

THE MINERAL INDUSTRY OF NORTH KOREA

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During 1996, the growth of North Korea's gross domestic product declined, marking the seventh consecutive year of economic contraction, which was estimated to be 3%. The economic situation was the result of energy shortages and poor harvests caused by natural disasters. More than 70% of the country's production facilities were idle. One of the worst food crises in North Korea's history was the consequence of the 1995 floods, which slashed its food crops by one-fifth. Needing an estimated 1.5 to 2 million metric tons of rice in 1996, the country received about 700,000 metric tons (t) from Japan, the Republic of Korea, and other countries. An appeal by the United Nations yielded pledges of food aid of \$6 million each from the United States and Japan and \$3 million from the Republic of Korea.

North Korea continued its energetic promotion of its Rajin-Sonbong free economic and trade zone and secured \$282 million in foreign investment. The deals included a \$180 million hotel casino complex by Emperor Group of Hong Kong. The investors also initialed memoranda of understanding, bringing the total proposed investment to \$840 million. The port facilities at Rajin were reportedly undergoing improvement, and a communications infrastructure was being installed (Far Eastern Economic Review, 1997).

Attraction of foreign investment was hindered generally by a grossly inadequate infrastructure, weak legal protection for foreign companies, uncompetitive wages and conditions, and the continuing political uncertainties caused by the nuclear issue and the standoff with the Republic of Korea. The lack of a credible financial network for cross-border transactions was another problem. A consortium of 60 banks in Western countries filed a lawsuit in the United States against North Korea, seeking \$1.4 billion in unpaid principal and interest.

North Korea's foreign trade totaled about \$1.03 billion. China was North Korea's only dependable trading partner. Across the border, wheat flour and corn were imported from China, and coal, iron ore, silicon, and timber were exported from North Korea. Official bilateral trade in 1995 reached \$550 million, heavily in favor of China (Far Eastern Economic Review, 1996). The trade was slowed down, however, and the volumes of commodities were shrinking. Smugglers exchanged North Korea's copper-wire cables and scrap metal for China's instant noodle and maize powder. The estimated values of the goods smuggled across the border ranged from \$30 to \$300 million (Far Eastern Economic Review, 1996).

Japan planned to provide probably more than \$10 million per year of the cost of fuel oil to be shipped to North Korea, while two light-water nuclear reactors were being built. The United

States was to provide 500,000 t of fuel oil, worth \$50 million, per year to cover the country's energy needs. The fuel oil shipments were part of a deal worked out by the United States and North Korea.

The Government placed a high priority on the development of the iron and steel industry, which was one of the country's most important basic industries. The Musan iron ore mining complex was the largest producer, with an output level of about 10 million metric tons per year (Mt/yr) of iron ore. The ore was converted into slurry and transported by a pipeline to the nearby Kim Chaek steel plant, with a production capacity of 4 Mt/yr of raw steel. The other main steel producer was the Nampo steel plant, with a capacity of 3 Mt/yr. The country also produced nonferrous metals, notably lead and zinc. The Komdok processing complex underwent equipment modernization and was capable of treating 100,000 metric tons per year (t/yr) of lead-zinc ore.

Taehung Youth General Mining Enterprise, a magnesite producer, operated the Puktu and the Muhak Mines and a magnesia clinker plant in the Machon Mountains. Mine output was reported to be more than 1 Mt/yr of magnesite, which was calcined to produce more than 100,000 t/yr of clinker (Industrial Minerals, 1996). Much of the clinker was further processed at the Tanchon Magnesia Works and the Songjin Fireproof Material Factory.

The country produced about 91 Mt/yr of coal. The Anju coal mining complex in North Hamgyong Province was the largest, with a total capacity of 7 Mt/yr. Two new mines, the Chili and the Soho, were commissioned, and new equipment was added to some mines in the Saebyol and the southern districts. The production capacity in the Suncheon coal mining complex was rated at 3 Mt/yr. The country also produced 1 Mt/yr of coking coal from the Kukdon and the Yangjong Mines.

Expansion of the coal mining industry was underway to increase coal output. Improvements being planned included the installation of a new conveyor system at the Jangan coal mine in the Pukchang coal mining complex. New coal faces were planned at the Jiktong Youth coal mine in the Suncheon coal mining complex. In January, the Wonbuk Pit in the Anju coal mining complex, north of Pyongyang, was started and has a capacity of 200,000 t/yr of coal. In a related development, a new methane plant, with a capacity of more than 100 cubic meters per day, was inaugurated at the Chonsong Youth coal mine.

Beach Petroleum of Australia acquired a 100% interest in a production-sharing block in a frontier area off North Korea (Oil & Gas Journal, 1996). It covers 28,000 square kilometers of

coastal and deeper waters. The block lies southwest of Russia's Sakhalin oil province. Only two stratigraphic wells had been drilled, and both had oil indications. North Korea's two oil refineries, with a combined capacity of 3 Mt/yr, were shut down because they had not received crude oil from China.

References Cited

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———1997, Asia 1997 Yearbook: Far Eastern Economic Review, p. 149.
Industrial Minerals, 1996, North Korean magnesite promoted: Industrial Minerals, no. 350, November, p. 99.
Oil & Gas Journal, 1996, Industry Briefs, Exploration: Oil & Gas Journal, May 27, p. 22.

Major Source of Information

Central Institute of Mining Industry
Pyongyang, North Korea

TABLE 1
NORTH KOREA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1992	1993	1994	1995	1996
METALS					
Cadmium metal, smelter	100	100	100	100	100
Copper:					
Mine output, Cu content	16,000	16,000	16,000	16,000	16,000
Metal:					
Smelter:					
Primary	21,000	23,000	23,000	24,000	24,000
Secondary	5,000	5,000	5,000	5,000	5,000
Total	26,000	28,000	28,000	29,000	29,000
Refined:					
Primary	20,000	22,000	22,000	22,000	23,000
Secondary	5,000	5,000	5,000	5,000	5,000
Total	25,000	27,000	27,000	27,000	28,000
Gold, mine output, Au content kilograms	5,000	5,000	5,000	5,000	5,000
Iron and steel:					
Iron ore and concentrate, marketable:					
Gross weight thousand tons	10,500	10,500	11,000	11,000	11,000
Fe content do.	4,900	4,900	4,900	5,100	5,100
Metal:					
Pig iron do.	6,600	6,600	6,600	6,600	6,600
Ferroalloys, unspecified do.	120	120	120	120	120
Steel, crude do.	8,100	8,100	8,100	8,100	8,100
Lead:					
Mine output, Pb content	75,000	80,000	80,000	80,000	75,000
Metal:					
Smelter, primary only	65,000	70,000	70,000	70,000	65,000
Refined:					
Primary	70,000	75,000	75,000	75,000	75,000
Secondary	5,000	5,000	5,000	5,000	5,000
Total	75,000	80,000	80,000	80,000	80,000
Silver, mine output, Ag content	50	50	50	50	50
Tungsten, mine output, W content	1,000	1,000	900	900	900
Zinc:					
Mine output, Zn content	200,000	210,000	210,000	210,000	210,000
Metal, primary	175,000	200,000	200,000	200,000	200,000
INDUSTRIAL MINERALS					
Barite	100,000	110,000	110,000	120,000	110,000
Cement, hydraulic thousand tons	17,000	17,000	17,000	17,000	17,000
Fluorspar	41,000	41,000	40,000	40,000	39,000
Graphite	38,000	38,000	38,000	40,000	40,000
Magnesite, crude thousand tons	1,600	1,600	1,600	1,600	1,600
Nitrogen, N content of ammonia do.	550	600	600	600	600
Phosphate rock	500,000	510,000	510,000	520,000	520,000
Salt, all types	590,000	590,000	600,000	600,000	590,000
Sulfur thousand tons	240	240	250	250	250
Talc, soapstone, pyrophyllite	170,000	180,000	180,000	180,000	180,000
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Anthracite thousand tons	70,000	71,000	70,000	71,000	70,000
Lignite do.	21,000	21,000	20,000	20,000	20,000
Total do.	91,000	92,000	90,000	91,000	90,000
Coke do.	3,000	3,000	3,000	3,000	2,900
Petroleum refinery products:					
Gasoline thousand 42-gallon barrels	8,500	8,600	8,600	8,600	8,500
Jet fuel and kerosene do.	1,800	1,800	1,800	1,800	1,700
Distillate fuel oil do.	7,800	7,800	7,900	7,800	7,700
Residual fuel oil do.	4,200	4,300	4,300	4,200	4,200
Refinery fuel and other products do.	2,300	2,400	2,400	2,400	2,300
Total do.	24,600	24,900	25,000	24,800	24,400

1/ Table includes data available through July 29, 1997.

2/ In addition to the commodities listed, crude construction materials such as sand and gravel and other varieties of stone presumably are produced, but available information is inadequate to make reliable estimates of output levels.