30,000	30,000
Diatomite	4,000	5,000	5,000	5,000	5,000
Feldspar	30,000	20,000	15,000	15,000	15,000
Gypsum:					
Crude	44,000	30,000	30,000	25,000	25,000
Calcined	11,000	7,000	7,000	5,000	5,000
Lime	40,000	20,000	20,000	20,000	20,000
Pumice and related materials: Volcanic tuff	200,000	100,000	75,000	75,000	75,000
Sand and gravel, excluding glass sand thousand cubic meters	150	130	130	130	130
Stone, excluding quartz and quartzite: Dimension, crude:					
Ornamental square meters	400,000	300,000	200,000	200,000	200,000
Crushed and brown, n.e.s. thousand cubic meters	700	400	400	400	400
Other cubic meters	15,000	10,000	10,000	10,000	10,000
Sulfur: Byproduct of metallurgy thousand tons	8	6	6	6	6
Talc:					
Crude	20,000	15,000	10,000	10,000	10,000
Washed	17,000	10,000	7,000	7,000	7,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Lignite 3/ thousand tons	6,922 r/	6,494 r/	7,706 r/	6,830 r/	6,800
Petroleum refinery products thousand 42-gallon barrels	12,000	10,000	8,000	8,000	8,000

e/ Estimated. r/ Revised.

1/ Table includes data available through Mar. 1996.

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

3/ Reported figure.

TABLE 2  
MACEDONIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies 1/	Location of main facilities	Annual capacity
Cement	Azbestcementsa "Usje" Preduzece za Proizvodnju Cementa	Plant at Skopje, Macedonia	2,190
Chromite, concentrate	Jugohrom, Hemijsko-Elektrometakurski Kombinat	Concentrator at Radusa, Macedonia	150
Copper ore	Bucim, Rabotna Organizacija za Rudarstvo i Metalurgija za Baker	Mine and mill at Bucim, near Radovis, Macedonia	7,000
Ferroalloys	Jugohrom, Hemijsko-Elektrometalurski Kombinat	Plant at Jegunovce, Macedonia	80
Iron ore	Skopje Rudnici i Zeljezarnica Skopje	Mines at Tajmiste, Demir Hisar, and Damjan, Macedonia	1,000
Lead-zinc ore	Prepobotuvacki, Kombinat Zletovo-Sasa: Sase, Rudnici za Olovo i Cink	Mine and mill near Kamenica, Macedonia	300
Do.	Zletovo, Rudnici za Olovo i Cink	Mine and mill near Probistip, Macedonia	700
Lead metal	Zletovo, Topilnica za Cink i Olovo	Imperial Smelter at Titov Veles, Macedonia	40
Do.	do.	Refinery at Titov Veles, Macedonia	40
Nickel:			
Ore	Feni-Rudnici i Industrija za Nikel, Celik i Antimon	Mine and opencast mine near Kavadarci, Macedonia	2,300
Metal	do.	Ferronickel plant at Kavadarci, Macedonia	161
Pig iron	Skopje, Rudnici i Zeljezarnica Skopje	5 Elkem electric furnaces at Skopje, Macedonia	430
Steel, crude	do.	Plant at Skopje, Macedonia	980
Zinc metal	Zletovo, Topilnica za Cink i Olovo	Imperial Smelter plant and refinery at Titov Veles, Macedonia	65

1/ Nickel in ferronickel.