

The Mineral Industry of Bulgaria

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Economic measures designed to shift the base of the Bulgarian industrial economy from small-scale to large-scale industrial units were implemented in 1971 and began to show promising results by yearend 1972. Bulgarian reports reveal an increase in labor productivity of 74% over that of the previous year, whereas industrial output rose by 9.2% and national income rose by 7.9%. The declining production levels in coal, iron ore, and several nonferrous metals were reversed with the abandonment of small marginal operations. Construction of

new facilities and expansion and modernization of existing facilities at the Kremikovtzi iron and steel plant and the Lenin metallurgical plant were reflected in moderately increased production of pig iron, crude steel, and semimanufactured products. Production of nonferrous metals registered only slight increases but modernization and expansion activities at the Plovdiv, Kurdzali, and Pirdop smelters should reflect increased nonferrous metal output by the close of the sixth 5-year plan in 1975.

PRODUCTION

Gains were reported in the production of most mineral commodities in 1972. Production of crude petroleum and natural gas, however, continued to decline increas-

ing Bulgaria's dependence upon imported fuels.

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Table I.—Bulgaria: Production of mineral commodities
(Thousand metric tons unless otherwise specified)

Commodity ¹	1970	1971	1972 ^p
METALS			
Cadmium, smelter output ^e -----metric tons--	200	200	200
Copper:			
Mine output, metal content -----do----	r 40,800	43,000	48,000
Blister, including secondary -----do----	43,700	45,000	48,000
Refined electrolytic, including secondary -----do----	38,300	41,000	45,000
Iron and steel:			
Iron ore and concentrate -----do----	2,409	3,001	3,207
Pig iron, including blast furnace ferroalloys -----do----	1,251	1,378	1,562
Crude steel -----do----	1,800	1,947	2,121
Semimanufactures -----do----	r 1,534	1,888	2,185
Lead:			
Mine output, metal content -----metric tons--	95,500	100,000	102,000
Smelter, including secondary -----do----	r 98,640	102,240	102,000
Manganese:			
Gross weight -----do----	33	41	30
Metal content -----do----	e 10	12	9
Molybdenum mine output, metal content ^e -----metric tons--	120	140	140
Zinc:			
Mine output, metal content -----do----	r 76,440	79,920	e 80,500
Smelter, including secondary -----do----	76,100	78,400	80,000
NONMETALS			
Asbestos -----do----	3,000	2,900	1,500
Cement, hydraulic -----do----	3,668	3,880	3,910
Clays, kaolin -----do----	127	138	142
Fertilizer materials, manufactured:			
Nitrogenous:			
Gross weight -----do----	1,523	1,473	1,416
Nitrogen content -----do----	r 602	562	523
Phosphatic:			
Gross weight -----do----	409	415	396
Phosphorus pentoxide content -----do----	r 148	146	130
Gypsum and anhydrite:			
Crude -----do----	169	131	171
Calcined -----do----	20	22	28
Lime (quicklime) -----do----	940	940	950
Pyrite:			
Gross weight -----do----	156	e 150	e 150
Sulfur content -----do----	66	e 64	e 64
Salt, all types -----do----	135	93	104
Sulfur, elemental, recovered -----metric tons--	5,463	5,773	6,677
MINERAL FUELS AND RELATED MATERIALS			
Coal (marketable):			
Anthracite -----do----	161	160	155
Bituminous -----do----	236	223	229
Lignite and brown -----do----	28,854	26,620	26,894
Total -----do----	29,251	27,008	27,278
Coke -----do----	837	1,091	1,190
Natural gas, marketed production -----million cubic feet--	16,723	11,560	7,786
Petroleum:			
Crude oil:			
As reported -----do----	334	305	248
Converted ^e -----thousand 42-gallon barrels--	2,438	2,227	1,816
Refinery products:			
Gasoline -----do----	9,800	11,900	NA
Kerosine -----do----	976	1,008	NA
Distillate fuel oil -----do----	13,240	12,921	NA
Residual fuel oil -----do----	17,424	24,782	NA
Lubricants -----do----	368	e 390	NA
Asphalt, including natural -----do----	742	927	1,200
Total -----do----	42,550	e 51,928	e 60,000

^e Estimate. ^p Preliminary. ^r Revised. NA Not available.

¹ In addition to the commodities listed, bismuth, chromite, gold, silver, barite, fluor spar, magnesite, palladium, platinum, and tellurium are also produced, but information is inadequate to make reliable estimates of output levels.

TRADE

Bulgaria enjoyed a favorable balance of trade with total exports for 1971 reported at \$2,182 million and imports at \$2,120 million.² Mineral and metal commodities constituted about 22% of all exports by value and 49% of all imports by value in 1971. Mineral and metal exports from the U.S.S.R., Bulgaria's principal trade partner, were valued at an estimated \$425 million.³ Crude petroleum and refined petroleum product deliveries accounted for nearly one-third of the Soviet exports to Bulgaria or \$129 million compared with \$114 million in 1970. The value of petroleum deliveries from the U.S.S.R. in 1972 is estimated at \$133 million. Deliveries of solid fuels from the U.S.S.R. were valued at \$87 million in 1971 compared with \$68 million in the pre-

vious year. Solid fuel deliveries from the U.S.S.R. in 1972 were estimated at a value of \$90 million. Deliveries of most mineral and metal commodities from the U.S.S.R. attain new peak levels yearly, deliveries of steel semimanufactures have been declining. The value of deliveries in 1972 were estimated at \$78 million, in 1971 at \$81 million, and in 1970 at \$86 million.

² Where necessary values have been converted from Bulgarian levas to U.S. dollars at the rate of 1 leva=US\$1.17.

³ Where necessary, values have been converted from U.S.S.R. rubles to U.S. dollars at the rate of 1 ruble=US\$1.11; however, values are probably derived by negotiated agreement between the U.S.S.R. and Bulgaria resulting in the above figures being more representative of a general range than of actual world market price value for the mineral commodities.

Table 2.—Bulgaria: Exports of selected mineral commodities
(Metric tons unless otherwise specified)

Commodity	1970 ¹	1971 ²	Principal destinations, 1971 ³
METALS			
Aluminum and alloys:			
Scrap -----	193	771	Yugoslavia 586; West Germany 185.
Unwrought and semimanufactures ---	8,115	2,645	Yugoslavia 1,309; Italy 735; Japan 376.
Cadmium metal, all forms -----	102	577	Belgium-Luxembourg 287; West Germany 231; France 32.
Copper and alloys:			
Scrap -----	120	37	All to West Germany.
Unwrought and semimanufactures ---	6,156	4,634	Yugoslavia 4,288; West Germany 1,316; Italy 800.
Iron and steel:			
Scrap -----	5,297	1,733	Yugoslavia 924; Italy 696; Japan 100.
Pig iron ³ -----	40,600	25,900	NA.
Ferroalloys -----	18,061	5,922	Italy 4,930; Belgium-Luxembourg 922.
Steel, primary forms ..thousand tons..	56	169	Italy 105; Belgium-Luxembourg 35; West Germany 26.
Semimanufactures:			
Bars, rods, sections -----do----	173	135	U.S.S.R. 54; Yugoslavia 30.
Plates and sheets -----do----	355	522	Italy 110; U.S.S.R. 91; Romania 81; West Germany 72.
Hoop and strip -----do----	2	2	France 1; Yugoslavia 1.
Wire -----do----	6	3	NA.
Pipes and tubes -----do----	62	69	Yugoslavia 35; Poland 17.
Total -----do----	598	731	
Lead:			
Oxides -----	704	353	Italy 340; West Germany 10.
Metal and alloys, unwrought and semimanufactures -----	³ 22,188	13,708	U.S.S.R. 8,654; Austria 2,272; Italy 2,054.
Nickel and alloys, unwrought (including matte) and semimanufactures -----	7	23	All to Italy.
Silver and alloys, unworked and partly worked -----thousand troy ounces..	972	1,511	France 964; West Germany 547.
Zinc:			
Oxides -----	60	NA	
Metal and alloys, unwrought and semimanufactures -----	³ 48,503	32,740	United Kingdom 19,100; Italy 5,078; France 3,735.
Other metal bearing slag, ash and dross --	15	9	West Germany 6; France 2.

See footnotes at end of table.

Table 2.—Bulgaria: Exports of selected mineral commodities—Continued

(Metric tons unless otherwise specified)

Commodity	1970 ¹	1971 ²	Principal destinations, 1971 ²
NONMETALS			
Asbestos -----	4,665	NA	
Barite -----	20,200	24,800	All to U.S.S.R.
Cement ³ ----- thousand tons--	153	71	Yugoslavia 54.
Clays and products:			
Crude clay, kaolin -----	12,715	10,279	Italy 9,123; Yugoslavia 1,156.
Products, nonrefractory -----	NA	23,213	All to Yugoslavia.
Fertilizer materials, manufactured, nitrogenous ³ -----	106,449	196,024	Greece 39,399.
Fluorspar -----	100	NA	
Salt -----	21	NA	
Sodium and potassium compounds, n.e.s., soda ash -----	23,100	30,000	All to U.S.S.R.
Stone, dimension -----	3,614	5,262	West Germany 5,087; Belgium-Luxembourg 175.
Sulfur, sulfuric acid ³ -----	10,340	21,203	Romania 18,633; East Germany 2,570.
Talc -----	48,700	18,900	All to U.S.S.R.
Other, crude -----	1,071	5,482	West Germany 5,459.
MINERAL FUELS AND RELATED MATERIALS			
Petroleum refinery products:			
Gasoline, motor thousand 42-gallon barrels--	--	183	All to Greece.
Distillate fuel oil -----do----	3 606	NA	
Residual fuel oil -----do----	3 275	NA	
Lubricants ³ -----do----	--	26	Yugoslavia 5.

NA Not available.

¹ Compiled from official export statistics of Bulgaria and from import data of selected trading partner countries.² Compiled from import data of selected trading partner countries.³ Data from official Bulgarian export statistics.

Sources: Official trade returns of Bulgaria, Japan, Poland, the U.S.S.R. and Yugoslavia; United Nations Statistical Papers. Commodity Trade Statistics, 1971 ed. V. 21, Nos. 2 and 3, 1973; United Nations, Economic Commission for Europe. Statistics of World Trade in Steel, 1970 and 1971 ed. 1971 and 1972; and European Community, Statistical Office. Analytical Tables NIMEXE, 1970 and 1971 ed. Luxembourg, 1971 and 1972.

Table 3.—Bulgaria: Imports of selected mineral commodities

(Metric tons unless otherwise specified)

Commodity	1970 ¹	1971 ²	Principal sources, 1971 ²
METALS			
Aluminum:			
Bauxite -----	404	NA	
Oxide -----	644	678	Italy 539; West Germany 121; France 18.
Metal and alloys, unwrought and semimanufactures ³ -----	26,749	25,130	U.S.S.R. 21,209; Austria 1,067; Hungary 761.
All from U.S.S.R.	863	411	
Antimony -----	863	411	
Copper and alloys, unwrought and semimanufactures -----	5,087	2,795	Austria 1,205; U.S.S.R. 754; Italy 512.
Iron and steel:			
Iron ore ³ ----- thousand tons--	1,133	1,192	U.S.S.R. 1,026.
Pig iron ³ -----do----	295	230	U.S.S.R. 210; East Germany 39; West Germany 5.
All from U.S.S.R.	21	13	
Ferroalloys -----do----	21	13	
Steel, primary forms -----do----	10	NA	
Semimanufactures: ⁴			
Bars, rods, sections -----do----	465	411	U.S.S.R. 340; Czechoslovakia 31; Poland 14.
Plates and sheets -----do----	324	299	U.S.S.R. 222; Italy 34; Czechoslovakia 12.
Hoop and strip -----do----	25	21	Hungary 5; Italy 4; Japan 3; West Germany 3; U.S.S.R. 3.
Railway materials -----do----	58	64	U.S.S.R. 50; Yugoslavia 10.
Wire -----do----	16	11	U.S.S.R. 7.
Pipes, tubes, fittings -----do----	81	110	U.S.S.R. 54; Italy 32; Czechoslovakia 6; Poland 6.
Castings and forgings -----do----	6	1	All from U.S.S.R.
Total -----do----	975	917	
Manganese:			
Ore and concentrate -----	80,000	110,000	All from U.S.S.R.
Oxide -----	90	142	Japan 100; France 35.

See footnotes at end of table.

Table 3.—Bulgaria: Imports of selected mineral commodities—Continued
(Metric tons unless otherwise specified)

Commodity	1970 ¹	1971 ²	Principal sources, 1971 ²
METALS—Continued			
Mercury -----76-pound flasks...	696	261	All from Italy.
Nickel and alloys, unwrought and semimanufactures -----	124	338	All from West Germany.
Platinum-group metals value, thousands...	\$38	\$4	West Germany \$3.
Tin:			
Oxides -----long tons...	16	18	All from West Germany.
Metal and alloys, unwrought and semimanufactures -----do-----	NA	25	All from Spain.
Titanium oxide -----	1,359	1,300	Italy 1,195; West Germany 105.
Zinc:			
Ore and concentrate -----	NA	55	All from U.S.S.R.
Oxides -----long tons...	22,147	51,483	Do.
Other, unspecified metal and alloys, unwrought and semimanufactures -----	--	2,492	U.S.S.R. 2,433; Belgium- Luxembourg 53.
NONMETALS			
Asbestos -----	21,200	22,800	All from U.S.S.R.
Cement -----thousand tons...	94	158	Do.
Clay products, refractory -----	23,826	42,824	U.S.S.R. 34,500; Austria 3,109; Yugoslavia 3,000.
Diamond, industrial ----value, thousands...	\$213	\$171	All from Belgium- Luxembourg.
Feldspar -----	625	957	Yugoslavia 757; West Germany 200.
Fertilizer materials: ⁵			
Crude:			
Phosphatic (apatite concentrate) --	341,300	342,500	All from U.S.S.R.
Potassic (salts) -----	38,300	84,300	Do.
Manufactured:			
Phosphatic -----	213,428	257,313	U.S.S.R. 219,200; Yugoslavia 38,113.
Mixed -----	NA	2,098	Yugoslavia 2,095.
Fluorspar -----	145	235	All from West Germany.
Gypsum -----	NA	99	All from Yugoslavia.
Magnesite -----	NA	256	Austria 216; Yugoslavia 40.
Pigments, mineral, iron oxide -----	108	83	France 63; West Germany 15.
Sulfur -----	11,100	2,963	All from U.S.S.R.
Other crude nonmetals, n.e.s. -----	202	428	Netherlands 333; West Germany 45.
MINERAL FUELS AND RELATED MATERIALS			
Carbon, black ³ -----	13,286	14,269	U.S.S.R. 9,897; Italy 2,575; East Germany 935.
Coal, all grades -----thousand tons...	5,065	5,981	All from U.S.S.R.
Coke ³ -----	465	355	U.S.S.R. 244; Czechoslovakia 39; Poland 29.
Petroleum:			
Crude oil ³			
thousand 42-gallon barrels...	41,858	55,093	U.S.S.R. 42,630.
Refinery products:			
Gasoline ³ -----do-----	2,270	NA	
Distillate fuel oil ³ -----do-----	3,820	NA	
Residual fuel oil -----do-----	³ 11,775	209	Yugoslavia 204; Italy 5.
Lubricants -----do-----	³ 610	35	United Kingdom 18; France 6; Netherlands 4.
Crude chemicals from distillation of coal, gas, or oil -----	13,974	17,531	U.S.S.R. 16,979; West Germany 552.

NA Not available.

¹ Compiled from official import statistics of Bulgaria and from export data of selected trading partner countries.

² Compiled from export data of selected trading partner countries.

³ Data from official Bulgarian import statistics.

⁴ Official import statistics report the receipt of only 457,000 tons in 1970 and 413,000 tons in 1971, but these represent receipts of only a select few categories of semimanufactures. Because of the incomplete nature of these data, export statistics of trading partner countries have been used for the entire steel semimanufacture section.

⁵ Official import statistics report the receipt of 866,000 tons of all types of fertilizers in 1970 and 995,000 tons in 1971, quantities which considerably exceed the totals for the commodities listed below, which are derived from trading partner export statistics. However, official import statistics do not break down the total by type. Among the source countries listed in official import statistics, but not covered by trading partner export data was Tunisia, which reportedly supplied 121,000 tons in 1970 and 210,000 tons in 1971, all of which was presumably phosphate rock.

Sources: Official trade returns of Bulgaria, Japan, Poland, the U.S.S.R. and Yugoslavia for 1970 and 1971. United Nations, Statistical Office. Supplement to the World Trade Annual, 1971 ed. V. 1, 1974; United Nations, Economic Commission for Europe. Statistics of World Trade in Steel, 1971 ed. 1972; European Community, Statistics Office. Analytical Tables NIMEXE, 1970 and 1971 ed. Luxembourg, 1971 and 1972.

COMMODITY REVIEW

METALS

Aluminum.—Metal and alloy requirements are met through imports principally from the U.S.S.R. However, plans are under consideration for constructing an aluminum mill for the manufacture of sheets, bars, and profiles. Shoumen has been selected as the preliminary construction site for the 50,000-ton-annual-capacity plant to be in operation by 1975.

Copper.—The Medet copper mine in central Bulgaria is the source of an estimated 80% of the total copper output of the nation. Under development for nearly a decade, the Medet open pit mine attained its planned capacity of 8 million tons of ore per year in 1972. Medet ores average 0.36% copper and 0.008% molybdenum. Copper mining operations are also conducted at Burgas, Panagyurishte, Chelopech, and Tirnovo. About 1 million tons of ore is extracted annually from underground mines. Bulgarian sources report copper ore bodies mined at depths of 600 to 700 meters. Copper smelting capacity was reported at 55,000 tons.

Iron and Steel.—Indigenous sources supply about one-third of Bulgarian iron and steel requirements. The remainder is supplied by imports, principally from the Soviet Union, in the forms of iron ore, pig iron, and steel semimanufactures. The largest of Bulgaria's two steel operations, the Kremikovtzi iron and steel plant near Sofia, produced 1.4 million tons of pig iron, 1.6 million tons of steel, and 1.6 million tons of rolled products in 1972. The Lenin metallurgical works at Pernik produced 0.3 million tons of crude steel and 0.3 million tons of steel semimanufactures. Both plants were under expansion during the year to support a crude steel production goal and a down-line processing capacity of 3 million tons by 1975. A third steel plant is planned for 1980 bringing crude steel production to 5 million tons in that year.

Lead and Zinc.—Lead-zinc ore extraction is entirely by underground mining methods from ore bodies at depths of 350 to 400 meters. About 75% of Bulgarian lead-zinc output is derived from the Gorubso mining enterprise in South-Central Bulgaria. Lead and zinc smelting capacity is reported at 100,000 tons and 80,000 tons, respectively. Research conducted at the Kurdzali lead-

zinc smelter resulted in the adoption of a new method of hydrometallurgical processing of zinc waste. The process allows extraction of zinc ferrites and simultaneous removal of compounds of iron, arsenic, and other elements.

NONMETALS

Cement.—The cement manufacturing industry has maintained a steady growth pattern, keeping output in line with growing consumption. In addition, limited quantities of cement were available for export annually. Modernization and expansion activities are scheduled for each of the nation's six major cement plants during the sixth 5-year plan (1971-75) period. During 1972, the 1-million-ton-annual-capacity Reka Devnya cement plant was under expansion; capacity is scheduled to be doubled by 1975. The Bulgarian's anticipate cement production capacity at 6 million tons annually by the close of the sixth 5-year plan.

Fertilizer Materials.—Production of mineral fertilizers has been accelerated with the construction and expansion of the chemical combines at Demitrovgrad, Stara Zagora, Vratsa, and Varna. By 1975, mineral fertilizer production is anticipated at 1.5 million tons in terms of pure nutrients, placing the nation at the level of self-sufficiency. However, raw materials in the form of natural gas, potash, and phosphate rock will continue to be imported.

MINERAL FUELS

Coal.—The development of mechanized, large-volume operations reversed the trend of declining coal output in Bulgaria. Rotor dredges, excavators, drift mining machines, face working equipment, and conveyor systems imported from the U.S.S.R., East Germany, and Czechoslovakia were placed in operation at the surface mines in the Maritza-Iztok Basin and at the underground operations in the Marbas Basin. An announcement made through the Ministry of Heavy Industry anticipates coal output at 33 million tons annually by 1975.

Natural Gas.—Natural gas production was reported at 7.8 billion cubic feet in 1972. Production is derived principally from the Chiren Fields. Total estimated reserves are 1 trillion cubic feet.

Petroleum.—Domestic crude oil output continued to decline, dropping to 4,962 barrels per day in 1972. Most of Bulgaria's production is derived from the Dolni Dubnik Field in the northwest. Exploratory activities launched jointly with the Soviet Union continued in the Bulgarian area of the Black Sea. Two dry holes have been reported in the area thus far.

With declining production and exploratory efforts yielding little promise for the immediate future, the bulk of the nation's liquid fuels requirements will continue to be imported. Crude petroleum is imported for refining in the nation's three refineries, and petroleum products are imported to supplement domestic refinery output. Liquid fuel consumption was estimated at 240,000 barrels per day in 1972. Total requirements for diesel fuel and 70% of the requirements for fuel oil were satisfied by domestic refineries. The largest of the nation's refineries,

the 140,000-barrel-per-day-capacity Burgas refinery, is located on the Black Sea coast with access to an unloading terminal for tankers carrying crude from the U.S.S.R., Iraq, Libya, and Iran. A single 50,000-deadweight-ton unloading berth was in operation at Burgas in 1972; however, expansion plans for the Burgas terminal include construction of berths for simultaneous unloading of two 150,000-deadweight-ton tankers and a single-buoy mooring system to accommodate 150,000-deadweight-ton tankers by 1980.

Two additional refineries, each with a 20,000-barrel-per-day-capacity, were onstream during 1972, bringing total refining capacity to 180,000 barrels per day. With the U.S.S.R. providing technical assistance, Bulgarian refining capacity is scheduled to expand to 250,000 barrels daily by 1976, providing about 90% of the nation's petroleum product requirements.

