



2014 Minerals Yearbook

VIETNAM

THE MINERAL INDUSTRY OF VIETNAM

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In 2014, Vietnam ranked seventh in the production of crude petroleum in the Asia and the Pacific region. Vietnam also produced about 1.9% and 1.4% of the world's tin and cement, respectively (Anderson, 2016; U.S. Energy Information Administration, 2015; van Oss, 2016). Other commodities produced in the country included antimony, bauxite, chromium ore, coal, lead, manganese, natural gas, nickel, phosphate rock, salt, tungsten, and zirconium. As for major processed minerals, Vietnam produced refined copper, rolled steel, refined tin, and zinc. A complete list of mineral commodities produced can be found in table 1.

Minerals in the National Economy

According to the General Statistics Office of Vietnam, the output value of the mining and quarrying sector (which included mineral fuels and nonfuel minerals) in 2013 (the latest year for which data were available) decreased by about 1.1% to an estimated \$11,036 million¹ (in 2010 constant dollars) from \$11,157 million in 2012. In 2013, the mining and quarrying sector made up about 9.1% of the country's total estimated gross domestic product of \$121.8 billion (in 2010 constant dollars) (General Statistics Office of Vietnam, 2013b).

Government Policies and Programs

During 2013 and 2014, the Government of Vietnam continued with the creation and approval of a series of legal instruments in support of the 2010 Mineral Law, in part to attract international investor interest in the country's potential for mineral mining. On January 27, 2014, and effective immediately, the Prime Minister of Vietnam issued Decision 203/QĐ-TTg, "Approving Areas Not Subject to Auction of Mineral Mining Rights Within the Licensing Authority of the Ministry of Natural Resources and Environment (MONRE)" (Decision 203). Under the 2010 Mineral Law, a mining license for a specific area was granted through auction unless provided otherwise by the Prime Minister. Under Decision 203, the Prime Minister exempted certain mineral areas from auction; instead, the MONRE has the authority to grant the mining licenses to appropriate applicants. Some of the exempted areas include clay and limestone, cement facilities that are planned to be developed by the Government, coal areas that are included in the country's coal development plan approved by the Prime Minister, and areas that contain uranium (Allens Pte Ltd., 2014).

In February, the Government of Vietnam signed a decision to issue Dispatch No. 18228/BTC-CST, which directs the Department of Taxation to carry out Resolution No. 712/2013/UBTVQH13, which establishes a new export tax rate for natural resources. Effective on February 1, 2014, the resolution

increased the export tax rate for metal minerals as follows—for copper (to 13% from 10%), iron (to 12% from 10%), titanium (to 16% from 11%), and tungsten and antimony (to 18% from 10%). Export tax rates were also increased for nonmetallic minerals, such as apatite (to 5% from 3%), brown coal and coke coal (to 9% from 7%), sand (to 11% from 10%), and stone and gravel (to 7% from 6%) (Vietnam National Coal and Mineral Industries Holding Co. Ltd., 2014c).

On March 30, the Government issued Directive No. 03/CT-TTg to improve the performance of state management of minerals by strengthening the implementation of policies and the law on minerals. Directive No. 03 requires companies and individuals that plan to invest in or establish a mineral-processing plant in Vietnam to geologically survey the area, to complete mineral exploration to determine material sourcing, and to establish mineral import contracts. The mining license holder is required to use approved techniques to process minerals, to comply with the plant's production capacity, and to satisfy environmental protection requirements. Under Directive No. 03, no new gold exploration and mining licenses are to be granted; small-scale mineral exploration licenses are limited (with the purpose of eventually stopping the granting of these licenses), and the export of unprocessed minerals is prohibited. Directive No. 03 also designates various Government agencies to oversee different aspects of the mining industry; for example, the Department of Geology and Minerals of Vietnam is to coordinate with tax agencies to thoroughly monitor the quantity of minerals mined by license holders; the Ministry of Finance is to oversee the General Department of Customs, which is tasked to inspect exports and apply measures to prevent mineral export fraud; and the Ministry of Defense is to direct Vietnam's Border Guards, Marine Police, and other agencies to monitor and thwart illegal mineral trade across the country's borders (Vietnam Law & Legal Forum, 2015).

On May 29, the MONRE issued Circular No. 16/2014/TT-BTNMT, which monitors the operations of the mineral mining rights auction council. The council was created to assist MONRE and the People's Committee in Provinces and cities to organize and conduct the auctions of mineral mining rights as stipulated in the Mineral Law. Other tasks performed by the council involve establishing regulations for the auctions, such as the auction rules for mineral rights acquisition as well as for auction prices, auction procedures, confirmation of auction results, handling of auction inconsistencies, and general oversight of the auctions. Circular No. 16 went into effect on June 22 (Vietnam Breaking News, 2014).

Joint-Circular 54/2014/TTLT-BTNMT-BTC dated September 9, 2014, went into effect on October 27. Under Joint-Circular 54, the commission fee for mining bidding rights is increased to \$600 from \$100. In addition, the winning bidder must pay \$2.5 million up front to obtain the mining license, and if the bidding price for the license is higher than \$2.5 million,

¹Where necessary, values have been converted from Vietnam dong (VND) to U.S. dollars (US\$) at average annual rates of VND20,995=US\$1.00 for 2014, VND20,878=US\$1.00 for 2013, and VND20,693=US\$1.00 for 2012.

the license holder has up to 5 years to pay the balance (Buzenet and Nguyen, 2014).

Production

In 2014, mineral production increased significantly for cobalt (by about 792%), nickel (683%), and copper concentrate (34%). These increases were mainly owing to the commencement of Asian Mineral Resources Ltd. (AMR) of Canada's Ban Phuc nickel mine in mid-2013. Other production increases were reported for ferrotungsten (56.6%), tungsten (50.6%), zirconium (11.8%), and antimony (8.4%). Production decreased for manganese (92%), bauxite (by 40%), titanium (9.4%), and iron ore, metal content (7.5%). Data on mineral production are in table 1.

Structure of the Mineral Industry

According to the General Statistics Office of Vietnam, the number of employees working in the mining and quarrying sector in 2013 (the latest year for which data were available), was approximately 266,900, which accounted for less than 1% of the total number of employed people in the country. Investments in the mining and quarrying sector for 2013 (the latest year for which data were available) accounted for approximately \$2.8 billion (in 2010 constant prices), which represented about 6.7% of the total investments in the country (General Statistics Office of Vietnam, 2013a, c). Table 2 is a list of major mineral industry facilities, the majority of which are dominated by Government-owned enterprises.

Mineral Trade

In 2014, total trade in Vietnam increased by approximately 13% to \$298.2 billion from \$264.0 billion in 2013. The total value of exports for 2014 was about \$150.2 billion compared with \$132.0 billion in 2013 (an increase of about 13.8%). Exports of crude oil increased by 10.5% to 68.3 million barrels (Mbbbl) in 2014 from 61.8 Mbbbl in 2013. Additionally, exports of coal decreased by about 43% to approximately 7.3 million metric tons (Mt) in 2014 from about 12.8 Mt in 2013. In 2014, the total value of imports increased by about 12% to \$148.0 billion from \$132.0 billion in 2013. In 2014, imports of iron and steel increased by 25.5% to about 11.8 Mt from 9.4 Mt in 2013; and imports of refined petroleum products increased by 17% to 63.4 Mbbbl from 54.2 Mbbbl in 2013. Imports of fertilizers decreased about 19% to 3.8 Mt in 2014 from 4.7 Mt in 2013 (General Statistics Office of Vietnam, 2013 d–h; 2014b, d).

Vietnam's main trading partners in 2014 were the Association of South East Asian Nations (ASEAN), Australia, China, the European Union (EU), Japan, the Republic of Korea, and the United States. The United States was Vietnam's leading export partner, importing about \$28.7 billion in Vietnamese goods (which was equivalent to 19% of Vietnam's total exports); it was followed by the EU, which imported \$27.9 billion (18.6% of Vietnam's total exports), and the ASEAN, which imported \$19.1 billion (12.7% of Vietnam's total exports). Vietnam's imports came mainly from China (which accounted about 30% of Vietnam's total imports and were valued at an estimated \$43.9 billion), the ASEAN (15.5% of total imports valued at

about \$23 billion), and the Republic of Korea (14.7% of total imports valued at about \$21.7 billion) (General Statistics Office of Vietnam, 2014a–d).

Commodity Review

Metals

Bauxite and Alumina and Aluminum.—In October 2013, Vietnam National Coal and Mineral Industries Holding Corp. Ltd. (VINACOMIN) announced the commissioning of the Tan Rai alumina plant, which is located in the Bao Lam District in Lam Dong Province in the country's Central Highlands. In April 2014, VINACOMIN projected that the Tan Rai plant would reach its full design capacity of 650,000 metric tons per year (t/yr) of alumina by 2015. During 2014, the plant was estimated to be producing at 85% to 90% of capacity. In Dak Nong Province, VINACOMIN was also building the Nhan Co bauxite mining and refinery complex. By late 2014, the company estimated the project to be 2 years behind schedule owing mainly to difficulties in acquiring the land. The plant, which had an estimated building cost of \$776 million, was expected to start trial production by late 2015. According to VINACOMIN, the Nhan Co complex would include a bauxite mine and an alumina refinery. The mine was expected to have a capacity of 1.65 million metric tons per year (Mt/yr) of bauxite and the plant would have the capacity to produce 650,000 t/yr of alumina (Vietnam National Coal and Mineral Industries Holding Co. Ltd., 2014b, 2015).

According to Vietnam's National Assembly Standing Committee, the Tan Rai plant was projected to incur losses of about \$12.4 million during its first year of operation and an accumulative loss of \$22 million by 2015, but would start to be profitable beginning in 2016. The Nhan Co. project was projected to incur losses amounting to \$144 million during the first 6 years of operation, starting in 2015. VINACOMIN announced in June 2014, that the company had secured long-term alumina sales contracts with Marubeni Corp. of Japan, and Yunnan Aluminum Co. of China (Vietnam National Coal and Mineral Industries Holding Co. Ltd., 2014a).

Gold.—In February 2014, the State Bank of Vietnam granted Besra Gold Inc. of Canada a license renewal to export gold from its operations in the central Province of Quang Nam (Besra Gold Inc., 2014b).

In October, Besra resumed operations at its Bong Mieu Gold Mining Co. (BMGMC) in central Vietnam after operations were halted in November 2013 because of substantial damage caused by several typhoons to the mine's infrastructure and area surrounding the facility. Operations resumed briefly in June 2014, only to be suspended again in July owing to Besra's dispute over two tax claim cases involving two of Besra's operating companies—BMGMC and Phuoc Son Gold Co. (PSGC). The Government claimed that gold exported by both operating companies during 2011 and 2012 did not comply with the country's gold exportation requirements, and that, because several shipments did not meet the 99.99% gold purity, the exports were subject to a 10% tax. Based on Vietnam's gold exportation regulation, no export duties are charged if the goods comply with the requirements. Besra disputed the charges,

asserting that the gold in the shipments was refined in country to a 99.99% purity. As of October 2014 operations at the PSGC property remained on hold pending resolution of the tax dispute (Besra Gold Inc., 2013a, b; 2014a, b).

Iron and Steel.—In September 2014, the Vietnam Steel Association (VSA) announced that local steelmakers were suspending production owing mainly to increased imports of steel products from China and other countries. Local steelmakers were finding it difficult to compete with the imported products. Effective in October, the Ministry of Industry and Trade (MoIT) of Vietnam imposed a new tariff on stainless steel products imported from China, Indonesia, Malaysia, and Taiwan. The new tariffs were implemented mainly to protect local producers. The new tariffs ranged from 3.07% to 37.29% compared with the 0% to 10% import tax before the new tariffs went into effect (Huang, 2014; Lee, 2014).

In November 2013, operations commenced at China Steel Sumikin Vietnam Joint Stock Co.'s (CSVC's) sheet-steel mill, which manufactured alloys, steel coils, steel sheets, and other flat-rolled products. The steel mill, which is located in Ba Ria-Vung Tau Province, was built at a cost of \$1,150 million and had a production capacity of 1.2 Mt/yr of steel products. As of late 2014, the shareholder distribution of CSVC was as follows: China Steel Corp. (CSC) of Taiwan, 56% interest; Nippon Steel & Sumitomo Metal Corp. (NSSMC) of Japan, 30%; Formosa Ha Tinh Steel Corp. of Taiwan, 5%; Nippon Steel & Sumikin Bussan Corp. of Japan, 5%; Chun Yuan Steel Industry Co., Ltd. of Taiwan, 2%; and Hsin Kuang Steel Co., Ltd. of Taiwan, 2% (China Steel Sumikin Vietnam Joint Stock Co., 2014, 2015).

Nickel.—During 2014, the Ban Phuc Nickel project, which was a subsidiary of AMR (90% interest), produced 6,400 t/yr nickel in concentrate and 3,200 t/yr copper in concentrate. The project, which is located approximately 160 kilometers from Hanoi in Son La Province, started production in June 2013, and consisted of a mine and a processing facility. In 2014, the company received approval from the Government to construct a nickel smelter in Vietnam. The smelter would enable AMR to enhance the economic potential of the Ban Phuc project by reducing transportation costs, and significantly reducing export tariffs—to 5% (incurred for nickel matte) from 20% (incurred for nickel concentrate). For 2015, the company forecasted an increase in the annual production of nickel to 8,300 t/yr; of copper, to 4,100 t/yr; and of cobalt, to 200 t/yr (Asian Mineral Resources Ltd., 2014, p. 2, 8).

Industrial Minerals

Cement.—In March, the Government approved a proposal from the Ministry of Construction to expand the production capacity at the Xuan Thanh cement plant located in Ha Nam Province. The capacity at the plant would be increased to 4.5 Mt/yr from 2.3 Mt/yr, although no timeframe was provided regarding commencement of construction. Also in March, the Thach My cement plant commenced operations. The plant, which is located in Quang Nam Province, was built at a cost of \$190 million and had the capacity to produce 1.7 Mt/yr of cement (GlobalCement.com, 2014a, c).

In June, PT Semen Indonesia (Persero) Tbk announced its plans to invest an estimated \$300 million to build a second cement plant in Vietnam during the next 5 years. Thang Long Cement JSC, which was a subsidiary of Persero (70%), planned to start construction in early 2015 and to commence production in 2018. The plant would have a designed capacity of 1.5 Mt/yr of cement. Thang Long Cement's other cement plant in the country had a production capacity of 2.5 Mt/yr of cement (GlobalCement.com, 2014b).

In September, the Government canceled five cement plant projects owing mainly to low domestic cement consumption. The canceled cement projects had a combined capacity of 910,000 t/yr. In 2013, the Government had postponed or canceled the construction of nine other cement plants but had approved the construction of the Long Son Cement plant in Thanh Hoa Province. Production of the 2.3-Mt/yr-capacity Long Son plant was started in early 2014, and the plant was expected to begin operations in 2018 (GlobalCement.com, 2014d).

Rare Earths.—In April 2014, Shin-Etsu Chemical Co., Ltd. of Japan announced that it would invest \$100 million in Vietnam to build a rare-earth-magnet plant to be located in Hai Phong Province. The plant started construction in October; the company planned for the plant to be built in two phases for a total capacity of 2,000 t/yr. Construction of the first phase began in September and was scheduled to be completed by September 2015 with a production capacity of 1,000 t/yr. The second phase was expected to be completed by September 2016 (Shin-Etsu Chemical Co. Ltd., 2015).

In December, Vietnam Rare Elements Chemical JSC (VRECJ) started plant construction on a 4-hectare property located in the southern Province of Ba Ria-Vung Tau. The plant, which was wholly owned by a Japanese firm, would process zircon ore and zirconium compounds. According to VRECJ, the plant was expected to have a production capacity of 13,300 t/yr of zirconium and 8,500 t/yr of sodium metasilicate in its first phase of operations (Vietnam Investment Review, 2014).

Mineral Fuels

Petroleum.—In July 2014, Santos Ltd. of Australia, announced the recommencement of oil production at the Dua oil project, which is located offshore in Nam Con Son Basin. The Dua oil project consists of three subsea wells in Block 12W. The company estimated the average production of the project to be 8,000 barrels per day of oil for the first 12 months. PetroVietnam held the majority interest in the Dua project (68.125%) and Santos and Premier Oil, which was the operator, held the remaining 31.875% (Santos Ltd., 2014).

Outlook

During 2014, the Government of Vietnam continued with the creation and approval of a series of legal instruments in support of the 2010 Mineral Law, in part to attract international investor interest in the country's potential for mineral mining. In recent years, international investment in mining projects in Vietnam has increased for such mineral commodities as bauxite, cement, copper, gold, nickel, tungsten. Trade between neighboring countries, along with continued foreign direct investment,

have benefited the economy of Vietnam and increased trade within the ASEAN member countries and the South East Asian region. Future economic growth for Vietnam will be highly dependent on continued economic stability, structural reforms and updates in the country's mining policy, and improvements in infrastructure to attract international investors. Increased production of metals and industrial minerals is expected in the near future, as projects that were under development in recent years began operating in 2014, and other projects will start coming online between 2015 and 2018.

The cement industry and the construction sector in Vietnam have boomed in the past few years as modernization of Vietnam's infrastructure has continued to be a priority for the country. The Government has encouraged industry to focus on increasing the efficiency of existing cement plants and has approved new cement plant development. According to the Vietnam Cement Association, by 2015, the combined capacity of the country's cement plants would reach 90 Mt/yr; however, the demand for cement is projected to be 75 Mt/yr (GlobalCement.com, 2014d).

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TABLE 1
VIETNAM: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014
METALS					
Alumina ^c	--	--	--	214	485
Antimony:					
Gross weight	608 ^r	714 ^r	1199 ^r	2476 ^r	2684
Sb content (40%)	243	286	480	990	1074
Bauxite ^c	80,000	100,000	100,000	250,000	150,000
Cobalt, Co content	--	--	--	25 ^r	223 ^r
Copper:					
Concentrate, gross weight	49,038	47,552	45,065	49,148 ^r	48,072
Concentrate, Cu content ^c	11,300	11,300	11,300	12,000	16,100
Iron and steel:					
Iron ore:					
Gross weight	3,720,943	4,474,151	2,870,000	4,708,200 ^r	4,355,100
Fe content (53%)	1,972,100	2,371,300	1,523,100	2,495,329 ^r	2,308,200
Pig iron	500	600	650	650	650
thousand metric tons					
Metal:					
Steel, crude	2,906	2,931	2,965 ^r	2,845 ^r	2,900 ^c
Steel, rolled	8,415	8,085	8,405 ^r	8,851 ^r	9,000 ^c
do.					
Lead, mine output, Pb content ^c	6,500	6,400	6,300	6,000	6,000
Manganese: ^c					
Gross weight	82,700	64,600	15,800	9,700	800
Mn content (43%)	35,600	27,800	6,800	4,200	340
Nickel, Ni content	--	--	--	817	6,400
Rare earth oxide ^c	170	200	200	100	100
Tin:					
Mine output, Sn content ^c	5,400	5,400	5,400	5,400	5,400
Metal, smelter	3,042	3,900	4,000 ^c	4,000 ^c	4,000 ^c
Titanium mineral concentrate, gross weight ³	912,000	840,600	1,143,800	1,025,779 ^r	929,400
Tungsten:					
Mine output, W content	1,150	1,635	1,050	1,660 ^r	2,500 ^c
Ferrotungsten, gross weight, shipped ⁴	--	--	--	511	800 ^c
Zinc: ^c					
Mine output, Zn content	40,000 ^r	30,000 ^r	30,000 ^r	20,000 ^r	20,000
Slab	16,000	16,000	18,000	18,000	18,000
Zirconium, gross weight ^{c,5}	6,900	14,000	15,600	7,600	8,500
INDUSTRIAL MINERALS					
Barite ^c	85,000	85,000	85,000	85,000	85,000
Cement, hydraulic	55,801	58,271	55,531	57,516 ^r	60,507
thousand metric tons					
Lime	1,454	800 ^{r,c}	800 ^{r,c}	800 ^{r,c}	800 ^c
do.					
Monazite, concentrate, REO content	309	361	369	178 ³	200
Phosphate rock:					
Gross weight	2,325	2,395	2,365	2,636 ^r	2,700
thousand metric tons					
P ₂ O ₅ content ^c	680	720	710	790 ^r	810
do.					
Salt	975	862	1,178	719 ^r	766
do.					
Sand and gravel, and silica sand	110,300	101,295	83,223 ^r	74,543 ^r	75,000
do.					
Stone, all kinds	381,828	404,421	355,251 ^r	334,183 ^r	340,000
do.					

See footnotes at end of table.

TABLE 1—Continued
VIETNAM: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014	
MINERAL FUELS AND RELATED MATERIALS						
Coal, anthracite	thousand metric tons	44,835	46,611	42,383	41,064 ^r	41,697
Gas, natural, gross	million cubic meters	9,402	8,480	9,403	9,751 ^r	10,210
Petroleum:						
Crude	thousand 42-gallon barrels	110,397 ^r	111,654 ^r	123,080 ^r	122,830 ^r	123,000 ^e
Refinery products: ^c						
Liquefied petroleum gas	do.	2,600	2,600	2,900	3,000	3,000
Gasoline	do.	17,100	17,300	19,000	19,000	19,000
Other	do.	21,000	21,200	23,300	23,500	23,500
Total	do.	40,700	41,100	45,200	45,500	45,500

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

¹Table includes data available through July 22, 2015.

²In addition to the commodities listed, bentonite, refractory clay, chromium, construction aggregates, refined copper, gemstones, gold, granite, graphite, gypsum, kaolin clay, lignite, marble, nitrogen, pig iron, pyrite, pyrophyllite, silver, and sulfur were produced, but not reported. Available information was inadequate to make reliable estimates of output.

³Estimated figures based on Vietnam's estimated exports of titanium ores to China, Japan, and the Republic of Korea.

⁴Reported as metric tons of ferrotungsten shipped by Hazelwood Resources Ltd., which is one of two ferrotungsten plants operating in Vietnam.

⁵Estimated figures based on Vietnam's estimated exports of zirconium ore to China.

Sources: The Barytes Association, World Barytes Production, 2008–2010; Copper Bulletin of the International Copper Study Group, May 2015; International Chromium Development Association, Development Association, Statistical Bulletin, 2010–2011; International Tungsten Industry Association, 2014; South East Asia Iron and Steel Institute, Crude Steel Production, Annual Statistics, August 2014; United Nations Comtrade Database for years 2010 to 2014; Vietnam's General Statistics Office, Statistical Yearbook, 2009–2014; World Bureau of Metal Statistics Yearbook 2015; World Steel Association, Steel Statistical Yearbook, 2014.

TABLE 2
VIETNAM: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Vietnam National Coal and Mineral Industries Group (VINACOMIN)	Tan Rai alumina complex Bao Lam District, Lam Dong Province	650.
Barite	NA	Ao Sen deposit Son Duong District, Tuyen Quang Province	80.
Bauxite	Vietnam National Coal and Mineral Industries Group (VINACOMIN)	Tan Rai plant, F74Bao Lam District, Lam Dong District	650.
Do.	do.	Nhan Co Mine, Dak Nong Province	NA.
Bismuth	Masan Group	Nui Phao Mine, Thai Nguyen Province	2.3.
Cement	An Giang Cement Co.	An Giang cement plant, An Giang Province	400.
Do.	Binh Phuoc Cement Co.	Binh Phuoc cement plant, Binh Phuoc Province	2,000.
Do.	Building Materials Corp. No. 1	Fico Tay Ninh cement plant, Tan Chau District, Tay Ninh Province	2,000.
Do.	Cement X18 Factory Co.	Cement X18 plant, Lang Son Province	100.
Do.	Chin Fon Cement Co.	Chin Fon cement plant, Ha Giang Province	2,200.
Do.	Chinfon Hai Phong Cement Corp. [Ching Fong Group of Taiwan, 70%; Hai Phong Municipal Government, 15.56%; Vietnam National Cement Corp. (VICEM), 14.44%]	Min Duc cement near Hai Phong City	1,400.
Do.	Cong Thanh Cement Joint Stock Co.	Cong Thanh cement plant, Thanh Hoa Province	1,000.
Do.	Cao Ngan Cement Co.	Cao Ngan cement plant, Thai Nguyen Province	600.
Do.	Dong Banh Cement Co.	Dong Banh cement plant, Lang Son Province	1,000.
Do.	Dong Son Cement Co.	Dong Son cement plant, Thai Nguyen Province	1,500.
Do.	Dong Thanh Cement Co.	Dong Thanh cement plant, Dong Nai Province	1,000.
Do.	Ha Long Cement Co.	Ha Long cement plant, Ho Chi Minh City	2,000.
Do.	Ha Tien Kien Giang Cement Co.	Ha Tien Kien Giang cement plant, Binh Duong Province	200.
Do.	Lafarge (Vietnam) Cement	Cement grinding station, Dong Nai Province	500.
Do.	La Hien Cement Co.	La Hien cement plant, Thain Nguyen Province	600.
Do.	Langbang Cement Co.	Langbang cement plant, Quang Ninh Province	1,500.
Do.	Luckvaxi Cement Co.	Luckvaxi cement plant, Thien Hue Province	1,200.
Do.	Luck's Group (Vietnam Holdings) Co. Ltd.	Kim Dinh cement plant and Ninh Thuan grinding plant, Thua Thien-Hue Province	2,800.
Do.	Lucky Group Ltd. and Phuc Son Cement Corp.	Phuc Son cement plant, Hai Duong Province	4,000.
Do.	Mai Son Cement Co.	Mai Son cement plant, Son La Province	1,200.
Do.	Midland Construction Corp. (COSEVCO)	Song Gianh cement plant, Quang Binh Province	1,400.

See footnotes at end of table.

TABLE 2—Continued
VIETNAM: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued	Morning Star Cement Ltd. [Holcim Group, 65%, and Vietnam National Cement Corp. (VICEM), 35%]	Cat Lai grinding plant, Hiep Phuoc grinding plant, and Thi Vai grinding plant, Hon Chong, Kien Giang Province	5,200.
Do.	Nghi Son Cement Corp. [Taiheiyō Cement Corp., 45.5%; Mitsubishi Materials Corp. of Japan, 19.5%; Vietnam National Cement Corp. (VICEM), 35%]	Nghi Son cement plant, Thanh Hoa Province	4,300.
Do.	Quang Ninh Cement and Construction Joint Stock Co.	Quang Ninh cement plant, Ha Long, Quang Ninh Province	1,200.
Do.	Quan Trieu Cement Joint Stock Co. (Viet Bac Mining Industry Corp. and VINACOMIN)	Quan Trieu cement plant, Thai Nguyen Province	820.
Do.	ROLI-Quang Tri Cement Co.	ROLI-Quang cement plant, Quang Tri Province	600.
Do.	Song Thao Cement Co.	Song Thao cement plant, Phu Tho Province	1,000.
Do.	Thai Nguyen Cement Co.	Thai Nguyen cement plant, Thai Nguyen Province	1,400.
Do.	PT Semen Indonesia (Persero) Tbk, 70%	Thang Long cement plant, Quang Ninh Province	2,500.
Do.	Tuyen Quang Cement Group 1	Tuyen Quang cement plant, Tuyen Quang Province	600.
Do.	Vietnam Construction and Import-Export Joint Stock Corp. (VINACONEX)	Cam Pha cement grinding plant, Phu Tau Province	2,300.
Do.	do.	Luongson cement plant, Hoa Binh Province	1,200.
Do.	do.	Yen Bai cement plant, Yen Bai Province	200.
Do.	Vietnam National Cement Corp. (VICEM) (Government, 100%)	Bim Son cement, Thanh Hoa Province	3,800.
Do.	do.	But Son cement, Ha Nam Province	1,600.
Do.	do.	Hai Phong cement, Ha Giang	1,700.
Do.	do.	Ha Tien I, Ho Chi Minh City	1,500.
Do.	do.	Ha Tien II, Kien Giang Province	1,200.
Do.	do.	Hai Van cement, Da Nang City	600.
Do.	do.	Hoang Mai cement, Nghe An Province	1,400.
Do.	do.	Hoang Thach cement, Hai Duong Province	2,300.
Do.	do.	Tam Diep cement, Ninh Binh Province	1,400.
Do.	Vietnam Industrial Construction Corp. (VINAINCON)	Quang Son cement factory, Quang Son Commune, Dong Hy District, Thai Nguyen Province	1,500.
Chromite, gross weight	Thai Nguyen Nonferrous Metal Co. [wholly owned subsidiary of state-owned Vietnam National Minerals Corp. (VIMICO)]	Nui Nua, Thanh Hoa Province	10.
Coal, anthracite	Vietnam National Coal Corp. (VINACOAL) (Government, 100%)	Cam Pha, Cao Son, Coc Sau, Vang Danh, Dong Trieu, Ha Lam, Ha Tu, Hong Gai, Khe Cham, Mao Khe, Mong Duong, Deo Nai, Cua Ong, and Uong Bi, Quang Ninh Province	42,000.
Cobalt	metric tons Asian Mineral Resources (90% owned through subsidiary Ban Phuc Nickel Mines LLC)	Ban Phuc nickel project, Son La Province	200.

See footnotes at end of table.

TABLE 2—Continued
VIETNAM: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
Copper:				
Concentrate, Cu content	Asian Mineral Resources (90% owned through subsidiary Ban Phuc Nickel Mines LLC)	Ban Phuc nickel project, Son La Province	3.	
Do.	Lao Cai Copper Complex [wholly owned subsidiary of Vietnam National Minerals Corp. (VIMICO)]	Sin Quyen, Lao Cai Province	11.	
Do.	Masan Group	Nui Phao Mine, Thai Nguyen Province	7.	
Ore	Sin Quyen Copper Co. [operated by Vietnam National Coal and Mineral Industries Group (VINACOMIN)]	Sin Quyen Mine, Bat Xat District, Lao Cai Province	1,200.	
Refined	Tang Loong Lao Cai Copper Smelting Enterprise [wholly owned subsidiary of Vietnam National Coal and Mineral Industries Group (VINACOMIN)]	Tang Loong Long Commune, Bao Tang District, Lao Cai Province	10.	
Fertilizer:				
Nitrogen, ammonia	Vietnam National Chemical Corp. (VNCC) (Government, 100%), and Phy My Nitrogenous Fertilizer and Chemical Joint Stock Corp.	Ha Bac, Phu My, Ba Ria-Vung Tau Province	375.	
Superphosphate	do.	Lam Thao, Phu Tho Province	800.	
Fluorspar	Masan Group	Nui Phao Mine, Thai Nguyen Province	210.	
Gas, natural	million cubic meters per day	VietSovPetro (a joint venture of Vietnam Oil and Gas Corp. and Zarubezhneft), and the joint venture of PetroVietnam, BP p.l.c., Oil and Natural Gas Co., and ConocoPhillips Co.	Offshore Bach Ho oilfield, Rang Dong oilfield, and Lan Tay and Lan Do gasfields	20.
Do.	Vietnam Oil and Gas Group (PetroVietnam) and operated by Cuu Long Joint Operating Co.	Su Tu Trang offshore field (Block 15.1), Cuu Long Basin	NA.	
Gold, gold content of mine output	kilograms	Bong Mieu Gold Mining Company Ltd. (Besra Gold Inc., 80%; Mineral Development Co., 10%; Quang Nam Mineral Joint Stock Co., 10%)	Bong Mieu Mine and Nui Kem underground mines, Quang Nam Province	400.
Do.	Besra Gold Inc. (85%)	Bai Dat and Bai Go deposit within the Phuoc Son gold property, Quang Nam Province	NA.	
Iron ore, gross weight	Thai Nguyen Iron and Steel Corp. [wholly owned subsidiary of Vietnam National Steel Corp. (VNSTEEL)]	Trai Cau and Tien Bo, Thai Nguyen Province; Thach Khe, Ha Tinh Province	850.	
Nickel	Asian Mineral Resources (90% owned through subsidiary Ban Phuc Nickel Mines LLC)	Ban Phuc nickel sulfide deposit, Son La Province	7.	
Petroleum, crude	thousand 42-gallon barrels per day	Santos Ltd. and Premier Oil, 31.875%, and Petro Vietnam, 68.125%	Dua Oil project (offshore), Nam Con Son Basin (Block 12W)	8,000.
Do.	VietSovPetro (a joint venture of Vietnam Oil and Gas Corp. and Zarubezhneft)	Offshore Bach Ho, Rong, Rang Dong, Ruby, Bunga Kekwa, Dai Hung, and SuTu Trang oilfields	320.	
Refined	thousand 42-gallon barrels	Vietnam Oil and Gas Group (PetroVietnam), 50%; ConocoPhillips Co., 23.25%; Korea National Oil Corp., 14.25%; SK Innovation, 9%; Geopetrol SA, 3.5%. Operated by Binh Son Refining and Petrochemical Co.	Dung Quat refinery, Quang Ngai Province	47,600.
Phosphate rock, gross weight	Vietnam Apatite Limited Co. [Vietnam National Chemical Corp. (VNCC), 100%]	Cam Duong and Tang Loong, Lao Cai Province	1,250.	
Rare earths	Lai Chau-Vietnam National Minerals Corp. (VIMICO) Rare Earth Joint Stock Co. and the Japanese Dong Pao Rare Earth Development Co.	Dong Pao Rare Earth Mine, Tam Duong District, Lai Chau Province	NA.	
Salt	Vietnam National Salt Corp.	Nam Dinh, Nghe An, and Hai Tin Provinces	1,200.	
Steel:				
Crude	Vietnam National Steel Corp. (VNSTEEL)	Cai Lan, Thai Nguyen Province, and Phu My, Ba Ria-Vung Tau Province	1,500.	

See footnotes at end of table.

TABLE 2—Continued
VIETNAM: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel—Continued:			
Products	Shengli (Vietnam) Special Steel Co. Ltd., established by Shengli Group Corp., and Guangdong Metals and Minerals Import & Export Corp.	Cau Nghin Industry billets plant, Quynh Phu, Thai Binh Province	500.
Do.	do.	Bar & wire rod plant, Quynh Phu, Thai Binh Province	600.
Rolled	Lotus Group	Cold-rolled steel plant in Phu My Industrial Park, Ba Ria-Vung Tau Province	1,000.
Do.	POSCO-Vietnam (POSCO Group, 100%)	POSCO Special Steel in Phu My Industrial Park, Ba Ria-Vung Tau Province	700 cold-rolled steel.
Do.	do.	do.	3,000 hot-rolled steel.
Do.	Vietnam Shipbuilding Industry Group (VINASHIN)	Cai Lan steel plate hot-rolling plant, Ha Long City, Quang Ninh Province	1,000.
Do.	Viet Steel Corp.	Bar mill, Ba Ria-Vung Tau Province	450.
Do.	Vietnam National Steel Corp. (VNSTEEL)	Cai Lan, Thai Nguyen Province, and Phu My, Ba Ria-Vung Tau Province	2,500.
Sheet	China Steel Sumikin Vietnam Joint Stock Co. (China Steel Corp., 56%; Nippon Steel & Sumitomo Metal Corp., 30%; Formosa Ha Tinh Steel Corp., 5%; Nippon Steel & Sumikin Bussan Corp. of Japan, 5%; Chun Yuan Steel Industry Co., Ltd. of Taiwan, 2%; Hsin Kuang Steel Co., Ltd. of Taiwan, 2%)	Sheet steel mill, Ba Ria-Vung Tau Province	1,200.
Tin:			
Concentrate, Sn content	Cao Bang Nonferrous Metal Co. and Nghe Tinh Nonferrous Metal Co. [wholly owned subsidiaries of state-owned Vietnam National Minerals Corp. (VIMICO)]	Pia Oac, Cao Bang Province; Quy Hop, Nghe An Province; and Tam Dao, Tuyen Quang Province	4.
Refined	Thai Nguyen Nonferrous Metal Co.	Thai Nguyen, Bac Thai Province	2.
Titanium, ilmenite	Bimal Minerals Co. Ltd. (Malaysia Mining Corp. and Syarikat Pendorong Sdn. Bhd., 60%, and Binh Dinh Minerals Co., 40%)	Cat Khanh, Qui Nhon, and Binh Dinh Provinces	70.
Do.	Ha Tinh Minerals and Trading Co.	Cam Hoa, Ky Anhh-Cam, Xuyen, Ky Khan, and Ky Ninh, Ha Tinh Province	450.
Do.	Mineral Development Co. No. 4 and No. 5 [wholly owned subsidiaries of Vietnam National Minerals Corp. (VIMICO)]	Vinh City, Nghe An Province; Tuy Hoa, Dong Xuan, Phu Yen Province; and Quang Ngan, Vinh My, Thua Thien-Hu Province	50.
Tungsten:			
Concentrates	Nui Phao H.C. Starck Tungsten Chemicals Manufacturing LLC [Nui Phao Mining Co. Ltd (74.1%) (Masan Group) and H.C. Starck GmbH]	Nui Phao Mine, Dai Tu District, Thai Nguyen Province	7.
Do.	Sanher Tungsten Vietnam Co. Ltd.	Nhon Trach District, Dong Nai Province	NA.
Do.	Tejing (Vietnam) Tungsten Co., Ltd.	Trang Bang District, Tay Ninh Province	2.
Do.	Vietnam Youngsun Tungsten Industry Co.	Thienke tungsten mine, Tuyen Quang Province	2.
Ferrotungsten, W content	Vietnam Youngsun Tungsten Industry Co. Ltd. (Hong Kong Wolfram International Investment Co., Ltd.)	Cailan Industrial Zone, Quang Ninh plant, Halong, Quang Ninh Province	3.
Do.	ATC Ferrotungsten [operated by Asia Tungsten Products Vietnam Ltd. (Hazelwood Resources Ltd., 60%)]	Tan Tien Industrial Zone, Vinh Bao District, Hai Phong Province	4.

See footnotes at end of table.

TABLE 2—Continued
 VIETNAM: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Zinc: Concentrate, Zn content	Thai Nguyen Nonferrous Metal Co. [wholly owned subsidiary of state-owned Vietnam National Minerals Corp. (VIMICO)]	Cho Dien, Bac Can Province	50.
Refined	The Ta Pan Zinc-Lead Plant (a Chinese private firm, 70.2%, and Ha Giang Mineral Exploiting and Engineering Co., 29.8%)	Lung Vay, Bac Me District, Ha Giang Province	6.
Do.	Thai Nguyen Zinc Refinery [wholly owned subsidiary of state-owned Vietnam National Minerals Corp. (VIMICO)]	Thai Nguyen City, Thai Nguyen Province	10.

Do., do. Ditto. NA Not available.