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The Mineral Industry of China

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Note: In this chapter, information for 2017 is followed by information for 2018.

In 2017, China had the second largest economy in the world, following the United States. Economic growth in the past two decades, largely driven by investment and exports, resulted in large increases in China's production of and demand for mineral commodities. In recent years, owing to the country's economic slowdown since late 2012, the mineral industry in China has faced some challenges, such as underutilization of production capacity, slow demand growth, and low profitability. In 2017, production of more than one-half of the mineral commodities listed in table 1 showed modest growth or remained at a level similar to that of 2016, which was consistent with the modest and steady growth of the country's overall economy. The economic performance of the metal sector generally was stronger in 2017 owing mainly to the recovery of metal prices on the global market during the year.

In 2017, China invested about $11.1 billion[1] in minerals exploration and $131.0 billion in mining activities (development and production of fuel and nonfuel minerals), representing a year-on-year increase of 1.0% and a decrease of 10.0%, respectively. In 2017, China's output of coal ranked first in the world, production of natural gas ranked sixth, and crude petroleum ranked seventh. China was the leading producer and consumer of energy in the world. In addition, the country's production and consumption of gold, most nonferrous metals, and raw steel ranked first in the world; China also accounted for a significant share of world production of some other commodities,, such as rare earths (80% of world production), pig iron (61%), aluminum (54%), raw steel (51%), and lead (47%). Details of China's share of total world production for a number of nonfuel mineral commodities in 2017 can be found in the U.S. Geological Survey's Mineral Commodity Summaries 2019 (table 1; BP p.l.c., 2018, p. 16, 28, 38; Ministry of Natural Resources, 2018b, p. 8–13, 15; Bray, 2019; Klochko, 2019 Tuck, 2019; U.S. Geological Survey, 2019).

Minerals in the National Economy

China's real gross domestic product (GDP) rate of growth was 6.9% in 2017 compared with 6.7% in 2016. The nominal GDP was about $11.8 trillion in 2017. In 2017, mining and manufacturing contributed 2.6% and 29.3% to the GDP, respectively, compared with 2.5% and 29.0%, respectively, in 2016. The portion of the GDP generated by the mining sector increased by 15.1% in 2017 compared with a decrease of 4.4% in 2016, and the portion of the GDP generated by the manufacturing sector increased by 12.2% compared with an increase of 5.9% in 2016. In 2017, the number of people employed in the mining and manufacturing sectors was 4.55 million and 46.36 million, respectively, which accounted for 2.6% and 26.3%, respectively, of the country's total nonagricultural employment. In 2017, the total investment in fixed assets (excluding that by rural households; see reference at the end of the paragraph for a detailed definition) was $9.12 trillion, of which 30.2% was invested in the manufacturing sector and 1.4% was invested in the mining sector (National Bureau of Statistics of China, 2018, sec. 3–1, 3–3, 3–6, 4–5, 10–6; 2019, sec. 3–6).

In 2017, the foreign direct investment (FDI, which refers to the investments in China by companies based in other countries) was $131 billion compared with $126 billion in 2016. In 2017, about 1% of the FDI was directed to the mining sector and 26% was directed to the manufacturing sector. In 2017, overseas direct investment (ODI, which refers to the investment in other countries by companies based in China) was $158 billion compared with $196 billion in 2016, representing the first decrease since 2003. The value of ODI exceeded FDI for the third consecutive year. In 2017, ODI exceeded FDI by $27 billion compared with $70 billion in 2016. As of yearend 2017, the total accumulated value of China's ODI amounted to $1.81 trillion, and mining and manufacturing accounted for 8.7% and 7.8% of the stock, respectively (National Bureau of Statistics of China, 2018, sec. 11–14, 11–16, 11–20).

China's three leading overseas acquisitions in the mining sector were, in terms of transaction value (1) Yanzhou Coal Mining Co. Ltd.'s $2.69 billion acquisition of Rio Tinto Group's Coal & Allied Industries Ltd., which held a 67.6% interest in the Hunter Valley thermal coal operations and interests in some other coal assets in Australia; (2) China Molybdenum Co. Ltd.'s $1.14 billion acquisition, through an agreement with its partner BHR Newwood Investment Management Ltd. of China, of an additional 24% interest in the Tenke Fungurume copper-cobalt mine in Congo (Kinshasa), which increased the company's total interest in the mine to 80%; and (3) Shandong Gold Mining Co. Ltd.'s $960 million acquisition of a 50% interest in the Veladero Mine in Argentina from Barrick Gold Corp. of Canada (Austmine Ltd., 2017; Sohu.com, 2017; Sykora, 2017; China Molybdenum Co. Ltd., 2018, p. 18).

Government Policies and Programs

On December 25, 2016, the Environmental Protection Tax Law of the People's Republic of China was released as Presidential Decree No. 61 to take effect on January 1, 2018. On December 25, 2017, the State Council released the Regulations on the Implementation of the Environmental Protection Tax Law of the People's Republic of China, which also would take effect on January 1, 2018. This was the first special tax law in China to symbolize the "green tax system" and promote social and

[1]Where necessary, values have been converted from Chinese yuan renminbi (CNY) to U.S. dollars at an annual average exchange rate of CNY7.030=$1.00 for 2017 and CNY6.620=$1.00 for 2018.

environmental reform and development. According to the law, producers of fly ash, smelting slag, slag, and other solid wastes would be charged CNY 25 ($3.56) per metric ton; tailings, CNY 15 ($2.13) per metric ton; and coal gangue, CNY 5 ($0.71) per metric ton. Other mineral-related materials subject to the Environmental Protection Tax included atmospheric pollutants, hazardous waste, industrial noise, and water pollutants. Fees on waste material discharge would cease in China starting on January 1, 2018, when the Environmental Protection Tax takes effect (Ministry of Natural Resources, 2018b, p. 30–31).

On June 7, the Ministry of Natural Resources began a pilot program that transferred the regulatory power to approve exploration for and extraction of mineral resources from the Ministry of Natural Resources to six Provincial land and resource authorities (Fujian, Guizhou, Hubei, Jiangxi, Shanxi and Xinjiang). This reform was part of the Government's efforts to decentralize and standardize the management of mineral rights registration. The reform would be implemented nationwide in 2019 based on the experience and lessons learned from the results in these six Provinces (Ministry of Natural Resources, 2018b, p. 28–29).

Production

The output of iron ore (gross weight of crude ore) was 1.23 billion metric tons (Gt) in 2017, which was a decrease of 3.9% compared with that of 2016; raw steel, 871 million metric tons (Mt) (an increase of 7.8%); and rolled steel, 1.05 Gt (a decrease of 7.6%). The output of refined copper (primary and secondary) was 8.92 Mt in 2017, which was an increase of 5.6% compared with that of 2016, and primary aluminum, 32.3 Mt (a decrease of 1.3%). In 2017, the output of mined gold was about 426 metric tons (t), which was a decrease of 6.0% compared with that of 2016. Refined cobalt (oxide and salts, excluding metal) production increased by 61.3% in 2017 in response to increased demand from the electric vehicle industry (table 1).

In 2017, the output of cement was 2.33 Gt, which was a decrease of 3.3% compared with that of 2016; phosphate rock (P_2O_5 content), 36.9 Mt (a decrease of 14.8%); and potash fertilizer (K_2O equivalent), 5.51 Mt (a decrease of 4.7%). Lithium carbonate and lithium hydroxide production increased by 55.4% and 40.0%, respectively, in response to increased demand from the electric vehicle industry (table 1).

In 2017, China's primary energy output totaled 3.59 Gt of standard coal equivalent (SCE), and energy consumption was 4.49 Gt of SCE. The energy self-sufficiency rate in 2017 was 80.0%. Coal accounted for 60.4% of energy consumption; petroleum, 18.8%; and hydropower, natural gas, nuclear power, solar power, and wind power, 20.8% combined. Coal production (all types) increased by 3.5% to 3.53 Gt, whereas crude petroleum production decreased by 4.1% to 1.4 billion barrels. The output of natural gas increased by 8.0% to 148 billion cubic meters (table 1; Ministry of Natural Resources, 2018b, p. 15). Data on mineral production are in table 1.

Structure of the Mineral Industry

In China, the majority of the mining and mineral-processing activities were conducted by state-owned or state-holding enterprises. The share of state ownership was high in the energy sectors and relatively low in the downstream metal manufacturing sectors, and the state-owned companies were mostly large in terms of production quantity and market share, whereas private enterprises were small. Foreign ownership in China's mineral industry was insignificant. In recent years, reorganization of enterprises was one of the major measures the Government adopted to increase the efficiency and competitiveness of state-owned enterprises and gain better control of existing and new production capacities. In 2017, a major reorganization in the mining sector was the merger of state-owned China Guodian Corp. and Shenhua Group Corp. Ltd. to form a new company—National Energy Investment Group Co. Ltd. (National Energy Group), which was the leading coal mining company in the world (table 2; Xinhuanet.com, 2017b; National Bureau of Statistics of China, 2018, sec. 13–4, 13–6).

Mineral Trade

In 2017, the total value of exported goods was $2.26 trillion compared with $2.10 trillion in 2016. The value of mineral product exports accounted for 1.7% of total exports compared with 1.4% in 2016; exports of base metals and the articles made of them accounted for 7.3% of the total compared with 7.4% in 2016. In 2017, the total value of imported goods was $1.84 trillion compared with $1.59 trillion in 2016. The value of mineral product imports accounted for 20.7% of the total compared with 17.3% in 2016; imports of base metals and the articles made of them accounted for about 5.18% of the total compared with 4.96% in 2016 (tables 3, 4; National Bureau of Statistics of China, 2018, sec. 11–2, 11–4).

Commodity Review

Metals

Aluminum.—As of yearend 2017, China's primary aluminum production capacity was about 45 million metric tons per year (Mt/yr), which was an increase of 3.9% compared with that of 2016 and represented the lowest increase in the past 10 years. Aluminum production capacity was, by Province, Shandong, which accounted for 27% of the country's total capacity; Xinjiang, 17%; Inner Mongolia, 11%; Henan and Qinghai, 7% each; Gansu, 6%; Guangxi, Guizhou, and Yunnan, 4% each; Ningxia, 3%; and some others, 10%. At yearend 2017, about 35.9 Mt/yr of primary aluminum production capacity was in operation, which was a decrease of 1.6% compared with that at yearend 2016. The consumption of primary aluminum in 2017 was estimated to be about 35.4 Mt, which was an increase of 7.9% compared with that of 2016. The leading consumption areas were construction, which accounted for 32.1% of total primary aluminum consumption; electricity and electronics, 15.2%; and transportation, 12.4% (Yao and Sheng, 2018, p. 8–10, 16, 19–20).

Copper.—Production of copper concentrate (Cu content) decreased by 10.3% to 1.66 Mt in 2017 compared with

that of 2016. Some small- and medium-sized mines were closed owing to environmental regulations. Imports of copper concentrate were 4.35 Mt (Cu content) in 2017 compared with 4.26 Mt in 2016 and 3.40 Mt in 2015. Consumption of copper concentrate was estimated to be 5.71 Mt in 2017 compared with 5.50 Mt in 2016. The expansion of smelter and refinery capacity outpaced the output increase of domestic copper concentrate in recent years; imports of copper concentrate, however, had increased dramatically and the market remained in oversupply condition in 2017 (table 1; He, 2018, p. 8–9).

Production of refined copper increased by 5.6% in 2017 to 8.92 Mt from 8.45 Mt (revised) in 2016. Imports of refined copper were 3.20 Mt in 2017 compared with 3.63 Mt in 2016. Exports of refined copper were 322,000 t in 2017 compared with 426,000 t in 2016. Consumption of refined copper was estimated to be 10.7 Mt in 2017 compared with 10.3 Mt in 2016. In 2017, the major consumption sectors for refined copper in China were electrical infrastructure (which accounted for 5.46 Mt of refined copper consumption), air conditioning (1.65 Mt), transportation (980,000 t), construction (870,000 t), electronics (740,000 t), and other consumption sectors (1.02 Mt). Copper consumption by the electricity infrastructure and air conditioning sectors increased by 4.5% and 6.8%, respectively, in 2017 compared with that of 2016. Total consumption increased by 4.2% in 2017 compared with an increase of 6.2% (revised) in 2016 (table 1; He, 2018, p. 12, 14–15).

Gold.—As of 2017, China had been the leading gold producer in the world for 11 consecutive years. In 2017, production of mined gold was 426 t, which was a 6.0% decrease compared with that of 2016. Of this amount, 369 t was produced at gold mines and 57 t was recovered as byproduct from mined nonferrous ores. The decrease in production was the first significant decrease in more than a decade and was mainly owing to the introduction of new environmental regulations and resource tax policies during the year that caused some gold mining enterprises to reduce production or shut down. About 91 t of refined gold was produced using imported raw material. The total production of refined gold was 517 t, which was a 3.4% decrease from that of 2016. In 2017, the consumption of gold was 1,089 t, which was an increase of 9.4% compared with that of 2016. The consumption sectors included gold jewelry, which accounted for 697 t of gold consumption; gold bars, 276 t; gold coins, 26 t; and industrial and other uses, 90 t (China Gold Association, 2018).

On March 28, Shandong Gold Group Co. Ltd. announced the results of its exploration activities at the Xiling gold deposit, which is located where the country's major gold deposits are clustered—the Laizhou-Zhaoyuan region in Shandong Province. The deposit is more than 2,000 meters (m) long and part of it has a thickness of 67 m. Shandong Gold reported that the deposit had 383 t of gold reserves and that the average gold grade was 4.52 grams per metric ton (g/t). About 550 t of gold resources was expected to be confirmed after exploration was completed in 2 years. The company expected that the deposit was sufficient for production of gold continuously for 40 years at a rate of 10,000 metric tons per day of ore. According to the company, the deposit would be the largest gold deposit ever discovered in China (China Daily Information Group, 2017).

Iron and Steel.—The crude iron ore produced in China generally has an iron content of 20% to 30% and needs to be processed to produce concentrate with an iron content comparable to iron ore on the global market. The iron content of the iron ore concentrates produced in China was 216 Mt in 2017 compared with about 228 Mt (revised) in 2016. Imports increased to 1.07 Gt (gross weight, with Fe content of about 62.5%) in 2017 from 1.02 Gt in 2016, marking the second year that China's iron ore imports exceeded 1 Gt. In 2017, raw steel production was 871 Mt compared with 808 Mt in 2016. Rolled steel production was 1.05 Gt compared with 1.13 Gt in 2016 (although these numbers may reflect double counting because the method for processing the steel may involve multiple steps and companies that report their output separately). Exports of manufactured steel decreased by 30.5% to 75.4 Mt in 2017 compared with those of 2016; imports of manufactured steel increased by 0.6% to 13.3 Mt. Net exports of raw steel equivalent were 64.4 Mt compared with 98.6 Mt in 2016. The export value of manufactured steel increased by 3.1% to $52.6 billion, in contrast with the large decrease in quantity, owing to an increase of 48.4% in the average unit value of exports (tables 1, 3, 4; Ministry of Industry and Information Technology, 2018).

According to the Ministry of Industry and Information Technology, more than 50 Mt/yr of outdated steel production capacity was eliminated in 2017, which was in line with the Government's goal of excess capacity control for the year (the Government set a goal each year). It was also announced that all the capacity of "Di-Tiao Steel" in the country, which was about 140 Mt/yr, was eliminated during the year. Di-Tiao Steel refers to the practice of remelting scrap steel to directly produce steel ingot by small-scale diecasting, a process known for its lack of effective control over the composition and quality of the steel (Ministry of Industry and Information Technology, 2018).

Lead.—Production of lead concentrate (Pb content) was 2.10 Mt in 2017 compared with 2.34 Mt (revised) in 2016. Imports of lead concentrate (Pb content) were estimated to be 650,000 t in 2017 compared with 705,000 t in 2016. Consumption of lead concentrate was estimated to be 3.02 Mt in 2017 compared with 3.16 Mt in 2016. Production of refined lead (primary and secondary) was 4.77 Mt in 2017 compared with 4.68 (revised) Mt in 2016. Primary lead production decreased by 9.8% to 2.72 Mt, and secondary lead production increased by 23.2% to 2.05 Mt. Net imports of refined lead were estimated to be 65,000 t in 2017 compared with net exports of 11,000 t in 2016. Consumption of refined lead was estimated to be 4.83 Mt in 2017 compared with 4.75 Mt in 2016 (Zuo and Yang, 2018, p. 9–15).

Rare Earths.—In 2016, the Ministry of Industry and Information Technology and other agencies completed the integration plan for the rare-earth industry, which involved integrating the management and operations of the rare-earth industry to improve international competitiveness. As a result, six large rare-earth companies were restructured or formed. In 2017, production quotas for the country were determined by the Ministry of Industry and Information Technology and production was to be spread among these six companies exclusively. The annual mining and smelting production

quotas for rare earths were, for Aluminum Corporation of China (Chinalco), 12,350 t and 17,380 t, respectively; China Minmetals Co. Ltd., 2,260 t and 5,508 t; China North Rare Earth (Group) High Technology Co. Ltd., 59,500 t and 50,084 t; China Southern Rare Earth Group Co. Ltd., 26,750 t and 14,112 t; Guangdong Province Rare Earth Industry Group Co. Ltd., 2,200 t and 10,104 t; and Xiamen Tungsten Co. Ltd., 1,490 t and 2,662 t. Any production in the country outside of these quotas would be deemed illegal, and the producers and downstream consumers of these illegal materials would be penalized (China Business Information Web, 2017).

In 2017, exports of rare-earth products totaled 51,200 t, which was an increase of 9.5% from that of 2016; the export value was $416 million, which was an increase of 21.8%. The average unit value was $8.13 per kilogram, which was an increase of 11.2% from that of 2016. Exports of rare-earth compounds were about 45,700 t, which was an increase of 9.7% from that of 2016; the export value was $336 million, an increase of 18.6%; and the average unit value was $7.36 per kilogram, an increase of 8.2%. Exports of rare-earth metals were 5,515 t, which was an increase of 8.4%; the export value was $79.8 million, an increase of 37.4%; and the average unit value was $14.48 per kilogram, an increase of 26.7%. The Government of China reduced its export quotas by 40% in 2010, which resulted in trade disputes with other countries. The quotas were canceled in 2015 after a World Trade Organization ruling against China in 2014. China's rare-earth exports had increased since 2013, and in 2017, exports reached the quantity seen prior to the reduction of export quotas in 2010 (Cnfeol.com Network, 2018).

Total imports of rare-earth products were about 34,400 t valued at $181 million. Of this total, imports of rare-earth compounds were 34,300 t, which was an increase of 109% from that of 2016; the value of imports was $174 million, which was an increase of 82.3%; and the average unit value was $5.08 per kilogram, a decrease of 12.8%. Imports of rare-earth compounds were from Burma (Myanmar) (58%), Malaysia (33%), the United States (5%), India (1%), and other countries and regions (3%). Imports of rare-earth metals were about 81 t. China's rare-earth imports had increased since 2014. The increases in imports were owing to the Government campaign in late 2016 to halt illegal mining of rare-earth minerals. The closure of mines resulted in processing companies relying more heavily on imports. A significant fraction of imports from Malaysia were lanthanum and cerium compound products. On the other hand, a large quantity of lanthanum and cerium elements in domestic ores were either not recovered to produce compound products or recovered but not accessible to the market. To maximize revenue and profits but also meet the production quotas set by the Government, companies tended to produce and sell more high-value products, such as dysprosium, neodymium, praseodymium, and terbium, and less low-value products, such as lanthanum and cerium; thus downstream processing facilities had to rely on imports of lanthanum and cerium compounds to meet supply shortages, even though domestic resources existed (Cnfeol.com Network, 2018).

Tin.—Production of tin concentrate (Sn content) was 95,500 t in 2017 compared with 97,200 t (revised) in 2016. The gross weight of tin concentrate imports was 292,500 t and the tin content of imported concentrate was 67,500 t in 2017, which were a decrease of 38% and an increase of 12%, respectively, from those in 2016. About 99% of China's tin concentrate imports was supplied by Burma. The considerable mismatch in percentage change for imports in terms of gross weight and tin content was owing to the increased average grade of ore imported from Burma in 2017. The local ore-processing capacity in Burma had increased, and a large quantity of low-grade ore mined and stockpiled in previous years was processed for export to China in 2017 (table 1; China Business Information Web, 2018b).

Production of refined tin was 178,400 t in 2017 compared with 182,500 t (revised) in 2016. In 2017, in terms of the estimated production amount, the leading refined-tin-producing Province was Yunnan, which produced 105,000 t of refined tin, followed by Hunan (31,300 t), Jiangxi (18,300 t), and Guangxi (15,200 t). Net imports of refined tin were about 1,000 t in 2017. Consumption of refined tin was estimated to be 161,000 t in 2017 compared with 160,000 t in 2016, of which about 102,000 t was used by the soldering industry; 36,900 t, by the lead-acid battery and chemical industry; 13,500 t, by the plating industry; and the rest, by other sectors such as the glass industry (table 1; Guo, 2018, p. 5–6, 9).

Zinc.—Production of zinc concentrate (Zn content) was 4.30 Mt in 2017 compared with 4.71 Mt (revised) in 2016. Most small mines were closed in 2015 owing to implementation of environmental, safety, and mineral integration policies, and they mostly remained closed through 2017. Production at some large existing mines and the commissioning of new capacity were also affected by these policies in 2017. Another reason for the decrease in mine output in 2017 was the overall decrease in ore grade of mine output caused by the high market price of zinc concentrates, which made mining low-grade deposits profitable. Net imports of zinc concentrates (Zn content) were estimated to be 1.25 Mt in 2017 compared with 997,000 t in 2016 (table 1; Xia and Cao, 2018, p. 8–10).

Production of primary refined zinc was 5.85 Mt in 2017 compared with 5.90 Mt (revised) in 2016. The decrease was largely owing to the shortage of raw materials and decline in ore grade. The profitability of smelter operations was low during the year, and some large smelters opted to conduct facility maintenance instead of full-capacity operations. Net imports of refined zinc were about 650,000 t in 2017 compared with 505,000 t in 2016. Consumption of refined zinc was estimated to be 6.61 Mt in 2017 compared with 6.57 Mt in 2016. The slight increase in consumption was mainly attributable to stable demand from downstream applications, such as the building construction, automobile, and infrastructure sectors (table 1; Xia and Cao, 2018, p. 10–16).

Industrial Minerals

Cement.—In 2017, cement production decreased by 3.3% to 2.33 Gt. The decrease was owing to the continued decline in the growth rate of fixed-asset investment in the country, which decreased by a 0.9 percentage point to 7.2% in 2017. The rate of growth in real estate investment was 7.0% in 2017 compared with 7.5% in 2016, and the rate of growth in infrastructure investment (excluding electricity) was 19.0% in 2017 compared with 17.4% in 2016. Partially owing to the increased market price and reduced production costs, the total revenue of the cement industry increased by 17.9% to $130 billion (estimated);

the cement industry's total profit was estimated to be $12.5 billion, which was a 94.4% increase from that of 2016. In 2017, cement exports were 8.76 Mt, which was a decrease of 7.6% from that of 2016; clinker exports were 4.10 Mt, which was a decrease of 57.4% from that of 2016. The significant decrease in clinker exports in 2017 was owing to the price increase in the domestic market and the low level of clinker inventory during the year, which made exporting less attractive to producers (China Cement Industry Association, 2018).

Lithium.—According to the Lithium Branch of the China Nonferrous Metals Industry Association, the consumption of lithium salts in China was about 125,000 t of lithium carbonate equivalent (LCE) in 2017, which was an increase of 34.9% from that of 2016; the production of lithium salts in China was 123,400 t of LCE, which was an increase of 43.5%. The country's capacity to produce lithium salts expanded by 47% to 250,000 metric tons per year (t/yr), including 178,000 t/yr of lithium carbonate, 54,000 t/yr of lithium hydroxide, and 18,000 t/yr of lithium chloride. The domestic supply of lithium raw materials for lithium salt production was 37,300 t of LCE; the rest of China's lithium salt production was from imported ore concentrates and brine. A considerable part of China's lithium salt production capacity was not fully utilized, mainly because of the relatively tight raw material supply during the year. The significant expansion of China's lithium salt industry was owing to the strong demand for batteries for electric vehicles (China Business Information Web, 2018a).

In 2017, China's imports of lithium salt were 35,000 t of LCE, which was an increase of 27.8% from that of 2016; China's exports of lithium salt in 2017 were 19,000 t of LCE, an increase of 74.8%. About 19,400 t of lithium hydroxide was exported in 2017, mostly to Japan and the Republic of Korea where the growth of the electric vehicle industry generated strong demand for lithium hydroxide. In some battery applications, lithium hydroxide showed superior performance over lithium carbonate, and it was expected that lithium hydroxide would gradually replace lithium carbonate in some applications in coming years. According to the Lithium Industry Branch of the China Nonferrous Metals Industry Association, global consumption of lithium hydroxide will maintain a compound growth rate of about 25% per year in the future and increase from 47,000 t in 2016 to 114,600 t in 2020 (China Business Information Web, 2018a).

Mineral Fuels

Coal.—In 2017, coal output increased by 3.5% compared with that of 2016, which was the first increase since 2014. China accounted for 46% of world coal production in 2017. China's coal production reached a peak of about 4 Gt in 2013 and had declined since then owing to the slowdown in the economy, weak domestic demand, and low prices for coal. In 2017, the total output of the four leading coal-producing Provinces—Inner Mongolia, Ningxia, Shaanxi, and Shanxi—totaled 2.38 Gt, accounting for about 69% of the country's production. As of yearend 2017, about 1,200 coal mines had production capacity higher than 1.2 Mt/yr; the total output of these mines accounted for 75% of the country's production. The number of coal mines with capacity higher than 10 Mt/yr was 36 and the total capacity of these mines was 620 Mt/yr. The 15 coal mines under construction, which would have a capacity higher than 10 Mt/yr each, would have a total combined capacity about 200 Mt/yr when complete. Coal imports in 2017 were 271 Mt, which was an increase of 6.1% compared with those of 2016; coal exports in 2017 were 8.17 Mt, which was a decrease of 7.1% compared with those of 2016. Coal consumption, after consecutive decreases for the past 3 years, increased by 0.4% in 2017. Investment in coal mining decreased by 12.3% to $37.7 billion in 2017 compared with that of 2016; the decrease was smaller than the decrease in 2016 by 11.9 percentage points (BP p.l.c., 2018, p. 38; China Coal Industry Association, 2018).

On November 28, the reorganization of the state-owned China Guodian Corp. and Shenhua Group Corp. Ltd. was completed, and a new company, National Energy Group, was established. The total assets of the National Energy Group were more than $256 billion, the net assets were more than $93.9 billion, and the total operating income was more than $61.2 billion. The new company had 83 coal mines with a total capacity of 429 Mt/yr in China and 167 gigawatts (GW) of thermal power installed capacity at powerplants in 31 Provinces and cities in China as well as in Australia, Indonesia, South Africa, and other countries. The company also had an installed wind-power capacity of 33 GW. The company was a producer of coal liquefaction fuels; its total existing and in-construction coal-to-oil production capacity was 5.26 Mt/yr and its coal-to-olefin production capacity was 2.88 Mt/yr. During the past 5 years, the state-owned Assets Supervision and Administration Commission of the State Council completed restructuring 34 central enterprises; the National Energy Group was the largest restructuring of the central enterprises as of 2017 (Xinhuanet.com, 2017b).

Petroleum and Natural Gas.—In 2017, output of crude petroleum decreased to 192 Mt (1.4 billion barrels), or by 4.1% compared with that of 2016. Consumption of crude petroleum increased by 5.2% to 596 Mt (4.37 billion barrels). On April 10, an agreement on China-Burma crude petroleum transmission pipeline was signed in Beijing, and the China-Burma crude petroleum pipeline was put into operation. Construction of the 771-kilometer-long crude petroleum pipeline begun in June 2010. The pipeline, which starts in Made Island in Burma and ends in China's Yunnan Province, has a design transmission capacity of 22 Mt/yr of crude petroleum (Xinhuanet.com, 2017a; Ministry of Natural Resources, 2018b, p. 15).

In 2017, the output of natural gas increased by 8.0% to 148 billion cubic meters compared with that of 2016. Imports of natural gas increased by 27.6% to 92 billion cubic meters. Consumption of natural gas increased by 15.3% to 237 billion cubic meters. On November 15, the Ministry of Natural Resources announced the discovery of a new kind of mineral resource in China—natural gas hydrate, which was first identified in China's offshore Shenhu area of the South China Sea in June 2007 and on land at Qilian Mountain in Qinghai Province in November 2008. On July 9, China completed its first test exploration of natural gas hydrates in the Shenhu area. The trial mining lasted 60 days and produced 300,000 cubic meters of gas in total. The success of the test drilling and production was considered by the Government as a solid

foundation for commercial use of the resource before 2030. According to the Ministry of Natural Resources, the preliminary estimate of China's offshore natural gas hydrate resources was about 80 Gt of oil equivalent (Xin, 2017; Ministry of Natural Resources, 2018b, p. 1, 7; National Development and Reform Commission, 2018).

Exploration and Reserves and Resources

In 2017, China's investment in geologic exploration for petroleum and natural gas was $8.31 billion, which was an increase of 10.8% from that of 2016, and geologic exploration for nonfuel minerals and coal was $2.82 billion, which was a decrease of 19.8%. Among nonfuel mineral commodities and coal, the leading commodities, in terms of exploration investment in 2017, were gold (which had exploration investment of $309 million), coal and copper ($231 million each), lead-zinc ($193 million), uranium ($101 million), iron ore ($64 million), bauxite ($39 million), silver ($35 million), and graphite ($30 million). The investment in uranium exploration increased by 4% in 2017, whereas exploration investment for all other non-oil and gas mineral commodities decreased. The number of newly discovered mineral deposits in 2017 was 109, of which the leading minerals were gold (17 deposits), graphite (11 deposits), coal (8 deposits), lead and zinc (5 deposits), and iron ore, phosphate rock, and silver (4 deposits each). Newly discovered major mineral resources in 2017 included 18.6 Gt of coal, 670 Mt of bauxite, 600 Mt of iron ore, 57.3 Mt of graphite, 45.0 Mt of phosphate rock, 9.8 Mt of manganese ore, 2.9 Mt of lead and zinc, 1.04 Mt of copper, 280,000 t of nickel, 1,741 t of silver, and 112 t of gold (Ministry of Natural Resources, 2018a, p. 3, 8–9; 2018b, p. 8–11).

Major discoveries by exploration projects included that in the southern section of the Dazhuyuan bauxite deposit in Wuchuan County, Guizhou, which added about 26 Mt of bauxite resources; the Sandaoling southern exploration area in Hami City, Xinjiang, which added 10.1 Gt of coal resources; the Railway Ridge copper mine in Chaishang District, Jiujiang City, Jiangxi, which added about 610,000 t of copper resources; the Xibeileng exploration area in Linkou County, Heilongjian, which added about 17.6 Mt of graphite resources; the Hedong exploration area in Mangya Town, Golmud City, Qinghai, which added 60 Mt of iron ore resources; the Jiajika Haizi northern exploration area in Kangding County, Sichuan, which added 58,000 t of lithium (spodumene, Li_2O content) resources; the Ma Si manganese mine in Xincheng County, Guangxi, which added 4.8 Mt of manganese ore resources; and the Dongping tungsten mine in Wuning County, Jiangxi, which added 210,000 t of tungsten (WO_3 content) resources. Table 5 shows a list of the most recent reserve data for selected minerals (Ministry of Natural Resources, 2018a, p. 9–13).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

Minerals in the National Economy

China's real GDP rate of growth was 6.6% in 2018, and the nominal GDP was about $13.5 trillion. In 2018, the number of people employed in the mining and manufacturing sectors was 4.14 million and 41.78 million, respectively, which accounted for 2.4% and 24.2%, respectively, of the country's total nonagricultural employment. In 2018, the total investment in fixed assets (excluding that by rural households; see reference at the end of the paragraph for a detailed definition) was $9.75 trillion; the fixed-asset investments in the manufacturing sector and the mining sector increased by 9.5% and 4.1%, respectively, in 2018 compared with those of 2017 (National Bureau of Statistics of China, 2019, sec. 3–1, 3–3, 3–6, 4–5, 10–4, 10–12).

In 2018, the FDI in China was $135 billion, of which 0.91%, or $1.23 billion, was directed to the mining sector, and 30.5%, or $41.17 billion, was directed to the manufacturing sector. In 2018, the ODI was $143 billion, of which about 3.2%, or $4.63 billion, was directed to the mining sector, and 13.4%, or $19.11 billion, was directed to the manufacturing sector. As of yearend 2018, the stock of China's ODI amounted to $1.98 trillion, and mining and manufacturing accounted for 8.8% and 9.2% of the stock, respectively. In 2018, China's three leading overseas acquisitions in the mining sector were, in terms of transaction value, (1) Tianqi Lithium Corp.'s $4 billion acquisition of a 23.77% share in Chilean miner Sociedad Quimica y Minera de Chile SA, the world's leading producer of lithium, from Canadian fertilizer company Nutrien Ltd.; (2) Zijin Mining Co., Ltd.'s $1.4 billion acquisition of 100% interest of Canadian miner Nevsun Resources Ltd., which operated the Bisha copper and zinc mine in Eritrea and was developing the Timok copper and gold project in Serbia; and (3) Pengxin International Mining Co. Ltd.'s $1.1 billion acquisition of 100% interest of Singapore's Agincourt Resources Pte. Ltd., which owned a 95% interest in Indonesia's Martabe gold-silver mine (Ke, 2018; Kirton, 2018; Sanderson, 2018; National Bureau of Statistics of China, 2019, sec. 11–16, 11–20).

In 2018, the total value of exported goods was $2.49 trillion. The value of mineral product exports accounted for 2.1% of total exports, and base metals and the articles made of them accounted for 7.5%. In 2018, the total value of imported goods was $2.14 trillion. The value of mineral product imports accounted for 23.1% of the total imports, and base metals and the articles made of them accounted for about 5.0%. Details of selected mineral commodity trade quantity and value are listed in tables 3 and 4 (tables 3, 4; National Bureau of Statistics of China, 2019, sec. 11–4).

In March 2018, the Ministry of Natural Resources was established, replacing the Ministry of Land and Resources. Established in 1998, the Ministry of Land and Resources was responsible for supervision of land use and management of the local governments, including natural-resource-related land use and planning. The newly established Ministry of Natural Resources has a more-focused role in managing the geologic exploration industry, the national geologic work, and mineral resource development and production, and supervising the local governments in their implementation of major policies and regulations regarding natural resources and land-space planning issued by the central Government (Ministry of Natural Resources, 2019, p. 32–33).

On March 29, the Ministry of Finance issued the Notice on Resources Tax Reduction of Shale Gas [CS (2018) No. 26], which reduced the resources tax on shale gas by 30% from

April 1, 2018, through March 31, 2021. On March 30, the State Taxation Administration released the Regulations on Collection and Management of Resources Tax. The regulations, which became effective on July 1, 2018, were aimed at standardizing the collection and management of the resources tax, simplifying tax reporting requirements, and preventing tax-related risks. In 2018, the national resources tax revenue totaled $24.6 billion, which was an increase of 20.4% from that of 2017 and accounted for 1.04% of the national tax revenue (Ministry of Natural Resources, 2019, p. 33).

Production

Major production increases for metals included silicomanganese, which recorded an increase of 43% in 2018 compared with that of 2017; zinc (smelter, secondary), 38%; beryllium (beryl, Be content), 33%; gallium, 27%; cobalt (concentrate from domestic and imported ores, Co content), ferromanganese (blast furnace), and ferrosilicon, 23% (estimated) each; germanium (Ge content) and tantalum (mineral concentrate, Ta content), 20% each; bauxite, 16% (estimated); ferronickel (nickel pig iron, Ni content), 15%; rare earths (mineral concentrate, rare-earth-oxide equivalent), 14% (estimated); titanium (ilmenite and leucoxene, concentrate, TiO_2 content), 14%; nickel (chemicals, Ni content) and selenium (Se content, estimated), 13% each; aluminum (metal, primary), 11%; cobalt (refinery, Co content), 11% (estimated); and copper (mine output, solvent extraction, Cu content), 10%. Major production decreases for metals included manganese (mine output, Mn content), which had a 30% production decrease in 2018; cobalt (concentrate from domestic ore, Co content), 20% (estimated); and aluminum (metal products), 11% (table 1).

Major production increases for industrial minerals included lithium chloride, which recorded an increase of 38% in 2018 compared with that of 2017; gypsum (mine output), 32% (estimated); lithium carbonate, 31%; lithium (mine output, from brine, LCE), 30% (estimated); lithium metal, 28%; diamond (synthetic, industrial), 27%; feldspar, 24% (estimated); lithium hydroxide, 20%; graphite (crystalline flake), 19% (estimated); and graphite (total), 11% (estimated). Major production decreases for industrial minerals included diamond (gem, unspecified), which had a 57% (estimated) production decrease in 2018; lithium (mine output, from ore and concentrate, LCE), 45% (estimated); phosphate rock (P_2O_5 content), 22%; bromine, 21% (estimated); and salt, 12% (table 1).

China's mineral fuel production recorded moderate increases in 2018. Coal (all types) production increased by 4.2% and crude petroleum production decreased by 0.7% in 2018. Output of natural gas increased by 8.1% in 2018. Liquefied natural gas production continued to increase (by 8.6%) in 2018; production had more than doubled since 2014. The production of most refined petroleum products remained relatively stable except for kerosene, which increased by 13% and fuel oil, which decreased by 25% (table 1).

Production of most commodities listed in table 1 increased in 2018. Increases in mine production were generally moderate or insignificant, reflecting the effect of environmental pressure and the depletion of high-quality resources, and the increases in mineral processing production, which relied heavily on imported raw materials, continued to be strong in 2018. For example, refined cobalt and refined lithium production continued to increase at robust rates in 2018 owing to strong demand from the electric vehicle industry (table 1).

Commodity Review

Metals

Nonferrous Metals.—In 2018, fixed-asset investment in the nonferrous metals industry increased by 1.2% compared with that of 2017. Investment in mining of nonferrous metals decreased by 8%, but investment in smelting, refining, and processing increased by 3.2%. The total revenue from nonferrous enterprises was $820.1 billion, which was an increase of 8.8% from that of 2017; the profit was $28 billion, which was a decrease of 6.1%. Profits of the mining sector were $6.3 billion (the same as in 2017) and the profits of the smelting and processing sectors were $10.3 billion and $11.4 billion, respectively, representing decreases of 10.2% and 5.6%, respectively, from those of 2017. The decrease in profits in the nonferrous metals industry was largely owing to the significant profit decrease of 40.1% in the aluminum industry. In 2018, exports of unwrought aluminum and aluminum products were 5.8 Mt, which was an increase of 20.9% from that of 2017. Imports of scrap copper decreased by 32.2% owing to the implementation of the import ban on foreign waste materials, and imports of refined copper increased by 15.5%. As a result of capacity control and reorganization, more than 3.3 Mt/yr of electrolytic aluminum production capacity was transferred to energy-rich regions, such as Inner Mongolia and Yunnan, through capacity replacement. According to the Ministry of Industry and Information Technology, the nonferrous metals industry was facing challenging operating conditions during the year, such as rising costs and sluggish consumption, excessive capacity in some low-end and mid-range processing areas and a lack of capacity for high-end materials, and an increasingly complicated international trade situation (Ministry of Industry and Information Technology, 2019a).

Iron and Steel.—In 2018, imports of iron ore were 1.06 Gt, which was a decrease of 1% from that of 2017, and they had a total value of $75.5 billion, which was a decrease of 1.0% from that of 2017. In 2018, exports of manufactured steel decreased by 8.1% to 69.3 Mt and imports of manufactured steel decreased by 1.0% to 13.2 Mt. Net exports of raw steel equivalent were 53.9 Mt. This was the third consecutive year with sharp decreases in steel exports; the trend of decreases was owing to the intensification of international trade frictions that made exports increasingly difficult and the comparative advantage for domestic steel consumers of domestic steel prices over international market prices. In 2018, the apparent consumption of manufactured steel was 1.05 Gt, which was an increase of 6.0% compared with that of 2017; apparent consumption of raw steel was 850 Mt, which was an increase of 10.4% compared with that of 2017 (table 4; Ministry of Industry and Information Technology, 2019b).

Industrial Minerals

Cement.—Although the growth rate of fixed-asset investment in the country decreased by 1.3 percentage points to 6.9% in 2018, the rate of growth in real estate investment was 9.5% in 2018 compared with 7.0% in 2017, which partially offset the sluggish growth in infrastructure investment and provided moderate support to cement demand. Cement production decreased by 5.3% in 2018. Cement market prices remained strong in 2018, resulting in a record-high total profit ($23.3 billion) for the cement industry in the country. In 2018, China changed from a long-time cement exporter to a net importer; the country's cement and clinker imports were 13.63 Mt (12.66 Mt of clinker and 960,000 t of cement), exceeding the cement and clinker exports of 9.04 Mt. Sources of clinker imports were mainly Vietnam (accounting for 80% of total imports), Thailand (9%), and the Republic of Korea (7%). The import of clinker from Vietnam and other Southeast Asia countries (including Indonesia) with excess cement production capacity was expected to continue to have an effect on the coastal cement market in China (China Cement Industry Association, 2019).

Mineral Fuels

In 2018, China remained the world's leading energy producer and consumer, with total primary energy production of 3.77 Gt of SCE (an increase of 5.0% compared with that of 2017) and total consumption of 4.64 Gt of SCE (an increase of 3.3% compared with that of 2017). The energy self-sufficiency rate was 81.3%, which was slightly higher than in 2017. In 2018, coal accounted for 59.0% of total energy consumption; petroleum, 18.9%; natural gas, 7.8%; and other energy sources, such as hydropower, nuclear power, solar power, and wind power, 14.3% combined. Coal consumption was 3.89 Gt (an increase of 1.0% compared with that of 2017); apparent consumption of petroleum was 620 Mt (an increase of 6.5%); and apparent consumption of natural gas was 285 billion cubic meters (an increase of 17.7%). Of the 3.89 Gt of coal consumed, 2.1 Gt was used for electricity generation; 620 Mt, by the steel industry; 500 Mt, for construction material production; 280 Mt, by the chemical industry; and 50 Mt, for other uses (China Coal Industry Association, 2019, p. 7–8; Ministry of Natural Resources, 2019, p. 17, 20).

Outlook

China's economy is expected to continue to grow at moderate rates in coming years, which may provide a certain level of demand support to the domestic and international mineral industry. Challenging conditions, such as production overcapacity and operation inefficiencies may remain for most bulk minerals, including coal, cement, steel, and major nonferrous metals. Whether the mineral industry outlook can improve in the next few years depends on the effectiveness of the Government's efforts to reorganize state-owned mineral companies, upgrade existing mining technology and infrastructure, and eliminate excess capacity, as well as continued recovery in the prices of mineral commodities. Significant increases in output are not expected for the mineral sector considering the continued decrease in mining and exploration investment in recent years. Overseas investments in the mineral sector are likely to increase in the next several years as China continues to explore the global market through its "One Belt One Road" initiative and Asian Infrastructure Investment Bank programs, with the purpose of ensuring long-term supply security through acquisition of overseas mining assets that are critical to its future economic development.

Demand for most nonferrous metals, such as aluminum and copper, will continue to increase at a modest rate; some minor metals used for alternative energy, advanced manufacturing, and other high-tech applications, such as cobalt and lithium for the electric vehicle industry, however, may continue to see double-digit annual growth rates in consumption during the next few years. Output for most nonferrous metals likely will match the growth rates of consumption. Production of high-performance aluminum products may increase significantly owing to demand from the rail transportation and automobile industries. The production of high-end materials in the metal industry remains low in China, and high-end, specialty metal products will continue to be supplied by imports in the near term. As the country continues to shift toward the use of clean energy, the share of coal in total energy consumption is projected gradually to decrease and the share of natural gas to increase. Output of coal and petroleum may remain at levels similar to those of 2018, and output of natural gas is expected to increase gradually. Demand for cement may decrease slightly in the next a few years owing to expected decreases in fixed-asset investment. Demand for other industrial minerals may remain steady or decrease slightly, except for graphite, which is expected to increase because it has a variety of applications in emerging technologies.

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TABLE 1

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS						
Aluminum:						
Bauxite	thousand metric tons	59,200	60,790 r	68,620 r	68,390	79,000 e
Alumina	do.	53,796 r	58,978	61,034 r	69,017	72,531
Metal:						
Primary	do.	28,300	31,400	32,698 r	32,273	35,802
Secondary	do.	5,650	5,780	6,300 r	6,900	6,950
Total	do.	34,000 r	37,200 r	39,000 r	39,200	42,800
Metal products	do.	48,458	52,361	57,961	58,324	51,756
Antimony:						
Mine, Sb content		140,400	120,700	107,500 r	97,700	89,600
Refinery, metal		257,100	209,900	210,300 r	203,400	206,000
Beryllium, mine, beryl:						
Gross weight		1,300	1,275	1,150	1,300	1,725
Be content		52	51	46	52	69
Bismuth:						
Mine, Bi content		1,490 r	1,587 r	1,672 r	1,748	1,600 e
Refinery		15,871 r	16,013	15,643 r	14,813	14,000 e
Cadmium, refinery, primary		8,201	8,162	8,222 r	8,411	8,200 e
Chromium, mine, chromite	thousand metric tons	24	23 e	88 r	71	70 e
Cobalt, Co content:						
Mine, concentrate, byproduct from polymetallic ore:						
From domestic ore[e]		2,800	2,600 r	2,300 r	2,500	2,000
From imported ore[e]		6,820	7,500	6,990	7,700	10,500
Total		9,620	10,100	9,290 r	10,200	12,500 e
Refinery:						
Metal		4,780	5,159	8,578 r	8,357	8,000 e
Other, including powder, oxide, salts[e]		39,000	48,300	41,300	66,600	75,100
Total[e]		43,800 r	53,500 r	49,900 r	75,000	83,100
Copper:						
Mine, Cu content:						
Concentrates		1,740,000	1,670,000	1,850,700	1,660,000	1,536,000
Solvent extraction		35,500 r	44,900 r	49,500 r	50,000	55,000
Total		1,780,000	1,710,000	1,900,000	1,710,000	1,590,000
Smelter:						
Primary		5,170,000	5,500,000	5,800,000 r	6,050,000	6,400,000
Secondary		1,350,000	1,380,000 r	1,410,000 r	1,510,000	1,600,000
Total		6,520,000	6,880,000 r	7,210,000 r	7,560,000	8,000,000
Refinery:						
Primary:						
Leaching, electrowon		35,500 r	44,900 r	49,500 r	50,000	55,000
Other		5,358,800 r	5,627,000 r	6,195,700 r	6,564,300	7,001,700
Total		5,390,000 r	5,670,000 r	6,250,000 r	6,610,000	7,060,000
Secondary		2,254,800 r	2,297,000 r	2,209,000 r	2,300,800	2,234,600
Grand total		7,650,000	7,970,000 r	8,450,000 r	8,920,000	9,290,000
Products, manufactured copper		17,837,000	19,135,000	20,960,000	18,617,000	17,155,000
Ferroalloys:						
Ferrochromium		4,120,000 r	3,940,000 r	4,230,000 r	4,940,000	5,250,000 e
Ferromanganese:[e]						
Blast furnace		457,000	446,000	340,000	220,000	270,000
Electric furnace		2,170,000	2,120,000	1,610,000	1,560,000	1,660,000
Ferromolybdenum		120,000 e	116,000	127,000	138,000	144,000
Ferronickel, nickel pig iron		11,200,000 r	8,800,000 r	10,000,000 r	10,500,000	12,100,000 e

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS—Continued						
Ferroalloys:—Continued						
Ferrosilicon		5,500,000	4,730,000	4,300,000	3,650,000	4,500,000
Ferrovanadium		44,400 r	40,900 r	34,200 r	38,400	40,500
Silicomanganese		7,319,000	5,870,000	7,267,000	6,610,000	9,450,000
Gallium		450	444 r	171 r	319	404
Germanium, Ge content		98	100	82 r	79	95
Gold:						
Mine, Au content	kilograms	451,000	450,000	453,500	426,142	401,119
Refinery, primary	do.	512,775	515,880	535,447	517,490	513,902
Indium, refinery, primary, In content	do.	460,000	421,000	454,000 r	478,000	487,000 e
Iron ore, mine:						
Crude ore	thousand metric tons	1,510,000	1,380,000	1,280,000	1,230,000	1,190,000 e
Usable ore:						
Gross weight	do.	439,000 r	397,000 r	366,000 r	345,000	335,000
Fe content	do.	274,000 r	248,000 r	228,000 r	216,000	209,000
Iron and steel:						
Pig iron	do.	713,740	691,410	702,270	713,620	771,050
Steel:						
Raw steel	do.	822,300	803,820	807,610	870,740	928,300
Products, rolled	do.	1,125,130	1,123,500	1,134,610	1,048,180	1,105,520
Lead:						
Mine, Pb content	do.	2,609	2,335	2,338 r	2,102	2,104
Smelter, primary	do.	3,055	2,811	2,875 r	2,663	2,710 e
Refinery:						
Primary	do.	3,210	2,870	3,017	2,720	2,770
Secondary	do.	1,530	1,552	1,663 r	2,049	2,140
Total	do.	4,740	4,420 r	4,680 r	4,770	4,910
Magnesium, primary, metal and alloy		874,000	859,000	872,800 r	904,600	863,000
Manganese:						
Mine, ore:						
Gross weight	thousand metric tons	19,590 r	13,011 r	15,484 r	11,333	7,977
Mn content	do.	3,134 r	2,082 r	2,323 r	1,700	1,196
Refinery, metal, electrolytic	do.	1,280	1,040	1,240	1,510	1,390
Mercury, mine, Hg content		2,259	2,801	3,482 r	3,573	3,600 e
Molybdenum, mine, Mo content		129,000	135,000	129,000	117,000	120,000 e
Nickel, Ni content:						
Mine		101,100	101,400	100,200 r	102,300	110,000 e
Intermediate, matte		160,000	162,500	163,600 r	149,400	146,000 e
Chemicals		20,000 r	18,891 r	29,100 r	39,900	45,200
Ferronickel, nickel pig iron		471,500 r	385,035 r	374,745 r	411,462	476,040
Refinery, metal, electrolytic		247,000	236,700	221,700 r	202,900	195,000 e
Niobium, mine, mineral concentrate, Nb content		20 e	30 e	37 r	45	45
Platinum-group metals, mine						
Palladium, Pd content	kilograms	830 r, e	1,200	1,400 r	1,400	1,300
Platinum, Pt content	do.	1,600	2,300	2,900 r	2,500	2,500
Rare earths, mineral concentrate, rare-earth oxide equivalent[e]		105,000	105,000	105,000	105,000	120,000
Rhenium, Re content, in NH_4ReO_5[e]	kilograms	2,350	2,500	2,500	2,500	2,500
Selenium, Se content		625 r, e	720 r	750 r	930	1,050 e
Silicon, metal	thousand metric tons	1,705	1,954	2,101 r	2,205	2,400 e
Silver, mine, Ag content		3,568	3,393	3,496	3,502	3,574
Tantalum, mine, mineral concentrate, Ta content		61 e	63 r, e	65 r	75	90
Tellurium, refinery		320	285	279 r	291	307 e

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS—Continued						
Tin:						
Mine, Sn content		102,100	110,156	97,200 r	95,500	90,000 e
Smelter, primary		187,000	167,200 r	182,500 r	178,400	175,000 e
Titanium:						
Ilmenite and leucoxene, concentrate:						
Gross weight		4,240,000 r	3,910,000 r	3,800,000 r	3,830,000	4,200,000
TiO_2 content		1,902,000 r	1,895,000 r	1,959,000 r	1,905,000	2,170,000
Sponge		68,167	58,762	66,263 r	69,641	75,000
Tungsten, mine, concentrate, W content		65,000 r	67,000 r	64,000 r	67,000	65,000
Vanadium, V content		58,800 r	48,700 r	48,700 r	54,100	53,200
Zinc:						
Mine, Zn content	thousand metric tons	5,118	4,749	4,711 r	4,300	4,170 e
Smelter:						
Primary	do.	5,610	5,910	5,900 r	5,850	5,680
Secondary, remelt	do.	170	206	296 r	424	585
Total	do.	5,780	6,120 r	6,200 r	6,270	6,270
Zirconium, mine, zircon[e]		150,000	150,000	140,000	140,000	140,000
INDUSTRIAL MINERALS						
Arsenic trioxide[e]		25,000	25,000	25,000	24,000	24,000
Asbestos		258,632 r	227,073 r	191,632 r	124,723	125,000 e
Barite[e]		3,700,000 r	3,500,000 r	3,200,000 r	3,100,000	2,900,000
Boron, B_2O_3 content[e]		97,000	90,000	80,000	70,000	75,000
Bromine		75,500	86,400	77,000 r	76,000	60,000 e
Celestite		50,600	53,200	65,300 r	53,700	50,000 e
Cement, hydraulic	thousand metric tons	2,492,000	2,359,000	2,410,000	2,331,000	2,208,000
Clay:						
Bentonite	do.	2,382 r	1,755 r	1,558 r	2,014	2,000 e
Kaolin	do.	6,461 r	6,414 r	5,643 r	5,215	5,000 e
Diamond:						
Gem, unspecified	thousand carats	150 r, e	150 r, e	127 r, e	230 e	99
Synthetic, industrial	do.	17,000,000	15,100,000	13,900,000	14,300,000	18,200,000
Diatomite		379,000	350,000 r	169,300 r	147,000	150,000 e
Dolomite	thousand metric tons	9,520	10,600	11,650 r	12,670	13,000 e
Feldspar	do.	3,664 r	2,060 r	2,684 r	1,618	2,000 e
Fluorspar	do.	4,310	3,820 r	3,470 r	4,380	4,400 e
Garnet, industrial		109,300	68,500	88,900	260,100	250,000 e
Graphite:[e]						
Amorphous, aphanitic		250,000	275,000 r	300,000 r	275,000	277,000
Crystalline flake		425,000 r	450,000 r	325,000 r	350,000	416,000
Total		675,000 r	725,000 r	625,000 r	625,000	693,000
Gypsum:						
Mine	thousand metric tons	19,970	16,300	12,190 r	11,740	15,500 e
Synthetic, industrial byproduct	do.	192,000	200,000	200,000 e	190,000 e	190,000 e
Lime[e]	do.	230,000	250,000	290,000	290,000	300,000
Lithium:						
Mine, lithium carbonate equivalent:						
Ore and concentrate[e]		10,100	10,700	11,400	14,300	7,800
Brine[e]		8,700	9,800	14,000	23,000	30,000
Total		18,800	20,500	25,400	37,300	37,800

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
INDUSTRIAL MINERALS—Continued						
Lithium:—Continued						
Refinery:						
Compounds:						
Lithium carbonate		41,600	42,000	53,400	83,000	109,000
Lithium chloride		9,580	13,000	13,000	13,000	18,000
Lithium, hydroxide		21,000	22,000	25,000	35,000	42,000
Metal		2,650	2,680	2,800	2,500	3,200
Magnesite[e]	thousand metric tons	16,000	18,400	18,600	19,000	18,500
Mica[e]		95,000 [r]	85,000 [r]	95,000 [r]	100,000	100,000
Nitrogen, ammonia, N content	thousand metric tons	46,850 [r]	47,603 [r]	46,922 [r]	40,656	37,907
Perlite		2,037,000	723,800	1,930,000 [r]	1,219,000	1,300,000 [e]
Phosphate rock:						
Ore	thousand metric tons	120,000	142,000	144,400	123,100	96,310
P_2O_5 content	do.	36,000	42,600	43,300	36,900	28,900
Potash, K_2O content, marketable	do.	6,110	5,710	5,780	5,510	5,450
Salt	do.	70,497	66,655	66,201	66,542	58,362
Soda ash, natural and synthetic	do.	25,260	25,920	25,850	27,670	26,200
Sodium, compounds:						
Caustic soda	do.	30,640	30,210	32,020	33,290	34,200
Mirabilite	do.	5,750	4,510	4,070 [r]	5,990	6,000 [e]
Sulfur, S content:						
Byproduct:						
Metallurgy[e]	do.	7,500 [r]	7,400 [r]	6,300 [r]	5,650	5,700
Natural gas and petroleum	do.	5,800 [r]	5,530	5,500 [r]	5,940	5,900 [e]
Pyrites	do.	5,150 [r]	4,360 [r]	5,200 [r]	5,850	5,900 [e]
Total[e]	do.	18,500 [r]	17,300 [r]	17,000 [r]	17,400	17,500
Sulfur, compounds, sulfuric acid	do.	88,463	89,755	88,891	86,942	86,364
Talc	do.	1,870	1,846	1,642 [r]	1,276	1,400 [e]
Wollastonite[e]	do.	920 [r]	1,100 [r]	880 [r]	840	890
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite[e]	thousand metric tons	422,000	401,000	364,000	377,000	394,000
Bituminous[e]	do.	2,550,000	2,480,000	2,250,000	2,330,000	2,430,000
Lignite[e]	do.	272,000	252,000	229,000	237,000	248,000
Metallurgical[e]	do.	640,000	620,000	564,000	583,000	611,000
Total	do.	3,880,000 [r]	3,750,000 [r]	3,410,000 [r]	3,530,000	3,680,000
Coke, metallurgical	do.	479,809	448,225	449,115	431,426	438,200
Liquefied natural gas	do.	4,376	5,127	6,953	8,290	9,002
Natural gas:						
All forms	million cubic meters	130,000	135,000	137,000	148,000	160,000
Coalbed gas, only	do.	5,690	6,340	7,480	7,020	7,260

See footnotes at end of table.

TABLE 1—Continued

CHINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum:						
Crude, including from oil shale	million 42-gallon barrels	1,550 r	1,570 r	1,460 r	1,400	1,390
Refinery:						
Throughput	do.	3,786	3,931	4,074	4,275	4,545
Products:						
Asphalt	do.	177 r	195 r	198 r	241	244
Diesel	do.	1,320 r	1,340 r	1,340 r	1,370	1,300
Fuel oil	do.	176	160	179	186	140
Gasoline	do.	941	1,030 r	1,100 r	1,130	1,190
Kerosene	do.	232	283	308	327	369
Liquefied petroleum gas	do.	314	340	406	427	441
Naptha	do.	239	233	270	280	294
Petroleum coke	do.	134 r	138 r	143 r	150	145
Uranium, mine, U content[e]		1,500	1,620	1,620	1,890	1,890

[e]Estimated. [r]Revised. do. Ditto.

[1]Table includes data available through January 22, 2020. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, iodine and a variety of construction stone and sand and gravel may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Aluminum:				
Bauxite		Aluminum Corporation of China (Chinalco)	Mines in multiple provinces	26,300
Do.		Yunnan Aluminium Co. Ltd.	Yunnan, Kunming	2,500
Alumina		Guangxi Huayin Aluminium Industry Co. Ltd.	Guangxi, Debao	2,200
Do.		Luoyang Xiangjiang Wanji Aluminium Industry Co. Ltd.	Henan, Luoyang	1,800
Do.		Hangzhou Jinjian Group Co. Ltd.	Jiangsu, Hangzhou	6,000
Do.		Aluminum Corporation of China (Chinalco)	Plants in multiple provinces	17,500
Do.		China Power Investment Corp.	do.	3,800
Do.		East Hope Group Co. Ltd.	do.	3,500
Do.		Xinfa Aluminium Group Co. Ltd.	do.	12,500
Do.		Nanshan Group Co. Ltd.	Shandong,Yantai	2,000
Do.		Weiqiao Aluminum and Electricity Co. Ltd.	Shandong, Zouping	12,000
Do.		Yangquan Coal Industry Group Co. Ltd.	Shanxi, Yangquan	1,000
Metal		Dongxing Aluminum Co. Ltd.	Gansu Province	1,700
Do.		Shenhuo Group Co. Ltd.	Henan, Yongcheng	925
Do.		Yidian Holding Group Co. Ltd.	Plants in Henan Province	2,010
Do.		Aluminum Corporation of China (Chinalco)	Plants in multiple provinces	3,800
Do.		China Power Investment Corp.	do.	3,230
Do.		East Hope Group Co. Ltd.	do.	1,660
Do.		Xinfa Aluminium Group Co. Ltd.	do.	3,480
Do.		Weiqiao Aluminum and Electricity Co. Ltd.	Shandong, Zouping	6,460
Do.		Tianshan Aluminum Co. Ltd.	Xinjiang, Shihezi	1,000
Do.		Yunnan Aluminium Co. Ltd.	Yunnan, Kunming	1,600
Antimony		Huaxi (China Tin) Group Industrial Co.	Guangxi, Hechi	25
Do.		Jiyuan Wangyang smelter (Jiyuan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	10
Do.		Hsikuangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Group)	Hunan, Lengshuijiang	40
Do.		Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Yuanling	20
Asbestos		China National Nonmetallic Industry Corp.	Nei Mongol, Baotou; Shanxi, Lai Yuan, and Lu Liang	130
Barite		9X Minerals LLC	Guizhou, Dejiang	60
Do.		Guizhou Saboman Import & Export Co. Ltd.	Guizhou, Guiding	1,000
Do.		China National Nonmetallic Industry Corp.	Guizhou, Xiangshou	NA
Beryllium:				
Metal	metric tons	Minmetals Beryllium Industry Co. Ltd.	Hunan, Changsha	5
Do.	do.	Fuyun Hengsheng Beryllium Industry Co. Ltd.	Xinjiang, Fuyuun County	2
Oxide	do.	Minmetals Beryllium Industry Co. Ltd.	Hunan, Changsha	150
Do.	do.	Emeishan Zhongshan New Material Technology Co. Ltd.	Sichuan, Emeishan	150
Do.	do.	Fuyun Hengsheng Beryllium Industry Co. Ltd.	Xinjiang, Fuyuun County	100
Bismuth, metal	do.	Guangzhou Smelter Co. Ltd. (China Great Wall Aluminium Industry Co. Ltd.)	Guangdong, Guangzhou	300
Do.	do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	do.	Hunan Bismuth Industry Co. Ltd.	Hunan, Chouzhou	3,500
Do.	do.	Shizhuyuan Nonferrous Metals Co. Ltd.	Hunan, Shizhuyuan	1,200
Do.	do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	350
Do.	do.	Yunnan Copper Group Co. Ltd.	Nei Mongol, Chifeng	300
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300
Cadmium, refinery, primary	do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	1,000
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	800

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Cement, clinker		Anhui Conch Cement Co. Ltd.	Auhui, Wuhu	207,000
Do.		China Building Materials Group Co. Ltd.	Beijing	402,000
Do.		Tangshan Jidong Cement Co. Ltd.	Hebei, Tangshan	104,000
Do.		Tian Rui Group Cement Co. Ltd.	Henan, Ruzhou	32,100
Do.		Asia Cement (China) Holding Corp.	Jiangxi, Ruichang	20,600
Do.		China Resources Cement Holdings Ltd.	Southern China	67,900
Do.		Shandong Shanshui Cement Group Co. Ltd.	Shandong, Jinan	54,600
Do.		Lafarge China Cement Ltd. (LafargeHolcim Ltd.)	Various locations	65,600
Do.		Red Lion Holdings Ltd.	Zhejiang, Jinhua	44,000
Coal		Jizhong Energy Group Co. Ltd.	Hebei, Handan	157,000
Do.		Kailuan Group Co. Ltd.	Hebei, Tangshan	141,000
Do.		Henan Energy and Chemical Industry Group Co. Ltd.	Henan, Zhengzhou	156,000
Do.		China National Coal Group Corp.	Mines in Nei Mongol, Shanxi Jiangsu and other Provinces	256,000
Do.		National Energy Investment Group Co. Ltd.[3]	Mines in Nei Mongol, Xinjiang, and other Provinces	429,000
Do.		Shaanxi Coal and Chemical Industry Group Co. Ltd.	Shaanxi, Chengcheng	196,000
Do.		Shandong Energy Group Co. Ltd.	Shandong, Jinan	206,000
Do.		Yanzhou Coal Mining Co. Ltd.	Shandong, Jining	168,000
Do.		Datong Coal Mine Group Co. Ltd.	Shanxi, Datong	267,000
Do.		Shanxi Coking Coal Group Co. Ltd.	Shanxi, Taiyuan	174,000
Cobalt, Co content:				
Mine output	metric tons	Jinchuan Group Co. Ltd.	Gansu, Jinchang	2,910
Do.	do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	110
Do.	do.	Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	80
Refined	do.	Nanjing Hanrui Cobalt Co. Ltd.	Anhui, Chuzhou and Jiangsu, Nanjing	4,500
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	11,000
Do.	do.	Guangdong Jiana Energy Technology Co. Ltd.	Guangdong, Guangzhou	10,000
Do.	do.	GEM Co. Ltd.	Recycling plants in multiple Provinces	5,000
Do.	do.	Tianjin Maolian Technology Co. Ltd.	Tianjin	3,000
Do.	do.	Huayou Cobalt Co. Ltd.	Zhejiang, Tongxiang	24,000
Copper:				
Mine output, Cu content		Anhui Tongling Nonferrous Metals Group Co. Ltd.	Anhui, Anqing	47
Do.		Zhongjin Gold Corp. Ltd.	Anhui, Huaibei	2
Do.		Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling	16
Do.		China Shen Zhou Mining & Resources, Inc.	Beijing	1
Do.		China Gold International Resources Corp. Ltd.	Central Tibet	75
Do.		Zijin Mining Group Co. Ltd.	Fujian, Longyan	139
Do.		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	30
Do.		Jinchuan Group Co. Ltd.	Gansu, Jinchang	10
Do.		Gansu Yangba Copper Industry Co. Ltd.	Gansu, Yangba	20
Do.		Guangdong Rising Assets Management Co. Ltd.	Guangdong, Shaoguang	10
Do.		Heilongjiang Liujiu Mining Co. Ltd.	Heilongjiang, Longjiang	22
Do.		Hubei Jiuzhou Mining Co. Ltd.	Hubei, Daye	10
Do.		Hubei Sanxin Gold and Copper Co. Ltd.	do.	14
Do.		China Daye Non-Ferrous Metals Mining Ltd.	Hubei, Huangshi	26
Do.		Western Mining Co. Ltd.	Jiangxi, Changdu	125
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Dexing	255
Do.		Wanguo International Mining Group Ltd.	Jiangxi, Yifeng	4
Do.		Zijin Mining Group Co. Ltd.	Jilin, Hunchun	10

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Copper:—Continued			
Mine output, Cu content—Continued	Yunnan Copper Industry Co. Ltd.	Kunming, Yunnan	113
Do.	China Nonferrous Metal Mining (Group) Co. Ltd	Liaoning, Manchu	10
Do.	Western Mining Industry Co. Ltd.	Qinghai, Xining	13
Do.	Zouping Mining Industry Co. Ltd.	Shandong, Binzhou	3
Do.	Shanxi Zhongtiaoshan Nonferrous Metal Group Ltd.	Shanxi, Datong	3
Do.	Diaoquan Silver Copper Mining Industry Co. Ltd.	Shanxi, Lingqiu	5
Do.	Shanxi Zhongtiaoshan Nonferrous Metal Group Co. Ltd.	Shanxi, Zhongtiaoshan	30
Do.	Xinjiang NonFerrous Metals Industrial (Group) Co.	Xinjiang, Baicheng	2
Do.	Xinjiang Ashele Copper Co. Ltd.	Xinjiang, Habahe County	50
Do.	Xinjiang Yakesi Resources Co. Ltd.	Xinjiang, Huangshan	10
Do.	Zhaojin Mining Industry Co. Ltd.	Xinjiang, Kashgar	10
Do.	Xinjiang Zhongbang Mineral Industry Co. Ltd.	Xinjiang, Nileke	1
Do.	Daye Nonferrous Metals Group Holdings Co. Ltd.	Xinjiang, Sareke	9
Do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Urumqi	10
Do.	China National Gold Group Corp.	Xinjiang, Wunuketushan	61
Do.	Yunnan Diqing Nonferrous Metals Co. Ltd.	Yunnan, Diqing	20
Do.	Yunnan Copper Group Co. Ltd.	Yunnan, Kunming	44
Do.	Yuxi Resources Corp.	Yunnan, Yuxi	10
Do.	Hangzhou Jiantong Group Co. Ltd.	Zhejiang, Hangzhou	5
Refined	Jinchang smelter (Tongling Nonferrous Metals Group Holding Co. Ltd.)	Anhui, Tongling	170
Do.	Jinlong smelter (Tongling Nonferrous Metals Group Holding Co. Ltd.)	do.	400
Do.	Wuhu smelter (Hengxin Copper Industry Group Co.)	Anhui, Wuhu	120
Do.	Zijin Copper Co. Ltd.	Fujian, Shanghang	210
Do.	Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	200
Do.	Jinchuan Group Co. Ltd.	Gansu, Jinchuan	550
Do.	do.	Guangxi, Fangchenggang Harqin Banner	400
Do.	Chinalco Luoyang Copper Processing Co. Ltd.	Henan, Luoyang	240
Do.	Daye Nonferrous Metals Co.	Hubei, Daye	300
Do.	Zhangjiagang United Copper Co. (Tongling Nonferrous Metals Group Holding Co. Ltd.)	Jiangsu, Zhangjiagang	200
Do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	1,200
Do.	Dongfang Copper Co. (Huludao Nonferrous Metals Group Co. Ltd.)	Liaoning, Huludao	100
Do.	Chifeng Fubang Copper Co. Ltd.	Nei Mongol, Chifeng	100
Do.	Chifeng Jingeng Copper Co. Ltd.	do.	582
Do.	Shandong Dongying Fangyuan Nonferrous Metals Co. Ltd.	Shandong, Dongying	400
Do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group Co. Ltd.)	Shandong, Liaocheng, Yanggu	600
Do.	Shandong Jinsheng Nonferrous Metals Co. Ltd.	Shandong, Linyi	100
Do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	200
Do.	Taiyuan Copper Industry Co. Ltd.	Shanxi, Taiyuan	100
Do.	Yuanqu smelter (Zhongtiaoshan Nonferrous Metals Group Co. Ltd.)	Shanxi, Yuangu	130
Do.	Huili Kunpeng Co. Ltd.	Sichuan, Huili	100
Do.	Tianjin Datong Copper Co. Ltd.	Tianjin	200
Do.	Yunnan smelter (Chinalco Yunnan Copper Group Co. Ltd.)	Yunnan, Kunming	500
Do.	Hangzhou Fuchunjiang Smelting Co. Ltd.	Zhejiang, Fuchunjiang	100

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Ferroalloys		Shoudu (Capital) Iron and Steel (Group) Co.	Beijing	35
Do.		Qingshan Holding Group Co. Ltd.	Fujian, Fu'an	300
Do.		Desheng Nickel Industry Co. Ltd.	Fujian, Luoyuanwan	920
Do.		Northwest Ferroalloy Co. Ltd.	Gansu, Yongdeng	60
Do.		Zunyi Ferroalloy Co. Ltd.	Guizhou, Zunhi	100
Do.		Zhejiang Huaguang Smelting Group Co. Ltd.	Jiangxi, Hengfeng	50
Do.		Jilin Ferroalloy Co. Ltd.	Jilin, Jilin	250
Do.		Jinzhou Ferroalloy Co. Ltd.	Liaoning, Jinzhou	90
Do.		Liaoyang Ferroalloy Co. Ltd.	Liaoning, Liaoyang	70
Do.		Shanghai Iron and Steel Co. Ltd.	Shanghai	180
Do.		Emei Ferroalloy Co. Ltd.	Sichuan, Emei	70
Do.		Hengshan Ferroalloy Co. Ltd.	Zhejiang, Jiande	70
Gallium	metric tons	Zhuhai SEZ Fangyuan Inc.	6 plants in Guangxi, Jingxi Henan, Dengfeng; Henan, Lushan; Shandong, Nanchuan; Shandong, Zouping; and Shanxi, Yuanping;	130
Do.	do.	Pingguo Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Guangxi, Pingguo	40
Do.	do.	Chalco Zunyi Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Guizhou, Zunyi	40
Do.	do.	Shandong Aluminium Industry Co. Ltd.	Shandong, Zibo	20
Do.	do.	Shanxi Zhaofeng Aluminum & Power Co. Ltd.	Shanxi, Yangquan	25
Gas, natural	billion cubic meters	China National Offshore Oil Corp. (CNOOC)	Bohai, East China Sea, and South China Sea	9
Do.	do.	China National Petroleum Corp. (CNPC)	Nei Mongol, Qinghai, Sichuan, and Xinjiang	110
Do.	do.	China Petroleum & Chemical Corp. (Sinopec Corp)	Nei Mongol, Sichuan, and other Provinces	28
Germanium	metric tons	Shaoguan smelter (Shenzhen Nonfemet Co. Ltd.)	Guangdong, Shaoguan	30
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	30
Do.	do.	Nei Mongol Xilingol Tongli Germanium Industry Co. Ltd.	Nei Mongol, Xilinhot	20
Do.	do.	Shanghai Lontai Copper Co. Ltd.	Shanghai	10
Do.	do.	Yunnan Lincang Xinyuan Germanium Industrial Co. Ltd.	Yunnan, Lincang	50
Do.	do.	Yunnan Chihong Zinc and Germanium Industrial Co. Ltd.	Yunnan, Qujing	50
Gold, refined	do.	Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling	NA
Do.	do.	Zijin Copper Co. Ltd.	Fujian, Shanghang	5
Do.	do.	Seemine Gold Co. Ltd.	Gansu, Lanzhou	NA
Do.	do.	Guangdong Jinding Gold Ltd.	Guangdong, Gaoyao	NA
Do.	do.	Shenzhen Zhonghenglong Industrial Co. Ltd.	Guangdong, Shenzhen	150
Do.	do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	5
Do.	do.	China National Gold Corp.	Henan, Lingbao	10
Do.	do.	Lingbao Jinyuan Mining Co. Ltd. Tonghui Refinery Branch	do.	36
Do.	do.	Lingbao Gold Group Co. Ltd.	Henan, Luoyang	12
Do.	do.	Luoyang Zijin Yinhui Gold Refinery Co. Ltd.	do.	65
Do.	do.	Zhongyan Gold smelter (Zhongjin Gold Co. Ltd.)	Henan, Sanmenxia	30
Do.	do.	Inner Mongolia Qiankun Gold and Silver Refinery Share Co. Ltd.	Hohhot, Inner Mongolia	NA
Do.	do.	Daye Nonferrous Metals Co.	Hubei, Daye	20
Do.	do.	Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Huaihua	50

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Gold, refined—Continued	metric tons	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	NA
Do.	do.	Metalor Technologies (Suzhou) Ltd.	Jiangsu, Suzhou	NA
Do.	do.	Soochow Gold Group Co. Ltd.	do.	NA
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	20
Do.	do.	China Gold Group Jiapigou Mining Co. Ltd.	Jilin, Huadian	NA
Do.	do.	Huadian Gold Co. Ltd.	do.	NA
Do.	do.	Shaanxi Gold Group Xi'an Qinjin Co. Ltd.	Shaanxi, Xi'an	NA
Do.	do.	Laizhou Gold Co.	Shandong, Laizhou	15
Do.	do.	Penglai Penggang Gold Industry Co. Ltd.	Shandong, Penglai	NA
Do.	do.	Shandong Yanggu Xiangguang Co. Ltd.	Shandong, Yanggu	20
Do.	do.	Shandong Humon Smelting Co. Ltd.	Shandong, Yantai	50
Do.	do.	Yantai Penghui Copper Industry Co. Ltd.	do.	5
Do.	do.	Shandong Zhaojin Gold & Silver Refinery Co. Ltd.	Shandong, Zhaoyuan	100
Do.	do.	Yantai Guodasafina High-tech Environmental Refinery Co. Ltd.	do.	10
Do.	do.	Zhaoyuan Gold Co. Ltd.	do.	15
Do.	do.	Shanghai Tiancheng Gold Co. Ltd.	Shanghai	NA
Do.	do.	Shanghai Xinye Copper Industry Co. Ltd.	do.	NA
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu	100
Do.	do.	Sichuan Tianze Precious Metals Co. Ltd.	do.	150
Do.	do.	Urumqi Tianshan Star Precious Metal Smelting Co. Ltd.	Xinjiang, Urumqi	NA
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	130
Do.	do.	Zijin Mining Group Gold Smelting Co. Ltd.	Zhejiang, Fuye	NA
Graphite		Hensen Graphite Co. Ltd.	Heilongjiang, Jiangsu and Nei Mongol Provinces	30
Do.		Jixi Aoyu Graphite Co. Ltd.	Heilongjiang, Jixi	60
Do.		Nei Mongol Xinghe Jingxin Graphite Co. Ltd.	Nei Mongol, Xinghe	10
Do.		Qingdao Yanxin Graphite Products Co. Ltd.	Shandong, Qingdao	28
Indium, refinery	metric tons	Shaoguan smelter (Shenzhen Nonfemet Co.)	Guangdong, Shaoquan	25
Do.	do.	Guangxi Tanghan Zinc & Indium Co. Ltd.	Guangxi, Hechi	30
Do.	do.	Laibin smelter [Liuzhou Huaxi (China Tin) Group Co.]	Guangxi, Laibin	50
Do.	do.	Guangxi Debang Technology Co. Ltd.	Guangxi, Liuzhou	120
Do.	do.	Liuzhou Zinc Products Co. Ltd.	do.	20
Do.	do.	Yintai Technology Co. Ltd.	do.	40
Do.	do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	10
Do.	do.	Hsikuangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Group)	Hunan, Lengshuijiang	7
Do.	do.	Xiangtan Zhengtan Nonferrous Metal Co. Ltd.	Hunan, Xiangtan	75
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	60
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	150
Do.	do.	Nanjing Sanyou Electronic Material Co. Ltd.	do.	50
Do.	do.	Huludao Nonferrous Metals Group Co.	Liaoning, Huludao	50
Do.	do.	Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	10
Do.	do.	Yunnan Mengzi Mining and Smelting Co. Ltd.	Yunnan, Honghe	30
Iron ore, mine output, concentrate		Yingliu Mining Co. Ltd.	Aihui, Hefei	1,250
Do.		Ma'anshan Iron and Steel Co. Ltd.	Anhui, Maanshan	1,200
Do.		China Minmetals Corp.	Beijing	8,730
Do.		Metallurgical Corp. of China Ltd.	do.	591
Do.		Shoudu (Capital) Mining Co. Ltd.	do.	5,000
Do.		Chongqing Iron and Steel Group	Chongqing	2,000
Do.		Jiuquan Iron and Steel Co. Ltd.	Gansu, Jiayuguan	4,000

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Iron ore, mine output, concentrate—Continued	Dabaoshan Mining Co. Ltd.	Guangdong, Qujiang	1,670
Do.	Hainan Mining Co. Ltd.	Hainan, Changjiang	4,600
Do.	Aowei Holding Ltd.	Hebei, Laiyuan	15,800
Do.	Hebei Iron and Steel Group Co. Ltd.	Hebei, Tangshan	7,000
Do.	Baowu Steel Group Corp. Ltd.	Hubei, Wuhan	5,100
Do.	Meishan Metallurgical Co. Ltd.	Jiangsu, Nanjing	2,000
Do.	Nanjing Iron & Steel Co. Ltd.	do.	2,500
Do.	Xinyu Iron & Steel Group Co. Ltd.	Jiangxi, Xinyu	527
Do.	Tonghua Iron & Steel Group Co. Ltd.	Jilin, Changchun	782
Do.	Banshigou Iron Mine Mining Co. Ltd.	Jilin, Hunjiang	1,400
Do.	Anshan Mining Co. Ltd.	Liaoning, Anshan	30,000
Do.	Benxi Iron and Steel Co. Ltd.	Liaoning, Benxi	7,000
Do.	China Hanking Holdings Ltd.	do.	4,000
Do.	Baotou Iron and Steel and Rare Earth Co. Ltd.	Nei Mongol, Baotou	10,000
Do.	Shandong Taishan Sunlight Group Co. Ltd.	Shandong, Laiwu	2,000
Do.	Add New Energy Investment Holdings Group Ltd.	Shandong, Yangzhuang	2,300
Do.	Shandong Jinling Mining Co Ltd.	Shandong, Zibo	650
Do.	Shandong Iron and Steel Co. Ltd.	Shangdong, Jinan	3,000
Do.	Taiyuan Iron and Steel Co. Ltd.	Shanxi, Taiyuan	12,000
Do.	China Vanadium Titano-Magnetite Mining Co. Ltd.	Sichuan, Huili	1,890
Do.	Panzhihua Mining Co. Ltd.	Sichuan, Panzhihua	13,000
Do.	Xinjiang Yaxing Mining Co. Ltd.	Xinjiang, Akto County	2,000
Do.	Zijin Mining Group Co. Ltd.	Xinjiang, Shanshan County	2,000
Do.	Kunming Iron and Steel Co. Ltd.	Yunnan, Kunming	2,500
Do.	Zhejiang Lizhu Iron Mine Corp.	Zhejiang, Shaoxing	355
Iron and steel, raw steel	Ma'anshan Iron and Steel Co. Ltd.	Anhui, Maanshan	27,000
Do.	Beijing Jianlong Heavy Industry Group Co. Ltd.	Beijing	21,000
Do.	Shougang Iron and Steel Co. Ltd.	do.	40,000
Do.	Shougang-Tangshan Iron and Steel Group Co. Ltd.	Hebei, Caofeidian	18,000
Do.	Hebei Iron and Steel Group Co. Ltd.	Hebei, Handan	55,000
Do.	Baowu Steel Group Corp. Ltd.	Hubei, Wuhan and Shanghai	65,000
Do.	Shagang Group Co. Ltd.	Jiangsu, Zhangjiagang	48,000
Do.	Anshan Iron and Steel (Group) Co. Ltd.	Liaoning, Anshan	46,000
Do.	Benxi Iron and Steel Co. Ltd.	Liaoning, Benxi	21,000
Do.	Shandong Iron and Steel Group Co. Ltd.	Shandong, Jinan	31,000
Do.	Tianjin Bohai Iron and Steel Group Co. Ltd.	Tianjin	23,000
Lead, refinery	Jiuhua smelter (Tongling Nonferrous Metals Group Holding Co. Ltd.)	Anhui, Chizhou	80
Do.	Baiyin Nonferrous Metals Co. Ltd.	Gansu, Baiyin	80
Do.	Shaoguan smelter (Shenzhen Nonfemet Co. Ltd.)	Guangdong, Shaoquan	100
Do.	Hechi Nanfang Nonferrous Metals Smelting Co. Ltd.	Guangxi, Hechi	80
Do.	Laibin smelter [Huaxi (China Tin) Group Co.]	Guangxi, Laibin	100
Do.	Anyang smelter (Yubei Metal Co. Ltd.)	Henan, Anyang	160
Do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	Jinli smelter (Jiyuan Jinli Smelting Co. Ltd.)	Henan, Jiyuan	300
Do.	Jiyuan smelter (Yuguang Gold-Lead Co. Ltd.)	do.	300
Do.	Henan Lingye Co. Ltd.	Henan, Lingbao	100
Do.	Hanjiang smelter (Western Mining Industry Co. Ltd.)	Hubei, Laohekou	50
Do.	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	100

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Lead, refinery—Continued	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	100
Do.	Xuzhou Chunxing Alloy Co. Ltd.	Jiangsu, Xuzhou	150
Do.	Jiangxi Jinde Lead Co. Ltd.	Jiangxi, Shangrao	80
Do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	30
Do.	Shaanxi Dongling Group Co. Ltd.	Shaaxi, Baoji	100
Do.	Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	100
Do.	Yunnan Xinli Nonferrous Metals Co. Ltd.	Yunnan, Kunming	100
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	100
Lithium:			
Mine, $LiCO_3$ equivalent	Antai Mining Co. Ltd.	Chongqing	3
Do.	Qinghai Jintai Lithium Industry Co. Ltd.	Qinghai, Balun Mahai Lake	5
Do.	QingHai Salt Lake Industry Co. Ltd.	Qinghai, Chaerhan Lake	10
Do.	Qinghai Bohua Lithium Industry Co. Ltd.	Qinghai, Da Qaidam Salt Lake	1
Do.	Qinghai Qaidam Xinghua Lithium Salt Co. Ltd.	do.	10
Do.	Qinghai East Taijinair Lithium Resources Co. Ltd.	Qinghai, East Taijinair Salt Lake	10
Do.	Minmetals Salt Lake Co. Ltd.	Qinghai, Qaidam Salt Lake	10
Do.	Qinghai CITIC Guoan Lithium Resources Co. Ltd.	Qinhai, East Taijinair Salt Lake	5
Do.	Malkang Jinxin Mining Co. Ltd.	Sichuan, Dangba	28
Do.	Rongda Lithium Co. Ltd.	Sichuan, Tagong	8
Do.	Tibet City Development Investment Co. Ltd.	Tibet, Lasa	2
Do.	Tibet Mineral Devevelopment Co. Ltd.	Tibet, Zhabuye Salt Lake	5
Refinery, $LiCO_3$ equivalent	do.	Gansu, Baiyin	5
Do.	Guangxi Tianyuan New Energy Materials Co. Ltd.	Guangxi, Qinzhou	25
Do.	Jiangsu Ronghui General Lithium Industry Co. Ltd.	Jiangsu, Haimen	26
Do.	Jiangxi Ganfeng Lithium Co. Ltd.	Jiangxi, Xinyu	60
Do.	Jiangxi Nanshi Lithium Battery New Materials Co. Ltd.	Jiangxi, Yichun	34
Do.	Lanke Lithium Industry Co. Ltd. (Qinghai Yanhu Industry Group Co. Ltd.)	Qinghai, Golmud	30
Do.	Qinghai CITIC Guoan Technology Development Co. Ltd.	do.	20
Do.	Qinghai Lithium Industry Co. Ltd.	Qinghai, Xining	10
Do.	Qinghai Hengxinrong Lithium Technology Co. Ltd.	Qinhai, Haixi Prefecture	20
Do.	Wudi Golden Bay Lithium Technology Co. Ltd.	Shangdong, Binzgou	25
Do.	Shandong Ruifu Lithium Industry Co. Ltd.	Shandong, Feicheng	40
Do.	Sichuan Ni/Co Guorun New Material Co. Ltd.	Sichuan, Pengshan	2
Do.	Sichuan Shehong Lithium Co. Ltd.	Sichuan, Shehong	2
Do.	Sichuan Tianqi Lithium Industry Co. Ltd. (Chengdu Tianqi Group Co. Ltd.)	Sichuan, Suining	40
Do.	Sichuan Aba Guangsheng Lithium Industrial Co. Ltd.	Sichuan, Wenchuan	2
Do.	Xinjiang Haoxin Lithium Salt Development Co. Ltd. (formerly Xinjiang Lithium Co.)	Xinjiang, Urumqi	5
Magnesium, metal	Zunyi Titanium Co. Ltd.	Guizhou, Zunyi	24
Do.	Ningxia Huayuan Magnesium Group	Ningxia, Yinchuan	15
Do.	Huayu Enterprises (Group) Ltd.	Shanxi, Jishan	35
Do.	Taiyuan Tongxiang Magnesium Metal Co. Ltd.	Shanxi, Taiyuan	45
Do.	Taiyuan Yiwei Magnesium Co. Ltd.	do.	21
Do.	Wenxi Biyun Magnesium Co. Ltd.	Shanxi, Wenxi	30
Do.	Shanxi Wenxi Yinguang Magnesium Industry Group Co. Ltd.	do.	40
Manganese, metal	Chongqing Tycoon Manganese Co. Ltd.	Chongqing	23
Do.	Guangxi Dameng Manganese Industry Co. Ltd.	Guangxi, Nanning	250
Molybdenum, concentrate	China Molybdenum Co. Ltd.	Henan, Luanchuan	30
Do.	Jiangxi Copper Corp.	Jiangxi, Dexing	5
Do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	30

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Nickel:				
Mine output, Ni content		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	100
Do.		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Pangshi	7
Do.		Qinghai Pingan Xinhai Resource Resources Development Co. Ltd.	Qinghai, Haidong	3
Do.		Sichuan Copper-Nickel Co. Ltd.	Sichuang, Huili	3
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Urumqi	12
Do.		Yunxi Group Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5
Do.		Yunnan Henghao Nickel Industry Group Co. Ltd.	Yunan, Kunming	2
Refined		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	130
Do.		Guangxi Yulin Weinie Co. Ltd.	Guangxi, Bobai	18
Do.		Guangxi Yinyi Science and Technology Mine Metallurgy Co. Ltd.	Guangxi, Yulin, Bohai	10
Do.		Jiangxi Jiangli Science and Technology Co. Ltd.	Jiangxi, Fenyi	50
Do.		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Panshi	10
Do.		Vale Inc. New Nickel Materials (Dalian) Co. Ltd.	Liaoning, Dalian	32
Do.		Schaanxi Huaze Nickel and Cobalt Metal Co. Ltd.	Shaanxi, Xian	5
Do.		Chengdu Electro-Metallurgy Factory Co. Ltd.	Sichuan, Chengdu	5
Do.		Huili Kunpeng Co. Ltd.	Sichuan, Huili	10
Do.		Sichuan Ni/Co Guorun New Material Co. Ltd.	Sichuan, Pengshan	10
Do.		Xinjiang Fukang smelter (Xinjiang Xinxin Mining Industry Co. Ltd.)	Xinjiang, Fukang	15
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	7
Do.		Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5
Niobium and tanlatum, concentrate, gross weight	metric tons	Jiangxi Jiangte Mining Development Co. Ltd.	Mine in Jiangxi, Yichun	35
Do.	do.	Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Co.)	do.	500
Do.	do.	Jiangxi Jinhui Renewable Resources Co. Ltd.	Plant in Jiangxi, Yichun	20
Palladium, mine, Pd content	kilograms	Jinchuan Group Co. Ltd.	Gansu, Jinchang	1,170
Do.	do.	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	130
Petroleum, crude	thousand 42-gallon barrels	Bohai Offshore Oil Corp. (China National Offshore Oil Corp.)	Bohai, offshore	29,300
Do.	do.	Shengli Petroleum Administration Co. Ltd. (China Petroleum & Chemical Corp.)	Hebei, Shengli	246,000
Do.	do.	Daqing Petroleum Administration Bureau Co. Ltd. (China National Petroleum Corp.)	Heilongjiang, Daqing	403,000
Do.	do.	Liaohe Petroleum Administration Bureau Co. Ltd. (China National Petroleum Corp.)	Liaoning, Liaohe	110,000
Do.	do.	Nanhai East Corp. (China National Offshore Oil Corp.)	South China Sea, offshore	36,700
Platinum, mine, Pt content	kilograms	Jinchuan Group Co. Ltd.	Gansu, Jinchang	2,700
Do.	do.	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	300
Potash		Qinghai Yanhu Industry Group Co. Ltd.	Qinghai, Charhan	2,000
Do.		Xinjiang Lop Nur Potassic Salt Scientific and Technology Development Co. Ltd.	Xinjiang, Ruoqiang	1,200
Rare earths:				
Mine output, rare-earth oxide equivalent	metric tons	Xiamen Tungsten Co. Ltd.	Mines in Fujian	3,000
Do.	do.	China North Rare Earth (Group) High Technology Co. Ltd.	Mines in Gansu and Inner Mongolia	100,000
Do.	do.	Guangdong Province Rare Earth Industry Group Co. Ltd.	Mines in Guangdong	3,000
Do.	do.	Aluminum Corporation of China (Chinalco)	Mines in Guangxi, Jiangsu, Shandong, and Sichuan	20,000
Do.	do.	China Minmetals Co. Ltd.	Mines in Hunan, Fujian, Guangdong, Jiangxi, and Yunnan	3,500
Do.	do.	China Southern Rare Earth Group Co. Ltd.	Mines in Jiangxi	40,000

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Rare earths:—Continued				
Smelter, rare-earth oxide equivalent	metric tons	Xiamen Tungsten Co. Ltd.	Plants in Fujian province	7,000
Do.	do.	China North Rare Earth (Group) High Technology Co. Ltd.	Plants in Gansu and Inner Mongolia	140,000
Do.	do.	Guangdong Province Rare Earth Industry Group Co. Ltd.	Plants in Guangdong	28,000
Do.	do.	Aluminum Corporation of China (Chinalco)	Plants in Guangxi, Jiangsu, Shandong, and Sichuan	45,000
Do.	do.	China Minmetals Co. Ltd.	Plants in Hunan, Fujian, Guangdong, Jiangxi, and Yunnan	14,000
Do.	do.	China Southern Rare Earth Group Co. Ltd.	Plants in Jiangxi	42,000
Rhenium, rhenate	kilograms	China Molybdenum Co. Ltd.	Henan, Luanchuan	200
Do.	do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	3,000
Do.	do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	1,000
Do.	do.	Western Xinxing Metal Materials Co. Ltd.	Shaanxi, Luonan	200
Do.	do.	Ligeance Aerospace Technology Co. Ltd.	Shaanxi, Xianyang	NA
Salt		Shandong Haihua Group Co. Ltd.	Shandong, Weifang	1,400
Do.		Zigong Zhangjiaba Salt Chemical Plant (9D Salt Corp.)	Sichuan, Zigong	250
Selenium				
Primary	metric tons	Jinchuan Group Co. Ltd.	Gansu, Jinchang	50
Do.	do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	300
Secondary	do.	Vital Materials Co. Ltd. (Guangdong Xiandao Co. Ltd.)	Guangdong, Qingyuan	1,000
Silver, metal	do.	Zijin Copper Co. Ltd.	Fujian, Shanghang	125
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	150
Do.	do.	Laibin smelter [Huaxi (China Tin) Group Co.]	Guangxi, Laibin	80
Do.	do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	1,600
Do.	do.	Jinli smelter (Jiyuan Jinli Smelting Co. Ltd.)	Henan, Jiyuan	800
Do.	do.	Jiyuan smelter (Yuguang Gold-Lead Co. Ltd.)	do.	730
Do.	do.	Silvercorp Metals Inc.	Henan, Luoyang	210
Do.	do.	Daye Nonferrous Metals Co. Ltd.	Hubei, Daye	300
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	430
Do.	do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	80
Do.	do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group)	Shandong, Yanggu	600
Do.	do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	80
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu	300
Do.	do.	Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	150
Do.	do.	Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	do.	160
Do.	do.	Yunnan smelter (Yunnan Copper Group Co. Ltd.)	Yunnan, Kunming	450
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	150
Strontium, carbonate		Chongqing Chonglong Strontium Co. Ltd.	Chongqing	20
Do.		Chongqing Tongliang Red Butterfly Strontium Co.	do.	40
Do.		Shijiazhuang Zhengding Xian Jinshi Chemical Co. Ltd.	Hebei, Shijiazhuang	3
Do.		Hebei Xinji Chemical Group	Hebei, Xinji	2
Do.		Nanjing Jinyan Strontium Co. Ltd.	Jiangsu, Lishui	2
Talc		China National Nonmetallic Industry Corp.	Guangxi, Longshen	130
Do.		do.	Liaoning, Haicheng	50
Do.		do.	Shandong, Qixia	5

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Tantalum, products	metric tons	Jiangmen Fuxiang Electro-Materials Co. Ltd. (F&X Electro-Materials Ltd.)	Guangdong, Jiangmen	NA
Do.	do.	Fogang Jiata Metals Co. Ltd.	Guangdong, Qingyuan	NA
Do.	do.	Conghua Tantalum and Niobium Smeltery (CTNS) (Guangdong Rising Nonferrous Metals Group Co. Ltd.)	Guangdong, Shengang	NA
Do.	do.	Guangdong Zhiyuan New Material Co. Ltd. (Jiayuan Cobalt Holdings)	Guangdong, Yingde	NA
Do.	do.	XinXing Haorong Electronic Material Co. Ltd.	Guangdong, Yunfu	NA
Do.	do.	Duo Luo Shan Sapphire Rare Metal Co. Ltd. of Zhaoqing	Guangdong, Zhaoqing	NA
Do.	do.	Hengyang King Xing Lifeng New Materials Co. Ltd.	Hunan, Hengyang	NA
Do.	do.	FIR Metals & Resource Ltd.	Hunan, Zhuzhou	NA
Do.	do.	RFH Tantalum Smeltery Co. Ltd./Yanling Jincheng Tantalum & Niobium Co. Ltd.	do.	NA
Do.	do.	Metalink International Co. Ltd. (affiliates: Nanjing Metalink International Co. Ltd., and Metalink Special Alloys Corp.)	Jiangsu, Nanjing	NA
Do.	do.	Taike Technology (Suzhou) Co. Ltd.	Jiangsu, Suzhou	NA
Do.	do.	King-Tan Tantalum Industry Co. Ltd.	Jiangxi, Fengcheng	500
Do.	do.	Jiangxi Ding Hai Tantalum & Niobium Co. Ltd.	Jiangxi, Fengxin County	NA
Do.	do.	Jiujiang Janny New Material Co. Ltd.	Jiangxi, JiuJiang	NA
Do.	do.	JiuJiang JinXin Nonferrous Metals Co. Ltd.	do.	NA
Do.	do.	Jiujiang Tanbre Co. Ltd. (JJTC) (formerly Jiujiang Tanbre smelter) (Jiangxi Tungsten Group Ltd. Corp. [JWYX])	do.	250
Do.	do.	Jiujiang Zhongao Tantalum & Niobium Co. Ltd. (joint venture between Jiangxi Jiujiang Yizhong Nonferrous Metals Co. Ltd. and others)	do.	NA
Do.	do.	Jiangxi Tuohong New Raw Material Co. Ltd.	Jiangxi, Yichun	NA
Do.	do.	Ningxia Orient Tantalum Industry Co. Ltd. (OTIC)	Ningxia, Shizuishan	NA
Tellurium, refined:				
Primary	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	70
Secondary	do.	Vital Materials Co. (Guangdong Xiandao Co.)	Guangdong, Qingyuan	280
Do.	do.	Hunan Jinrun Tellurium Industry Co. Ltd.	Hunan, Chenzhou	200
Tin:				
Mine output, Sn content		Guangxi Pinggui Mining PGMA Co. Ltd.	Guangxi, Hezhou	4
Do.		Guangxi China Tin Group Co. Ltd.	Guangxi, Laibin	11
Do.		Southern Mining Co. Ltd.	Hunan, Chenzhou	3
Do.		Xingye Mining Co. Ltd.	Inner Mongolia	2
Do.		Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	33
Smelter		Guanyang Guida Nonferrous Metal Smelting Plant	Guangxi, Guanyang	NA
Do.		Guihuacheng smelter (Guangxi Pinggui PGMA Co. Ltd.)	Guangxi, Hezhou	8
Do.		Laibin smelter (Guangxi China Tin Group Co. Ltd.)	Guangxi, Laibin	25
Do.		Chenzhou smelter (Yunnan Tin Co. Ltd.)	Hunan, Chenzhou	20
Do.		HuiChang Hill Tin Industry Co. Ltd.	Jiangxi, Ganzhou	NA
Do.		Nanshan Tin Co. Ltd.	Jiangxi, Nankang	10
Do.		Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	20
Do.		Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	do.	70
Do.		Yunnan Gejiu Zili Metallurgy Co. Ltd.	Yunnan, Huogudu	20
Titanium, sponge		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	15
Do.		Guizhou Southwest Titanium Co. Ltd.	Guizhou, Guiyang	3
Do.		Zunbao Titanium Co. Ltd.	Guizhou, Tongzi	10
Do.		Zunyi Titanium Co. Ltd.	Guizhou, Zunyi	20
Do.		Tangshan Tianhe Titanium Co. Ltd.	Hebei, Tangshan	10
Do.		Luoyang Sun Rui Wanji Titanium Industry Co. Ltd.	Henan, Xinan	10

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Titanium, sponge—Continued		Chaoyang Baisheng Zirconium Co. Ltd.	Liaoning, Chaoyang	8
Do.		Chaoyang Jintai Titanium Co. Ltd.	do.	7
Do.		Fushun Titanium Co. Ltd.	Liaoning, Fushun	5
Do.		Baotai Jinzhou Huashen Titanium Industry Co. Ltd.	Liaoning, Jinzhou	10
Do.		Baotai Titanium Industry Co. Ltd.	Shaanxi, Baoji	10
Do.		Gangqi Xinyu Titanium Co. Ltd.	Sichuan, Panzhihua	5
Do.		Hengwei Titanium Co. Ltd.	do.	5
Do.		Panzhihua Iron and Steel (Group) Co. (Pangang)	do.	15
Do.		Yunnan Metallurgical Group Co. Ltd.	Yunnan, Lufeng	10
Tungsten:				
Mine, WO_3 in concentrate		Ninghua Hangluoken Tungsten Mine (Xiamen Tungsten Co. Ltd.)	Fujian, Ninghua	5
Do.		China Molybdenum Co. Ltd.	Henan, Luanchuan	11
Do.		Shizhuyuan Nonferrous Metals Co.	Hunan, Chenzhou	5
Do.		Hunan Yaogangxian Mining Co. Ltd.	Hunan, Yizhang	3
Do.		Jiangxi Tungsten and Rare Earth Co. Ltd.	Jiangxi, Ganzhou	15
Products		Fujian Jinxin Tungsten Co. Ltd.	Fujian, Longyan	2
Do.		GuangDong XiangLu Tungsten Co. Ltd. (Chaozhou Xianglu Tungsten Industry Co. Ltd.)	Guangdong, Chaozhou	4
Do.		Xinhai Rendan Shaoguan Tungsten Co. Ltd.	Guangdong, Shaoguan	2
Do.		Guangxi Guihuacheng Co. Ltd. [CNMC (Guangxi) PGMA Co. Ltd.]	Guangxi, Hezhou	2
Do.		Zhongxiang Tungsten Co. Ltd.	Hunan, Chenzhou	NA
Do.		Hunan Chuangda Vanadium Tungsten Co. Ltd. (HCVT)	Hunan, Hengdong	11
Do.		Hunan Chunchang Nonferrous Metals Corp.	Hunan, Hengyang	8
Do.		Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Huaihua	3
Do.		Anhua Tiangong Jinyuan Alloy Materials Co. Ltd.	Hunan, Yiyang	NA
Do.		Hunan Litian High-tech Materials Co. Ltd.	do.	2
Do.		Chaling Dadi Tungsten Co. Ltd.	Hunan, Zhuzhou	NA
Do.		Jiangsu Dongtai Fengfeng Tungsten & Molybdenum Products Co. Ltd.	Jiangsu, Dongtai	200
Do.		Dayu Jincheng Tungsten Industry Co. Ltd.	Jiangxi, Dayu	NA
Do.		Chongyi Zhangyuan Tungsten Co. Ltd.	Jiangxi, Ganzhou	2
Do.		Dayu smelter (Dayu Weiliang Tungsten Co. Ltd.)	do.	NA
Do.		Ganxian Shirui New Material Co. Ltd.	do.	4
Do.		Ganzhou Seadragon W & Mo Co. Ltd. (Ganzhou Grand Sea W & Mo Group Co. Ltd.)	do.	11
Do.		Ganzhou Yatai Tungsten Co. Ltd.	do.	7
Do.		Xinfeng Huarui Tungsten & Molybdenum New Material Co. Ltd.	do.	3
Do.		Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Co.)	Jiangxi, Xiushui	30
Do.		Jiangxi Xiushui Xianggan Nonferrous Metals Co. Ltd.	do.	6
Do.		Sinosteel Jilin Ferroalloy Corporation Ltd. (Sinosteel Corp.)	Jilin, Jilin	NA
Do.		Emei Ferroalloy Co. Ltd.	Sichuan, Emei	NA
Uranium, mine, U content	metric tons	CNNC Shaoguan Jinhong Uranium Industry Co. Ltd.	Guangdong, Shaoguan	300
Do.	do.	CNNC Ganzhou Jinrui Uranium Co. Ltd.	Jiangxi, Chongyi	300
Do.	do.	CNNC Fuzhou Jin'an Uranium Co. Ltd.	Jiangxi, Fuzhou	500
Do.	do.	CNNC North Uranium Co. Ltd.	Liaoning, Benxi	120
Do.	do.	do.	Liaoning, Qinglong	200
Do.	do.	Xi'an CNNC Lantian Uranium Co. Ltd.	Shaanxi, Lantian	100
Do.	do.	CNNC Tianshan Uranium Co.	Xinjiang, Yining, Mengqiguer	800
Vanadium, V_2O_5 equivalent		HBIS Chengsteel Co. Ltd.	Hebei, Chengde	18
Do.		CITIC Jinzhou Metal Co. Ltd.	Liaoning, Jinzhou	12
Do.		Sichuan Chuanwei Group Co. Ltd.	Sichuan, Chengdu	15
Do.		Pangang Group Vanadium Titanium Resources Co. Ltd.	Sichuan, Panzhihua	40

See footnotes at end of table.

TABLE 2—Continued
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Zinc, metal	Northwest China Lead-Zinc smelter (Baiyin Nonferrous Metals Co. Ltd.)	Gansu, Baiyin	150
Do.	Shaoguan smelter (Shenzhen Nonfemet Co.)	Guangdong, Shaoquan	270
Do.	Hechi Nanfang Nonferrous Metal Smelting Co. Ltd.	Guangxi, Hechi	200
Do.	Liuzhou Nonferrous Metal Smelting Co. Ltd. (formerly Liuzhou Zinc Products Factory)	Guangxi, Liuzhou	100
Do.	Yugang Gold-Lead Co. Ltd.	Henan, Jiyuan	300
Do.	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	60
Do.	Hsikuangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Group)	Hunan, Lengshuijiang	40
Do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	500
Do.	Huludao Zinc Smelting Co. (Huludao Nonferrous Metals Group. Co. Ltd.)	Liaoning, Huludao	390
Do.	Zijin Bayannur Co. Ltd. (Zijin Mining Group)	Nei Mongol, Bayannur League	220
Do.	Chifeng NFC Kumba Hongye Zinc Co. Ltd. (China Nonferrous Metals Mining Group Co. Ltd.)	Nei Mongol, Chifeng	230
Do.	Xing'an Copper & Zinc Smelting Co. Ltd.	Nei Mongol, Xilinuole	100
Do.	Dongling Zinc Industry Co. Ltd. (Dongling Group)	Shaanxi, Baoji	250
Do.	Laibin smelter (Guangxi China Tin Group Co. Ltd.)	Yunnan, Laibin	60
Do.	Yunnan Jinding Zinc Co. Ltd. (Sichuan Hongda Group)	Yunnan, Lanping	120
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	280

[e]Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

[1]Most companies are owned by the central Government or a provincial government. Not all facilities are listed because the available information was inadequate to provide a complete list for the mineral commodity or because there were too many facilities to list.

[2]Listed by Province or autonomous region, followed by locality. Only headquarter locations are provided for some companies that have numerous facilities throughout the country.

[3]A new company, National Energy Investment Group Co. Ltd., was established in 2018 through a merger of China Guodian Corp. and Shenhua Group Corp. Ltd.

TABLE 3
CHINA: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2017 AND 2018

Commodity	2017 Quantity (metric tons)	2017 Value (thousand dollars)	2018 Quantity (metric tons)	2018 Value (thousand dollars)
METALS				
Aluminum:				
Alumina	55,737	56,328	1,461,500	783,695
Metal and alloys:				
Unwrought	551,195	1,064,487	562,500	1,216,041
Semimanufactures	4,240,000	12,025,998	5,230,000	15,251,289
Antimony, unwrought	2,890	19,371	5,326	43,614
Copper, metal and alloys:				
Unwrought	338,034	2,057,613	281,849	1,884,505
Semimanufactures	477,989	3,704,634	509,885	4,266,088
Ferroalloys	580,000	1,109,745	860,000	1,839,488
Iron and steel:				
Pig iron and cast iron[1]	90,000	22,627	--	775
Steel:				
Bars and rods	16,080,000	8,433,804	12,750,000	8,567,444
Shapes and sections	3,430,000	1,965,811	3,520,000	2,430,216
Sheets and plates	43,190,000	29,403,562	40,230,000	31,936,726
Tube and pipe	1,610,000	4,048,836	1,740,000	4,906,766
Wire of steel or iron	2,050,000	1,991,721	2,070,000	2,391,427
Scrap	2,202,849	253,721	332,343	48,231
Manganese, unwrought	435,618	781,252	424,387	858,302
Molybdenum, ore and concentrate	8,450	71,008	9,829	115,135
Rare-earth products	51,199	416,011	53,031	514,520
Tin, metal and alloys, unwrought	2,181	20,543	6,105	46,060
Tungsten, tungstates	5,427	106,462	5,641	156,070
Zinc:				
Metal and alloys, unwrought	16,445	47,826	24,283	75,182
Oxide and peroxide	13,405	34,934	11,758	33,480
INDUSTRIAL MINERALS				
Barite	2,020,000	204,208	1,210,000	158,668
Cement and clinker	12,860,000	577,932	9,040,000	490,364
Fluorspar	340,000	83,070	400,000	138,471
Granite	7,410,000	3,393,792	6,670,000	3,234,537
Graphite, natural	340,000	265,700	340,000	348,169
Magnesia, fused	2,880,000	627,715	3,150,000	1,047,666
Talc	700,000	162,951	700,000	171,100
MINERAL FUELS AND RELATED MATERIALS				
Coal	8,170,000	1,103,938	4,930,000	787,301
Coke, semicoke	8,090,000	2,159,526	9,750,000	2,973,995
Petroleum:				
Crude oil	4,860,000	1,822,372	2,630,000	1,270,422
Refinery products	52,160,000	25,398,686	58,640,000	35,976,362

-- Zero.

[1]The value and volume for 2018 exports were reported by the source; the reason for the mismatch was not specified.

Source: General Administration of Customs of the People's Republic of China, China Monthly Exports and Imports, 2017, no. 12; 2018, no. 12.

TABLE 4
CHINA: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2017 AND 2018

Commodity	2017 Quantity (metric tons)	2017 Value (thousand dollars)	2018 Quantity (metric tons)	2018 Value (thousand dollars)
METALS				
Aluminum:				
Alumina	2,870,000	1,100,964	510,000	321,850
Metal and alloys, unwrought	186,181	396,849	199,320	449,530
Semimanufactures	396,621	2,471,495	397,117	2,701,470
Scrap	2,170,000	2,827,498	1,570,000	2,510,855
Chromium, chromite	13,850,000	3,441,811	14,290,000	2,864,750
Copper:				
Ore and concentrates	17,350,000	26,385,711	19,720,000	32,313,942
Metal and alloys, unwrought	4,110,000	25,458,697	4,750,000	31,487,018
Semimanufactures	582,268	5,799,687	550,978	5,997,531
Scrap	3,560,000	9,151,355	2,410,000	9,353,289
Iron ore	1,074,740,000	76,277,802	1,064,470,000	75,539,600
Iron and steel, steel:				
Bars and rods	1,210,000	1,811,235	1,090,000	1,887,176
Seamless pipe	410,000	1,420,573	410,000	1,539,234
Shapes and sections	400,000	333,934	350,000	332,632
Sheets and plates	11,060,000	10,346,141	11,110,000	11,264,224
Scrap	2,320,000	1,232,203	1,340,000	780,332
Lead, ore and concentrate	1,280,000	1,695,205	1,230,000	1,676,851
Manganese ore	21,260,000	4,005,630	27,630,000	5,819,937
Titanium dioxide	214,968	576,516	197,502	601,063
INDUSTRIAL MINERALS				
Diamond kilograms	2,041	7,941,553	2,257	8,835,939
Nitrogen, phosphorus, and potassium fertilizers:				
Compound fertilizers	1,110,000	461,285	1,460,000	669,008
Potassium chloride	7,530,000	1,714,257	7,460,000	1,847,918
Potassium sulfate	60,000	20,372	70,000	24,993
Urea	114,655	29,888	163,913	45,433
MINERAL FUELS AND RELATED MATERIALS				
Coal	270,900,000	22,636,707	281,230,000	24,606,150
Liquefied natural gas	38,130,000	14,751,762	53,780,000	26,837,374
Petroleum:				
Crude oil	419,570,000	162,328,434	461,900,000	240,261,686
Refinery products	29,640,000	14,485,625	33,480,000	20,179,752

Source: General Administration of Customs of the People's Republic of China, China Monthly Exports and Imports, 2017, no. 12; 2018, no. 12.

TABLE 5

CHINA: RESERVES OF MAJOR MINERAL COMMODITIES IN 2017[1]

(Thousand metric tons unless otherwise specified)

Commodities		Reserves[2, 3]
Antimony, Sb content		520
Barite	million metric tons	36
Bauxite	do.	1,000
Chromite		4,100
Clay, kaolin	million metric tons	690
Coal	billion metric tons	250
Copper, Cu content		26,000
Fluorspar		42,000
Gas, natural	billion cubic meters	5,400
Gold, Au content	metric tons	2,000
Graphite, mineral		73,000
Iron ore	million metric tons	20,000
Lead, Pb content		18,000
Magnesite	million metric tons	1,000
Manganese, ore	do.	310
Mirabilite, Na_2SO_4 content	do.	5,500
Molybdenum, Mo content		8,300
Nickel, Ni content		2,800
Petroleum	million 42-gallon barrels	26,000
Phosphate rock	million metric tons	3,200
Potash, KCl content	do.	560
Pyrites	do.	1,300
Salt, NaCl content	billion metric tons	84
Silver, Ag content		41
Talc	million metric tons	82
Tin, Sn content		1,200
Titanium, ilmenite and leucoxene	million metric tons	230
Tungsten, WO_3 content		2,400
Vanadium, V_2O_5 content		9,500
Zinc, Zn content		44,000

do., Ditto.

[1]No data were avaiable for 2018 owing to lack of reserve data in the China Statistical Yearbook 2018.

[2]Data have been rounded to no more than two significant digits.

[3]The National Bureau of Statistics of China categorizes these as "basic reserves."