



2011 Minerals Yearbook

NORTH KOREA

THE MINERAL INDUSTRY OF NORTH KOREA

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In 2011, the economy of North Korea (the Democratic People's Republic of Korea) grew for the first time since 2008. According to the Bank of Korea, North Korea's real annual gross domestic product (GDP) increased by 0.8% in 2011 compared with that of the previous year. This growth was mainly contributed by the agriculture sector, which showed an increase of 5.3% because of favorable weather conditions, and by the Pyongyang modernization project, which boosted the construction sector's contribution to the GDP by 3.9% (Bank of Korea, 2012).

Minerals mined in North Korea in 2011 included coal, copper, gold, iron ore, limestone, magnesite, and zinc. Coal-fired powerplants were the country's main sources of commercial energy. Petroleum for domestic consumption came almost entirely from imports. The country exported minerals and metallurgical products and imported coking coal, machinery and mining equipment, and petroleum. The mined minerals and the mineral products were used primarily for domestic industrial and military purposes and also to earn foreign currency. North Korea exported copper, iron ore, magnesite, tungsten, and zinc (Yam, 2011; U.S. Central Intelligence Agency, 2012).

Government Policies and Programs

North Korea began to revise Government policies in 2009; revisions included initiating the modernization project for Pyongyang City in 2010 and amending laws to give the Rason economic zone some autonomy in 2011 (Associated Press, The, 2012).

Minerals in the National Economy

The North Korean Government controlled the Nation's economy, including its mining activity and financial market. The Government directed a large share of the GDP to the military sector, which affected the country's overall economic performance. Although the mineral industry's production capacity was limited by the country's restricted financial and technical resources, the mineral industry supported the country's military sector expenses as well as met the country's industrial requirements for raw materials.

Production

Mining output increased by 0.9% in 2011 compared with that of 2010, of which the output of nonmetallic minerals decreased by 1.7%, except that of coal, which increased by 2.0%. The output of the manufacturing sector decreased by 3.0% in 2011 compared with that of 2010, of which light industrial production decreased by 0.1% (mainly because of the decreases in the production of textiles and shoes), and chemical and heavy industrial production decreased by a combined 4.2% (mainly because of decreases in the production of chemicals, fabricated metal, and machinery). Electricity and gas production decreased

by 4.7% compared with that of 2010, mainly because of a decrease in thermal power generation, whereas the country's production of hydroelectric power increased (Bank of Korea, 2012).

Structure of the Mineral Industry

In 2011, the Government attracted foreign investors to participate in selected projects and planned to continue its effort to consolidate the heavy industries and develop light industries. The infrastructure construction activities increased, especially those funded by China and Russia (Sloan, 2012).

North Korea's mineral industry included a coal mining sector, a ferrous and nonferrous metals mining and processing sector, and an industrial minerals mining and processing sector. Most of the large-scale mining and mineral processing enterprises in North Korea were owned and operated by the central Government. Provincial and local governments owned and operated various small- and medium-scale mining and mineral processing facilities. Companies from China, the Republic of Korea, and other countries participated in joint ventures with North Korea for the development and operation of cement, coal, copper, gold, graphite, iron ore, lead and zinc, magnesite, and molybdenum production facilities in North Korea.

Mineral Trade

The value of North Korean exports in 2011 increased to \$27.9 million from \$15.1 million in 2010, or by 84.8%. Of this amount, the export value of minerals increased by 138.1% compared with that of 2010. The value of the country's total imports increased to \$35.3 million from \$26.6 million in 2010, or by 32.7%. Of this amount, the import value of chemical products increased by 39.6% compared with that of 2010. Total North Korean exports to the Republic of Korea decreased in value by 12.5% from that of 2010, although the exports of electric and electronic goods increased significantly, by 34.6%. North Korean imports from the Republic of Korea decreased in value by 7.8% compared with that of 2010 and included a decrease in the import value of textiles, by 13.5%, and electronic goods, by 7.6% (Bank of Korea, 2012).

Commodity Review

Metals

Copper.—Wanxiang Resources Co. Ltd. of China held a 51% stake in the Hyesan copper mine and had invested \$860 million in the mine (Yonhap News, 2012). Wanxiang and the Ministry of Mining Industries of North Korea set up the Hyesan-China Joint Venture Mineral Co. to operate the Hyesan copper mine, which is located in Yanggang Province near Changbai City in China's Jilin Province. The mine had a designed capacity of about 70,000 metric tons per year of copper concentrate, all of

which would be exported to China (Yam, 2011; Xinhuanet.com, 2011).

Gold.—The Daebong Mine was one of North Korea's major gold mines; it is located on the border of Gapsan and Woonheung in Yanggang Province. The Daebong Mine produced more than 150 kilograms (kg) (4,800 troy ounces) of gold annually. North Korea's State Development Bank tried to bring Chinese investment to the Daebong Mine by offering mineral rights in exchange for capital investment in the mine (Lee, 2010).

Industrial Minerals

Rare Earths.—According to the Asia Times, a significant amount of high-grade rare-earth metal (REM) deposits were found in the eastern and western parts of North Korea, and the type of discovered REMs could be used in the production of liquid crystal display panels and optical lenses. An REM reprocessing plant was built in Hamhung in the 1990s and had not been able to operate fully. The Republic of Korea had expressed interest in working with North Korea to explore and mine the REM deposits and to use the REMs to manufacture industrial products (Asia Times Online, 2012).

Outlook

North Korea's relationship and economic cooperation with the Republic of Korea is expected to begin to recover very slowly in the near future. The increasing international demand for minerals, especially demand from China and Russia, is likely to stimulate increased production of North Korea's minerals, such as coal, iron ore, magnesite, molybdenum, nickel, sand, and zinc. Because of the mineral industry's significance to the country's economy, the Government is expected to continue to work to attract international investments in North Korea's mining sector. Mining and associated business systems, such

as international banking, the Internet, cell phone coverage, and power supply, are likely to be constructed, improved, and regulated in the economic free zones and the border areas to improve communications and promote economic cooperation among China, North Korea, Russia, and even the countries of Western Europe.

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TABLE 1
NORTH KOREA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity ³		2007	2008	2009	2010	2011
METALS						
Cadmium metal, smelter		200	200	200	200	200
Copper:						
Mine output, Cu content		12,000	12,000	12,000	12,000	12,000
Metal, primary and secondary:						
Smelter		15,000	15,000	15,000	15,000	15,000
Refinery		15,000	15,000	15,000	15,000	15,000
Gold, mine output, Au content	kilograms	2,000	2,000	2,000	2,000	2,000
Iron and steel:						
Iron ore and concentrate, marketable:						
Gross weight	thousand metric tons	5,130	5,316 ⁴	5,300	5,300	5,300
Fe content	do.	1,400	1,488 ⁴	1,500	1,500	1,500
Metal:						
Pig iron	do.	900	900	900	900	900
Ferroalloys, unspecified	do.	10	10	10	10	10
Steel, crude	do.	1,230	1,279 ⁴	1,300	1,300	1,300
Lead:						
Mine output, Pb content		13,000	13,000	13,000	13,000	13,000
Metal, primary and secondary:						
Smelter		13,000	13,000	13,000	13,000	13,000
Refinery		9,000	9,000	9,000	9,000	9,000
Silver, mine output, Ag content		20	20	20	20	20
Tungsten, mine output, W content		230	270	100	100	100
Zinc:						
Mine output, Zn content		70,000	70,000	70,000	70,000	70,000
Metal, primary and secondary		75,000	75,000	75,000	75,000	75,000
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	6,130	6,415 ⁴	6,400	6,400	6,400
Fluorspar		12,500	12,500	12,500	12,500	12,500
Graphite		30,000	30,000	30,000	30,000	30,000
Magnesite, crude	*	55,000	150,000	150,000	150,000	150,000
Nitrogen, N content of ammonia	thousand metric tons	100	100	100	100	100
Phosphate rock, P ₂ O ₅ equivalent		300,000	300,000	300,000	300,000	300,000
Salt, all types		500,000	500,000	500,000	500,000	500,000
Sulfur	thousand metric tons	42	42	42	42	42
Talc, soapstone, pyrophyllite		50,000	50,000	50,000	50,000	50,000
MINERAL FUELS AND RELATED MATERIALS						
Coal, anthracite	thousand metric tons	24,100	25,060 ⁴	36,000	41,000	41,000
Coke	do.	2,000	2,000	2,000	2,000	2,000

do. Ditto.

¹Estimated data are rounded to no more than three significant digits.

²Table includes data available through August 30, 2012.

³In addition to the commodities listed, crude construction materials, such as sand and gravel and other varieties of stone, and refined petroleum products and rare earths presumably are produced, but available information is inadequate to make reliable estimates of output.

⁴Reported figure.

*Correction posted April 7, 2014.

TABLE 2
NORTH KOREA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Cement	Sunchon Cement Complex	Sunchon, Pyongannam Province	3,000
Do.	Samgwong Cement Complex	Samgwong, Kangwon Province	2,500
Do.	Gomusan Cement Factory	Cheongjin, Hamgyongbuk Province	2,000
Do.	Cheonnaeri Cement Factory	Cheonae, Hamgyongnam Province	1,000
Coal	Anju Coal Mining Complex and Sunchon Coal Mining Complex	Anju, Kaechon, Pukchang, Sunchon, and Tokechon, South Pyongan (Pyongannam) Province; and North Pyongan (Pyonganbuk) Province	9,500
Do.	Saebyo Coal Mining Complex and Northern Coal Mine Enterprise	Saebyo, North Hamgyong (Hamgyongbuk) Province	6,000
Copper, mine output, Cu content	Hyesan Youth Copper Mine (51% owned by Luanhe Industrial Group and another unnamed Chinese company)	Hyesan, Yanggang Province	13
Gold, mine output, Au content	kilograms Gumsan (Kumsan) Joint Venture Co.	Sierra near Changjin northwest of Hamgyongbuk Province	530
Do.	do. Daebong Mine	Yanggang Province	150
Graphite	Yeongchon Graphite Mine (Joint venture of Korea Resources Corp. and Government of North Korea)	Yeongchon, Yonan County, South Hwanghae Province	3
Iron ore, concentrate, gross weight	Ministry of Metal and Machinery, Department of Mines, Musan Iron Ore Mine Complex	Near the town of Musan, Hamgyongbuk Province	10,000
Do.	Unryul Mine	Unryul, Hwanghaenam Province	1,000
Lead:			
In concentrate	Korea Zinc Industrial Group	Komdok, near Tancheon, Hamgyongnam Province	20
Refined	do.	Munpyong, Kangwon Province	32
Magnesite, concentrate, gross weight	Korea Magnesia Clinker Industry Group (KMCIG)	Daehung and Yongyang, Hamgyongnam Province; Paek Bai near Kim Chaeck, Hamgyongbuk Province	2,500
Magnesia clinker	Korea Magnesia Clinker Industry Group (KMCIG) and Quintermina AG	Danchon and Daehung, Hamgyongnam Province; Song Jin, Hamgyongbuk Province	1,200
Steel, crude			
Do.	Kim Chaek Iron and Steel Complex (Ministry of Metal and Machinery)	Chongjin, Hamgyongbuk Province	2,400
Do.	Hwanghae (Hwanghai) Iron Works	Songjin, North Hamgyong Province	1,500
Do.	Kangson Works	Kangson, Hwanhaebuk Province	960
Do.	Chollima Steel Works	Chollima District, Nampo City, Pyungnam Province	760
Zinc:			
In concentrate	Korea Zinc Industrial Group	Komdok near Tancheon and Sankok near Kowon, Hamgyongnam Province; Nakyong, Hwanhaenam Province	80
Refined	do.	Munpyong, Kangwon Province; Tancheon, Hamgyongnam Province	100

^cEstimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto.