



2015 Minerals Yearbook

REPUBLIC OF KOREA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF THE REPUBLIC OF KOREA

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In the global mineral industry, the Republic of Korea was a consumer rather than a producer of ores and concentrates of ferrous and nonferrous metals, particularly copper, iron, lead, and zinc. More than 90% of the country's demand for metallic ore and concentrates was met through imports. The Republic of Korea had reserves of the following metallic minerals: antimony, copper, gold, iron ore, lead, manganese, molybdenum, silver, tin, tungsten, and zinc. It also had regionally significant reserves of some industrial minerals, including limestone [11.6 billion metric tons (Gt)], silica stone (quartzite) (2.6 Gt), talc [11.1 million metric tons (Mt)], and zeolites (29.5 Mt). The Republic of Korea was the world's sixth-ranked producer of crude steel in the world (Korea Institute of Geoscience and Mineral Resources, 2016a, p. 23; Fenton, 2017).

The Republic of Korea's real gross domestic product (GDP) increased by 2.6% in 2015 following an increase of 3.3% in 2014. The modest slowdown in growth was attributed to a slowdown in the growth of the value of exports; however, investment in construction increased in 2015 as did both private and government consumption. The production of nonmetallic mineral products increased by 4.9% owing to an increase in demand driven by the recovering construction sector. The manufacturing sector and the construction sector accounted for 29.5% and 5.1% of the nominal GDP, respectively, in 2015 (Bank of Korea, 2016, p. 18–21).

Minerals in the National Economy

The value of mining and quarrying activities, which accounted for only 0.2% of the nominal GDP, decreased by 0.7% to about \$2.8 billion in 2015. The value of nonfuel mineral production increased by 2% to \$1.3 billion (KRW1.6 trillion).¹ In terms of its percentage share of the value of nonfuel mineral production, limestone was the leading mineral commodity, accounting for 71% of the total, followed by sulfur, 14%; silica stone (quartzite), 4.8%; clay, 1.9%; pyrophyllite, 1.7%; feldspar, 1.5%; and iron ore, 1.3% (Bank of Korea, 2016, p. 18, 21; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 12).

In 2015, the value of nonfuel mineral imports decreased by 21% to \$12 billion (KRW14.2 trillion), whereas domestic demand decreased by 31% to \$12.6 billion (KRW14.9 trillion). Coal demand and imports decreased by about 12% to \$9.6 million (KRW11.4 trillion) and \$9.5 million (KRW11.2 trillion), respectively. Demand for copper ore and concentrate began to recover in 2015, which led to a 12% increase in the quantity of copper ore imported compared with that of 2014. The value of nonfuel mineral stocks at the beginning of 2015 decreased by 17% compared with that of 2014 to \$325 million (KRW383 billion), and the value of coal remained the same at about \$10 million (KRW12 billion).

¹Where necessary, values have been converted from the Republic of Korea won (KRW) to U.S. dollars at the average annual exchange rate of KRW1,098=US\$1.00 for 2014 and KRW1,179=US\$1.00 for 2015.

At the end of 2015, the value of remaining stocks of nonfuel minerals decreased by 26% to \$307 million (KRW362 billion), and that of coal increased by 158% to about \$26 million (KRW31 billion) (Korea Institute of Geoscience and Mineral Resources, 2016a, p. 8).

In 2015, the Republic of Korea had diversified investments in 120 countries and its outward foreign direct investment (FDI) was valued at \$27.2 billion. The country established 2,901 new enterprises in foreign countries through FDI, which was an increase of 3.5% compared with that of 2014. In order of the value of outbound investment, the United States, China, the Cayman Islands, Hong Kong, and Japan together accounted for about 53% of the Republic of Korea's total outbound FDI in 2015. Japan received \$1.7 billion in FDI from the Republic of Korea, which was a 300% increase compared with the amount it received in 2014. The manufacturing sector remained the leading recipient of FDI for the Republic of Korea in 2015, receiving \$7.3 billion, of which \$2.9 billion was directed towards the motor vehicle and electronic component sectors. The Republic of Korea's outward FDI towards the mining sector decreased substantially to \$3.5 billion from \$5.9 billion in 2014; this was the lowest value since 2007. The leading recipients of FDI related to the mining industry were, in order of the amount received, Singapore, Australia, and Canada. Government-owned Korea Resource Corp. (KORES) had foreign investments in 32 mineral projects across 16 countries; the projects included mining for coal (in Australia), lithium and rare metals (in Africa), and copper (in Latin America) (Export Import Bank of Korea, 2016, p. 13; 2017).

Government Policies and Programs

The Ministry of Trade, Industry, and Energy (MOTIE) is the Government agency responsible for implementing the country's mineral laws and policies. The Korea Mining Act provides the basic guidelines for exploitation of the country's mineral resources. KORES supports development of the domestic private-sector mineral industry, conducts research, and provides technical assistance for the acquisition and development of overseas mineral resources (Korea Resources Corp., 2016).

The Korea Institute of Geoscience and Mineral Resources (KIGAM) is the entity that developed from the Korean Geological Survey, which was founded in 1918. Divisions within KIGAM include the Geologic Environment Division, the Geology Division, the Mineral Resources Division, and the Petroleum & Marine Division (Korea Institute of Geoscience and Mineral Resources, 2014, p. 5).

In 2015, the Republic of Korea had 22 free trade agreements in various stages of completion, of which 8 were in negotiation and 14 were signed and in effect. The Republic of Korea's trade agreement with China, for which negotiations began in 2012, was signed on June 6, 2015, and went into effect on December 20. Under the agreement, bilateral trade would be free

of tariffs on more than 90% of products. On January 1, 2015, the Canada-Korea free trade agreement entered into force, marking the first trade agreement established by Canada in the Asia and the Pacific region (Korea Institute of Geoscience and Mineral Resources, 2016a, p. 15; Asia Regional Integration Center, 2017a, b).

Production

Production of mined silver and gold in 2015 increased by 37% and 21%, respectively; however, production of refined silver and gold decreased by about 5% each. In 2015, the production of refined copper and lead as well as pig iron and crude steel remained at about the same levels as in 2014. The gross weight of iron ore mined in 2015 decreased by 36% compared with that of 2014. Production of ferroalloys decreased by 10%. In the industrial mineral sector, diatomaceous earth production decreased by 77%, followed by production of marble, which decreased by 38%; mica, by 28%; and hydraulic cement, by 18%. Production of petroleum refinery products increased by about 8% compared with that of 2014 (table 1).

Structure of the Mineral Industry

The Republic of Korea's mining and quarrying sector produced small amounts of coal and metals as well as relatively larger amounts of industrial minerals. The mineral-processing sector, which consisted of the cement, ferrous and nonferrous metals, and refined petroleum industries, was, in terms of value and quantity of output, much larger than the mining and quarrying sector. In 2015, there were 378 active mines, of which 348 were for industrial minerals, 25 were for metals, and 5 were for coal. Most of the mining, quarrying and metal-processing companies were owned and operated privately and incorporated in the Republic of Korea. Some larger coal mining, natural gas, petrochemical, and petroleum refining companies were state owned, including KORES. Both state-operated and privately owned petroleum corporations were active in foreign exploration and production projects. Korea National Oil Corp. (KNOC) was involved in petroleum exploration, development, and production in 21 countries, including oilfields in the North Sea and shale gas fields in North America (table 2; Korea Institute of Geoscience and Mineral Resources, 2016b, p. 19; Korea National Oil Corp., 2016).

Mineral Trade

The total value of the Republic of Korea's exports decreased by 8.0% in 2015 to \$526.8 billion owing primarily to the decrease in the per unit price of chemical and petroleum products exports. The total value of nonfuel mineral exports increased by 16.4% to \$307 million (KRW362 billion), whereas that of coal decreased by 16.7% to \$4 million (KRW5 billion). Together, nonfuel minerals and coal accounted for less than 1% of the Republic of Korea's total exports. The export of iron and steel products decreased by 12.8% owing largely to the oversupply in China. Decreasing global oil prices caused a sharp decline in the value of petroleum and chemical product exports, which decreased by 36.8% and 14.8%, respectively. In 2015, Japan and Hong Kong accounted for 33% and 21% of the

Republic of Korea's nonfuel mineral exports, respectively, and had been the two leading recipients of nonfuel mineral exports from the Republic of Korea for 5 years (Bank of Korea, 2016, p. 27–28; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 7–8, 12).

In 2015, the total value of imports decreased by 16.9% to \$436.5 billion. The total value of nonfuel mineral imports decreased by 31% to \$12.0 billion (KRW14.1 trillion), and that of coal decreased by 11.6% to \$9.5 billion (KRW11.2 trillion). Together, nonfuel minerals and coal accounted for less than 5.1% of the Republic of Korea's total imports. Australia remained the leading exporter of nonfuel minerals to the Republic of Korea, accounting for 25% of nonfuel mineral imports, by value, followed by Chile, 7.6%, and Brazil, 6.0%. Iron ore imports were valued at \$4.9 billion (KRW5.5 trillion) in 2015, and iron ore was the leading nonfuel mineral import commodity, by value. Australia accounted for 67.7% of iron ore imports, followed by Brazil, 20.2%; South Africa, 7.2%; Canada, 2.7%; and Chile, 1.5%. Copper ore imports were valued at \$3.4 billion (KRW4.0 trillion) in 2015. Chile accounted for 31.7% of the Republic of Korea's copper ore imports, followed by Australia, 17.5%; Indonesia, 13.5%; Canada, 13.4%; and Peru, 6.9% (Bank of Korea, 2016, p. 29; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 7–8, 12).

In 2015, the Republic of Korea's exports to the United States were valued at \$71.8 billion, which was a 3.0% increase compared with that of 2014. Imports from the United States decreased by 2.6% to \$43.5 billion. In 2014, the U.S. International Trade Commission ruled that the Republic of Korea's companies were selling steel pipes, tubes, and fittings used by oil companies [also known as oil country tubular goods (OCTG)] at unfairly low prices on the United States market, which resulted in the U.S. Department of Commerce imposing antidumping duties on imports of OCTGs from the country. The United States was the second-ranked destination for the Republic of Korea's steel exports in 2015. In September, the U.S. Court of International Trade ruled that the U.S. Department of Commerce should recalculate key inputs in determining the level of duties on OCTGs (Hughes and Angel, 2015; U.S. International Trade Administration, 2016, p. 3).

Commodity Review

Metals

Copper.—Owing to the lack of domestic production, the Republic of Korea relied on imports of copper ore to meet demand for raw materials required by its copper refineries. Copper reserves in the country were estimated to be 361,000 metric tons (t). In 2015, the country produced about 510,000 t of primary refined copper. LS-Nikko Copper Inc. operated the largest capacity copper refinery in the Republic of Korea in Onsan, Gyeonggi Province (table 2; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 23, 30).

Gold.—Although gold mining remained a minor part of the Republic of Korea's mineral industry, output decreased by 5% in 2015 compared with that of 2014. Gold reserves were estimated to be 47 t. In terms of value, the demand for gold ore and concentrate decreased by about 25% in 2015. Imports of

gold ore accounted for about 94% of demand. In 2015, imports of refined gold decreased to about 16.4 t from 17.2 t in 2014. Exports of refined gold also decreased in 2015, down to 13.4 t from 14.5 t in 2014. In terms of tonnage, Hong Kong remained the leading importer of refined gold produced in the Republic of Korea (table 1; Korea Institute of Geoscience and Mineral Resources, 2015, p. 11; 2016a, p. 12, 18, 23–25).

Iron and Steel.—In 2015, domestic consumption of iron ore increased by 0.3% to 74.2 Mt, whereas iron ore production decreased by 36% to 445,000 t. Iron ore reserves were estimated to be 49.7 Mt at a grade of 41.3% iron content. Handok Iron & Steel Co., Ltd. operated the only iron ore mine in the Republic of Korea; it was located in Shindong, Gangwon Province. In terms of global crude steel production, the Republic of Korea ranked sixth in 2015 after being the fifth-ranked producer in 2014. The country produced about 70 Mt of crude steel in 2015, which was a decrease of 2.6% from that of 2014 and accounted for slightly more than 4% of the global total in 2015. The Republic of Korea exported 31.2 Mt of steel in 2015, making it the third-ranked steel-exporting country globally after China and Japan. Although the Republic of Korea was a net exporter of crude steel, it imported 21.7 Mt of steel in 2015, making it Asia's top steel importer (table 1; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 15, 23, 38–39; World Steel Association 2016a, p. 1–2; 2016b, p. 27).

Industrial Minerals

Dolomite and Limestone.—The Republic of Korea produced about 93 Mt of limestone in 2015, which accounted for about 98% of domestic demand. The remaining 2% of demand was met by imports sourced mainly from Japan. Of the limestone consumed in the country, 76% was consumed in cement production and 13% was consumed in the manufacture of steel. The remaining 11% was consumed in the construction, chemical, and milling industries as well as in desulfurization and in the production of ground calcium carbonate. Japan was by far the leading recipient of calcareous minerals and stone from the Republic of Korea, followed by China, Taiwan, and Indonesia. In 2015, the environmental industry accounted for 40% of calcite consumption in the country followed by 32% consumed in the production of ground calcium carbonate, 12% consumed by the construction industry, and 9% consumed in the production of cement. The remaining 7% of calcite consumption was split between the desulfurization and agriculture industries. The majority of dolomite consumption was accounted for by the steel industry (32%), construction industry (26%), and agriculture industry (11%); the remainder was consumed in the production cement and chemicals (8% each), ground calcium carbonate for manufacturing (7%), glass (6%), and other unspecified uses (2%) (Korea Institute of Geoscience and Mineral Resources, 2016a, p. 41–44).

Mineral Fuels and Related Materials

Coal.—The Republic of Korea's consumption of anthracite increased by 4.7% to 10.7 Mt in 2015. Imported anthracite accounted for 85.5% of the anthracite consumed in 2015.

The industrial sector accounted for 65.7% of anthracite consumption, followed by power generation, 20.4%; and residential and commercial uses, 20.4% and 13.8%, respectively. The Republic of Korea lacked production of coking and thermal coal and relied on imports to meet domestic demand. Consumption of coking coal decreased by 2.3% to 36.8 Mt in 2015, whereas thermal coal consumption increased by 2.2% to 87.4 Mt. Power generation accounted for 91.9% of thermal coal consumption, followed by cement production and the industrial sector, which accounted for 5.3% and 2.8%, respectively (Korea Energy Economics Institute, 2016, p. 61–64).

Petroleum, Natural Gas, and Petroleum Refinery Products.—The Republic of Korea lacked substantial reserves of mineral fuels and therefore relied on imports to meet its domestic demand. Consumption of petroleum increased to 113.7 Mt in 2015, representing a 5.3% increase compared with that of 2014. Natural gas consumption decreased by 8.7% in 2015 to 43.6 billion cubic meters. Petroleum accounted for about 41% of primary energy consumption in the country in 2015, followed by coal, about 31%; natural gas, about 14%; and nuclear energy, about 13%. The Republic of Korea had the capacity to produce about 3 million barrels per day (Mbbbl/d) of petroleum refinery products, which made the country the fifth-ranked refiner globally. In 2015, the country exported 1.3 Mbbbl/d of refinery products (Oil & Gas Journal, 2015; BP p.l.c., 2016, p. 11, 16, 23, 40–41).

Outlook

The economy of the Republic of Korea relies heavily on exports and thus is vulnerable to changes in world markets. The country's GDP was expected to grow by 3.0% in 2016 as external demand recovers. KIGAM forecasted a slight increase in the domestic demand for lead and zinc metal and a slight decrease in the demand for refined copper. Investment in the construction sector was expected to increase in 2016, which would support the country's domestic industrial mineral sector. The country's investment in global industrial plants, which included oil and gas facilities and power generation plants, decreased in 2015 and was expected to continue to decrease in 2016. The largest decreases took place in the Middle East² and South America owing to depressed petroleum prices, whereas investment in industrial plants increased in Asia in 2015. It was expected that Asia would replace the Middle East as the leading region for South Korean investment in overseas industrial plants in the near future (Export Import Bank of Korea, 2016, p. 12–15; Korea Institute of Geoscience and Mineral Resources, 2016a, p. 35–36).

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²The Middle East as used here is the area defined by the Export Import Bank of Korea comprises the following countries: Afghanistan, Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Oman, Saudi Arabia, Syria, Turkey, and the United Arab Emirates.

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TABLE 1
REPUBLIC OF KOREA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
METALS					
Cadmium, smelter	3,005	3,904	3,903	4,010 ^r	4,200
Copper:					
Metal, refined, primary	449,200	477,300	478,800	500,000	510,000
Metal, refined, secondary	89,800	144,500	125,100	120,000	130,000
Total	539,000 ^r	621,800 ^r	603,900 ^r	620,000	640,000
Ferrous alloys:					
Ferromanganese	355,047	364,800	330,000 ^{r,c}	360,000 ^{r,c}	300,000 ^c
Ferronickel	49,300 ^r	54,100 ^r	65,800 ^r	59,100 ^r	59,100
Ferrosilicomanganese	195,650	184,700	216,000 ^r	204,000 ^r	200,000
Total	599,997	603,600	611,800 ^r	623,100 ^r	559,100
Gold:					
Mine output, Au content					
kilograms	209	336	413	284 ^r	269
Metal, refined					
do.	50,833	49,362	44,366	46,207	55,693
Iron and steel:					
Iron ore and concentrate:					
Gross weight					
thousand metric tons	542	593	663	693	445
Fe content					
do.	303	332	371	426	249
Pig iron					
do.	42,213	41,734	41,045	46,909	47,639
Steel, crude					
do.	68,519	69,073	66,061	71,542	69,670

See footnotes at end of table.

TABLE 1—Continued
REPUBLIC OF KOREA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015	
METALS—Continued						
Lead:						
Mine output, Pb content	1,289	1,940	2,500	2,764	2,921	
Metal, refined:						
Primary	256,851	280,000	227,700	299,000 ^r	291,000	
Secondary	160,000	180,000	200,000	340,000 ^r	350,000	
Molybdenum	378	377	428	479	468 ^e	
Silver:						
Mine output, Ag content	kilograms	2,649	2,925	3,897	3,289	4,510
Metal	do.	2,197,000	2,547,000	2,467,000 ^r	3,117,000	2,967,000
Zinc:						
Mine output, Zn content	740 ^r	1,434	1,749	1,919	2,070	
Metal, primary	828,735	876,550 ^r	885,804 ^r	900,943	934,949	
INDUSTRIAL MINERALS						
Calcite	1,880	2,025	2,170 ^r	2,426	2,221	
Cement						
Clinker	thousand metric tons	45,221	45,155	44,373	44,816	45,500
Hydraulic	do.	48,300	52,600	53,300	63,200	52,000
Clays:						
Acid	46,623	57,787	51,309	54,001	87,094	
Bentonite	94,987	88,543	80,188	71,850	78,439	
Kaolin	798,690	514,841	532,050 ^r	429,081	356,866	
Pottery	253,082	281,762	327,336	253,668	230,921	
Other	1,361,283	968,014	801,264	719,390	862,339	
Total	2,554,665	1,910,947	1,792,147	1,527,990	1,615,659	
Diatomaceous earth	5,150	6,000	34,000	65,893	15,310	
Feldspar	384,221	360,413	343,241	528,958 ^r	601,030	
Mica, all grades	31,260	25,594	25,143	24,205 ^r	17,405	
Salt	372,230	308,847	421,259	303,510	310,000 ^e	
Stone, sand and gravel:						
Dolomite	thousand metric tons	2,697	2,474	2,610	2,558	2,626
Limestone	do.	82,368	82,413	83,802	86,191	88,199
Marble	do.	38	35	8	8	5
Quartzite	do.	3,603	4,184	4,194	4,057	3,569
Sand, silica	do.	394	709	747	732	661
Talc and related materials:						
Pyrophyllite	510,708	483,133	524,881	622,865	596,860	
Talc	15,608	21,625	2,808	5,484	6,371	
Zeolites	231,420	245,285	221,298	203,051	191,207	
MINERAL FUELS AND RELATED MATERIALS						
Coal, anthracite	thousand metric tons	2,084	2,094	1,815	1,748	1,764
Petroleum, refinery products: ^f						
Diesel	thousand 42-gallon barrels	292,274	309,728	297,771	314,495	333,415
Fuel oil	do.	124,915	102,612	79,459	55,174	57,973
Gasoline	do.	123,607	137,381	135,010	145,055	157,320
Kerosene	do.	34,720	26,612	21,498	16,743	18,492
Liquefied petroleum gas	do.	18,316	17,253	20,039	24,341	25,367
Naptha	do.	195,096 ^r	207,097 ^r	207,638 ^r	218,092 ^r	249,931
Others ³	do.	213,305	233,993	240,534	256,170	274,461
Total	do.	1,002,233	1,034,676	1,001,950	1,030,071	1,116,959

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto.

¹Table includes data available through September 22, 2016.

²In addition to the commodities listed, the Republic of Korea also produced bismuth, carbon black, coal, coke, graphite, gypsum, indium, iron and steel semimanufactures, magnesite, magnesium, phosphate rock, sand and gravel, secondary iron, sulfur (as a byproduct of petroleum processing), titanium, thorium, and uranium, but available information was inadequate to make reliable estimates of output.

³Includes bitumens, fuel oil byproducts, jet fuel, lubricants, paraffin waxes, petroleum coke, refinery gas, and solvents.

TABLE 2
REPUBLIC OF KOREA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Bismuth, metal	metric tons	Korea Zinc Co. Ltd.	Onsan refinery	500
Cadmium	do.	do.	do.	2,100
Do.	do.	Young Poong Corp.	Sukpo refinery	2,100
Cement		Ssangyong Cement Industrial Co. Ltd.	Plants at Tonghae, Kwang Yang, Munhyung, Pukpyong, and Yeongwol	15,040
Do.		Sung Shin Cement Manufacturing Co. Ltd.	Tanyang plant	13,700
Do.		Tong Yang Major Corp.	Plants at Pukpyong and Samchok	11,580
Do.		Lafarge Halla Cement Corp.	Plants at Kwang Yang and Okkye	9,500
Do.		Hyundai Cement Co. Ltd.	Plants at Tanyang and Yeongwol	8,600
Do.		Hanil Cement Manufacturing Co.	Plants at Chungbuk and Tanyang	7,200
Do.		Asia Cement Manufacturing Co. Ltd.	Plants at Daegu and Jaechon	4,600
Coal		Korea Coal Corp.	Mines at Changsung, Dogae, and Hwasoon	2,500
Copper, metal, primary		Korea Zinc Co. Ltd.	Onsan	24
Do.		LS-Nikko Copper Inc.	Changhang	60
Do.		do.	Onsan	510
Gold:				
In concentrate	kilograms	Hangum Co. Ltd.	Muguk Mine, Haenam, Jeonnam (South Jeolla) Province	1,600
Refined	do.	Korea Zinc Co. Ltd.	Onsan	50,000
Do.	do.	LS-Nikko Copper Inc.	do.	60,000
Graphite		Kaerion Graphite Ltd.	Kangwon	NA
Do.		Wolmyong Mining Co.	do.	NA
Indium, metal	kilograms	Korea Zinc Co. Ltd.	do.	55,000
Iron ore		Handok Iron & Steel Co., Ltd.	Shindong, Gangwon Province	600
Lead, metal, primary		Korea Zinc Co. Ltd.	Kangwon	300
Magnesium		POSCO	Magnesium refinery plant, Gangneung City, Gangwon Province	10
Do.		do.	Magnesium metal sheet plant, Suncheon City, Jeonnam (South Jeolla) Province	3
Molybdenum:				
Mine output	metric tons	NMC Resource Corp., 100%	Moland Mine, at Jecheon, Chungbuk Province	3,000
Do.	do.	Korea Resources Corp. (KORES)	Mine at Uljin, Gyeongbuk Province	670
Metal	do.	do.	Smelter at Yeosu, Jeonnam (South Jeolla) Province	6,000
Natural gas		Korea National Oil Corp.	Ulleung basin	NA
Nickel:				
Ferronickel		POSCO	Gwangyang ferronickel plant	30
Metal		Vale S.A., 25%, and Korea Zinc Co. Ltd., 19%	Onsan nickel refinery	30
Petroleum, refinery products	thousand 42-gallon barrels per day	SK Energy Corp.	Ulsan and Incheon	1,115
Do.	do.	GS-Caltex Corp.	Yocheon (Yosu)	785
Do.	do.	Hyundai Oil Refinery Co.	Daesan	390
Do.	do.	S-Oil Corp.	Onsan	669
Pyrophyllite		NA	Wan-Do, Sungsan, Hwansan, Okmesan, Dae-Do, and Chin-Do Mines in Haenam	446
Do.		NA	Nilyang, Yangsan, Kimhae, Pusan, and Kyong-Nam Mines in Dong-Nae	446
Silver:				
In concentrate	kilograms	Hangum Co. Ltd.	Haenam, Jeonnam (South Jeolla) Province	3,700
Refined	metric tons	Korea Zinc Co. Ltd.	Onsan	1,700
Do.	do.	LS-Nikko Copper Inc.	do.	370

See footnotes at end of table.

TABLE 2—Continued
 REPUBLIC OF KOREA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel, crude	POSCO	Kwangyang (Gwangyang) Works	15,000
Do.	do.	Pohang Works	17,400
Do.	Hyundai Steel Co. Ltd.	Inchon plant	4,800
Do.	do.	Pohang plant	3,200
Do.	do.	Dangjin plant	23,000
Do.	Dongkuk Steel Mill Co. Ltd.	Inchon Works	1,450
Do.	do.	Pohang Works	3,600
Do.	Korea Iron and Steel Co. Ltd.	Masan and Changwon Works	1,200
Zinc	Young Poong Corp.	Sukpo refinery	350
Do.	Korea Zinc Co. Ltd.	Onsan refinery	560

Do., do. Ditto. NA Not available.