

THE MINERAL INDUSTRY OF

BULGARIA

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Bulgaria's minerals industry encompassed the mining, beneficiation, smelting, and refining of base and precious metals and their working to the stage of semimanufactures. The country's mineral industry also included the mining, extraction, and refining of mineral fuels (mainly coal) and such industrial minerals as clays, gypsum, and rock salt. Additionally, the construction materials industry also produced cement and dimension stone. By world standards, Bulgaria's minerals industry was small and of only regional importance. Although most of the country's minerals requirements were met through domestic production, Bulgaria was dependent on imports for iron ore, mineral fuels, and steel.

The Government of Bulgaria remained committed to transforming the country's economy to a market-based system. The Law on Transformation and Privatization of State and Municipal-Owned Enterprises, which was adopted by Parliament in 1992, is the legal basis for this transformation.

In 1998, the Government adopted the Underground Resources Act to promote private enterprise and foreign investment. Although the act stipulates underground mineral wealth as the property of the state, it accommodates an approval process for claims by domestic and foreign companies to develop and operate mineral deposits for up to 35 years with additional 15-year extensions. Exploration rights to private companies could be granted for up to 3 years (Kousseff, 1999). The National Program for Sustainable Development of Mining in Bulgaria also was drafted and approved in 1998. The program's chief aim is to restructure the country's minerals industry and to complete the privatization of the industry by yearend 1999.

The Government of Bulgaria, as well as private and public organizations, actively continued to pursue environmental cleanup work especially in areas in which heavy industries had been major sources of environmental pollution during the 1970's and 1980's. A large measure of environmental reclamation at these sites has been done with the assistance of international financial institutions. In 1999, the World Bank reported having approved a loan of 49.5 million euros (€) (0.99591 € = US\$1.00) to Bulgaria earmarked for environmental cleanup. Targeted industries included the Burgas-based Neftochim petroleum refinery. The funds were to be distributed during a 3-year period (Oil & Gas Journal, 2000).

Despite the negative economic impact of the Kosovo crisis in Serbia and Montenegro in the Balkan region, the Government's economic program was credited with the economic growth achieved in 1999 (Kousseff, 2000). The gross domestic product rose by 2.5% compared with that of 1998, and industrial production increased by 3%.

Bulgaria's production of metals in 1999 showed mixed results compared with their output levels in 1998. With respect to nonferrous metals, the production of lead and zinc in concentrate declined by 43% and 40%, respectively, compared with that of 1998. The total primary and secondary output of refined lead, however, rose by 9%. Mine production of copper ore rose by 12%, but the production of refined copper fell substantially by 27%. In the ferrous metals sector, manganese ore mining apparently ceased during the year, and the mine production of iron ore declined by 22% to about 700,000 metric tons (t). The smelting of pig iron for steelmaking declined by 21%.

In the industrial minerals sector, a major production upswing was noted for barite owing to favorable market conditions. Mine output of barite rose by more than 2.5 times. In the mineral fuel sector, the total production of coal declined by 17%, compared with that of 1998 (table 1).

Metals were a substantial component of the mineral industry's production. Bulgaria's mine output included copper, iron, lead and zinc, and manganese. Additionally, byproduct cadmium, gold, molybdenum, silver, and other metals were produced chiefly from processing copper and lead and zinc ores.

In Bulgaria's copper industry, the major activity involved Navan plc. of Ireland. Navan increased its holding in the Chelopech copper-gold project to 92% from 68% through the purchase of additional shares from the Government of Bulgaria. The balance of the shares, as stipulated by law, was distributed to employees. Navan planned to raise ore output at Chelopech from 600,000 metric tons per year (t/yr) in 1999 to about 800,000 t/yr by 2001. In 1998, reportedly 559,000 t of ore was processed by Chelopech to produce 6,670 t of copper and about 1.6 t of gold in concentrate (Mining Journal, 1999c).

Other developments in the copper industry centered on the offering of about 80% of the stock of the Eliseina copper smelter for auction sale. Bids were to be submitted to the Government of Bulgaria by the end of November. Bidders were expected to pay 50% of the agreed price in cash immediately after finalizing the contract with the balance due in 30 days. The balance of the shares (20%) were to be offered to Eliseina employees at reduced cost (Mining Journal, 1999b).

The lead and zinc industry in Bulgaria was based on mining and processing operations near Plovdiv in the Ossogovo Mountains in western Bulgaria; near the Thundza River in eastern Bulgaria, and in the Madan area near the Greek border. Lead and zinc smelting and refining were in Kurdjali and in Plovdiv in the Madan area (table 2). In the Plovdiv region, KCM SA (KCM), which was the lead and zinc smelting and

refining operation, imported 70% of the lead concentrates and 40% of the zinc concentrates used in the operation. Also, 4% to 5% of the refined lead produced annually at KCM was from secondary sources, as well as 20% of the zinc. Major activities in the lead and zinc industry in 1999 involved the Government's offering of KCM for sale. Although Mes Metals of Turkey was the sole bidder for the smelter (40,000 t/yr lead and 55,000 t/yr of zinc), Mes reportedly was unable to meet the conditions of the sale (Mining Journal, 1999d, e).

Other activities on the nonferrous metals sector included an announcement by the State Privatization Agency of Bulgaria that 75% of the shares of stock of the "Alumina" aluminum plant, which was a producer of secondary aluminum, would be offered to a consortium that comprised FAF Metals of Turkey and Alumina-98, which was the plant's buy-out management team (Mining Journal, 1999a).

In 1998, the Government of Bulgaria announced plans to sell the Promet and the Stomana steel-producing enterprises. Promet, which was the smaller of the plants, is near the Black Sea and comprised an 800,000-t/yr sections rolling mill. Stomana consisted of a 800,000-t/yr electric steel melt shop for casting blooms and slab to feed the enterprise's rolling mill that produced plate and section (Metal Bulletin, 1998).

In 1999, the Government of Bulgaria reported the acceptance of a bid from a Bulgarian-German metals trading consortium to operate the Stomana steelworks. The consortium, Eurometal, was selected from a field of bidders that included the Duferco Group of Switzerland and Rudolph Robinson International of the United States. The plant initially was to be leased for 6 months at a rate of \$135,000 per month. Subsequently, the consortium would have the option to purchase Stomana for \$13.5 million (an initial payment of \$3 million with payments on the balance due deferred for 5 years). Some modernization and maintenance was under way and included a plate mill that could produce 8- to 25-millimeter-thick plate. Employment at Stomana was expected to contract to 2,000 from 4,100 workers (Metal Bulletin, 2000).

Further privatization of Bulgaria's steel industry was centered on the sale of the Kremikovtzi steelworks. The chief bidders were Daru Minerals Ltd., which was a Bulgarian trading firm, and Erdemir of Turkey. By midyear, Daru had gained the upper hand and appeared to be the new owner of Kremikovtzi. A spokesperson for Daru announced the company's plans to modernize the steel mill. Upgrading was to include the \$16 million modernization of the continuous slab casting unit, a \$20 million renovation of the steel mill's third blast furnace, and a \$10 million renovation of the reheating furnaces (Metal Bulletin, 1999, p. 21).

The most recent energy policy of the Government of Bulgaria, which was presented in a document drafted in 1998, was National Strategy for the Development of Energy and Energy Efficiency Till 2010. The provisions of the National Strategy called for the closure of reactor units 1 to 4 at the Kozloduy nuclear power plant and the modernization of units 5 and 6, and the planned construction of the 600-megawatt (MW) Belene nuclear powerplant between 2002 and 2010, and the construction of 1,500 MW of coal-fired electric power and 430

MW of hydroelectric generating capacity during the same period (U.S. Office of Fossil Energy, 1999). The legal premises of Bulgaria's energy policy were promulgated in The Energy and Energy Efficiency Law of Bulgaria, which was adopted by the XXXVIII National Assembly on July 2, 1999, and published on July 15, 1999, in Sofia in the State Gazette.

Bulgaria is endowed with large, albeit low-rank, resources of coal. The country's reserves of lignite amount to 2.5 billion metric tons; those of subbituminous coal to 200 million metric tons. In 1998, the Action Plan for Coal Mining Companies for the 1998-to-2001 period was published by the Government of Bulgaria. The plan calls for the closure of inefficient mines followed by free-market pricing of coal and the denationalization of the coal mining industry. The plan also calls for the investment of \$437 million to improve the coal mining sector, which would include the introduction of new technology into the industry, facility modernization, and mined-out land reclamation (U.S. Office of Fossil Energy, 1999, p. 3-4). In parallel with petroleum output, Bulgaria produced very limited quantities of natural gas. Before 1990, most of the country's needs for natural gas were supplied by the Soviet Union; during the 1990's, the 206 billion cubic feet per year was met by Russian exports. Prospectively, future domestic production may hold promise along the Black Sea shelf (Office of Fossil Energy, 1999).

Bulgaria also produced small quantities crude petroleum. Output during the 1990's amounted to about 1,000 barrels per day (365,000 barrels per year). Virtually all Bulgaria's crude oil needs have been met through imports. As of 1996, only nine wells were in operation in Bulgaria. More recently, however, Bulgaria has sought the participation of foreign companies to form joint ventures to explore for oil and gas in the Black Sea and in the Black Sea coastal areas. Companies from Austria, the United Kingdom, and the United States have been participating in this effort (U.S. Office of Fossil Energy, 1999).

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TABLE 1
BULGARIA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999
METALS					
Aluminum, metal, secondary	4,519	4,417	3,127 r/	3,500 r/	3,500 e/
Bismuth, metal e/	40	40	40	40	40
Cadmium, metal, smelter	250	250	280	250 e/	150 e/
Copper:					
Ore:					
Gross weight thousand tons	21,050	21,123	21,836	20,726	22,346
Cu content e/ do.	105	106	109	105	110
Concentrate:					
Gross weight do.	378	444	463	438	483
Cu content do.	76	89	93	88	97
Metal, primary and secondary:					
Smelter	95,900	104,398	114,630	119,500	120,000
Refined	28,800	22,301	34,530	36,800	27,200
Gold, metal kilograms	3,100	3,390	1,020	1,213	1,200 e/
Iron and steel:					
Iron ore:					
Gross weight thousand tons	959	1,000 e/	858	895	699
Fe content do.	270	282	242	250 e/	190 e/
Iron concentrates do.	483	497	479	462	361
Metal:					
Pig iron for steelmaking do.	1,581	1,481	1,610	1,400 r/	1,100
Ferroalloys, ferrosilicon e/ do.	8	8	10	10	10
Steel, crude do.	2,724	2,457	2,628	2,216	2,000 e/
Semimanufactures, rolled do.	2,250	1,901	2,242	1,800 e/	1,800 e/
Lead:					
Mine output, Pb content	37,000	33,000	30,000	35,000 e/	17,000
Concentrate:					
Gross weight	46,466	40,681	39,800	34,595	19,700
Pb content e/	33,000	28,500	27,900	24,200	14,000
Metal, refined, primary and secondary	72,150	74,690	72,580	72,975	79,300
Manganese ore:					
Gross weight	19,000	44,270	47,430	55,600	--
Mn content e/	5,600	13,100	14,000	17,000	--
Silver, mine output, Ag content	30	49	32	24	20 e/
Tin, metal	13	8	8 r/	10 e/	10 e/
Uranium, oxide, U content e/	600	600	600	600	600
Zinc:					
Mine output, Zn content e/	21,200	25,700	21,000	20,000	12,000
Concentrate:					
Gross weight	49,200	38,000	38,420	33,600	19,700
Zn content e/	26,000	19,800	20,000	17,000	10,200
Metal, smelter, primary and secondary	79,700	68,018	70,420	72,755	70,000
INDUSTRIAL MINERALS					
Asbestos fiber, all grades	400	300	300	300 e/	300 e/
Barite ore, run of mine	990,100	976,700	285,000	452,197	1,244,000
Cement, hydraulic thousand tons	2,070	2,137	1,656	1,700 e/	1,700 e/
Clays:					
Bentonite do.	126	202	171	176	232
Kaolin, washed do.	168	189	150	150 e/	140 e/
Refractory do.	61	67	62	56 r/	48
Feldspar do.	74	30	36	36 r/	28
Fluorspar e/ do.	4 3/	2 3/	2	2	2
Gypsum and anhydrite:					
Crude do.	163	169	156	184 r/	149
Calcined do.	64	64	60	75 r/ e/	55 e/
Lime, industrial do.	952	991	849 r/	1,000 e/	1,000 e/
Limestone and dolomite do.	--	10,443	10,842	11,000 e/	11,000 e/
Nitrogen, N content of ammonia do.	1,203	1,194	982 r/	1,000 e/	1,000 e/
Perlite do.	33	26	20	12 r/	13
Pyrites, gross weight e/ do.	150	150	150	150	150
Salt, all types do.	1,500	1,600	1,600	2,400	1,300
Sand and gravel thousand cubic meters	--	3,075	2,140	2,000 e/	2,000 e/
Silica (quartz sand) do.	707	832	557	593	533
Sodium carbonate, calcined do.	796	800	800	800	
Sulfur: e/					
Sulfur content of pyrite	50,000	50,000	50,000	50,000	50,000
Byproduct	50,000	50,000	50,000	50,000	50,000
Total	100,000	100,000	100,000	100,000	100,000
Sulfuric acid	453,827	524,714	550,700 r/	500,000 e/	500,000 e/

See footnotes at end of table.

TABLE 1--Continued
 BULGARIA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999	
MINERAL FUELS AND RELATED MATERIALS						
Coal, marketable:						
Anthracite	thousand tons	24	23	16	16	17
Bituminous	do.	170	172	130	105	106
Brown	do.	3,187	3,961	3,491	3,692	3,074
Lignite	do.	27,449	28,101	26,929	27,435	22,660
Total	do.	30,830	32,257	30,566	31,248	25,857
Coke	do.	1,240	1,157	1,239	1,200 e/	1,200 e/
Natural gas, marketed	million cubic meters	60	42	38	33	27
Petroleum:						
Crude, reported	thousand tons	47	34	28	32	39
Refinery products e/	thousand 42-gallon barrels	25,000	25,000	25,000	25,000	25,000

e/ Estimated. r/ Revised. -- Zero.

1/ Table includes data available through October 2000.

2/ In addition to commodities listed, chromite, magnesite, palladium, platinum, tellurium, and uranium and a variety of crude construction materials (common clays, dimension stone, and crushed stone) are produced, but available information is inadequate to make reliable estimates of output level.

3/ Reported figure.

TABLE 2
BULGARIA: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Cement	Reka Devnia	Devnia	1,825.
Do.	Zlatna Panega	Panega	1,300.
Do.	Others	Temelkovo, Dimitrovgrad, Pleven, and Beli Izvor	1,590.
Coal:			
Bituminous	Economic Mining and Power Combine (Smek) Balkanbass	Balkan Coal Basin in central Bulgaria, northwest of Silven	445.
Brown	G. Dimitrov	Pernik coal basin, southwest of Sofia	4,000.
Do.	Others	Bobov Dol and Pirin in western Bulgaria	3,100.
Lignite	SMEK East Maritsa	East Maritsa coal basin near Zagora	25,000.
Do.	Others	Marbas, Pernik, and Bobov Dol coal basins	5,300.
Copper (Cu):			
Concentrate, Cu content	Medet-Asarel Co.	Panagurishte, Pazardzhik District	25.
Do.	Chelopech Ltd.	Srednogorie, Sofia District	5.
Do.	Bradtze	Malko Turnovo	2.
Do.	Elatzite-Med Ltd.	Srednogorie, Sofia District	15.
Do.	Rosen	Burgas, near the Black Sea	1.
Do.	Tsar Asen	Srednogorie, Sofia District	2.
Do.	Burgaskii Mines Ltd., Zidorovo	Burgas, near the Black Sea	0.5
Metal, refined	MDK SA Copper Smelter & Refinery	Srednogorie, Sofia District	120.
Iron ore	Kremikovtsi Iron and Steel Combine	Kremikovtsi	2,000.
Lead-zinc (Pb-Zn):			
Concentrate, Pb-Zn content	Gorubso Co.	Erma Reka, Kurdjali, Laki, and Rudozem, all in Madan area near Greek border	59 Pb. 47 Zn.
Do.	Madzharovo Ltd.	Near Plovdiv	3 Pb. 2 Zn.
Do.	Ossogovo Ltd.	Ossogovo Mountains, western Bulgaria	3 Pb. 2 Zn.
Do.	Ustrem Ltd.	Near Thundza River, eastern Bulgaria	3.5 Pb. 0.8 Zn.
Metal:			
Pb, refined	KCM SA, formerly Dimitur Blagoev	Plovdiv	44.
Do.	Lead and Zinc Complex Ltd.	Kurdjali	60.
Zn, smelter	KCM SA, formerly Dimitur Blagoev	Plovdiv	60.
Do.	Lead and Zinc Complex, Ltd.	Kurdjali	30.
Manganese ore	Mangan Ltd. (Obrotchishte)	Varna District	50.
Natural gas	Ministry of Power Supply	Chiren field, in northwest Bulgaria	(1/).
Petroleum:			
Crude	do.	do.	(1/).
Refined	barrels per day	Economic Trust for Petroleum Products	Refineries in Burgas, Pleven, and Ruse
Steel, crude:		Kremikovtsi Iron and Steel Works	Near Sofia
Do.		Stomana Iron and Steel Works	Pernik

1/ Insignificant capacity.