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The Mineral Industry of China

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Economic growth in China beginning in the late 20th century has been the primary cause of the unprecedented global demand for minerals and metals in recent decades. China is estimated to have accounted for as much as 40% to 50% of global demand for mineral commodities during the past three decades as the country was undergoing a mineral- and metal-intensive stage in its economic development. To secure supplies of minerals and metals during this period, China increased its spending on exploration for domestic minerals, became the leading importer of many raw materials on the global market, and was an important investor in global mining assets. Beginning in 2012, China's economic growth slowed to about 7% to 8% annually from the previous double-digit rates of growth. This reduction in economic growth has been termed the "new normal," as the country's economy transforms from being investment and export driven (characterized by infrastructure development associated with urbanization) to being consumer driven (where sustainable growth is driven by domestic consumption). Accordingly, the mining and mineral-processing industries in China have encountered some challenges in recent years, such as underutilization of production capacity (International Council on Mining and Metals, 2012, p. 3; PricewaterhouseCoopers LLP, 2015, p. 3, 9).

In 2014, China invested $18.6 billion in mineral exploration, which represented a decrease of 5.4% compared with that of 2013. China's investment in mining of fuel and nonfuel minerals was $239 billion, which represented a year-on-year increase of 0.7% compared with a 10.9% increase from 2012 to 2013, and was the lowest rate of growth in the past 12 years. The outputs of natural gas, coal, and crude oil increased by 7.7%, 2.5%, and 0.7%, respectively, compared with those of 2013, and ranked China sixth, first, and fourth, respectively, in the world, in the production of those commodities, according to the Ministry of Land and Resources. The output of 10 nonferrous metals (aluminum, antimony, copper, lead, magnesium, mercury, nickel, tin, titanium, and zinc), gold, and crude steel increased by 7.4%, 5.5%, and 1.2%, respectively, compared with the outputs in 2013, and all ranked first in the world. The outputs of potash fertilizer, phosphate rock, and cement increased by 13.5%, 7.0%, and 2.3%, respectively, compared with those of 2013. In terms of value, the country's real gross domestic product (GDP) generated by the raw materials industry increased by 8.3% in 2014 compared with an increase of 10.3% in 2013, of which the contributions of the nonferrous metals, building materials, petrochemicals, and iron and steel industries increased by 11.4%, 9.6%, 7.2%, and 7.2%, respectively (table 1; Ministry of Industry and Information Technology, 2015a; Ministry of Land and Resources, 2015a, p. 1, 3–5, 9, 13–16).

Minerals in the National Economy

China's real GDP rate of growth was 7.3% in 2014 compared with 7.7% in 2013. The nominal GDP was about $10.3 trillion[1] in 2014. The major sectors that contributed to the GDP were industry (mining and manufacturing), which accounted for 35.9% of the total GDP; wholesale and retail trade (9.8%); agriculture, forestry, animal husbandry, and fisheries (9.5%); finance (7.3%); construction (7.0%); real estate (6.0%); and transportation, storage, and postal services (4.5%). In 2013 (the latest year for which data were available), mining and manufacturing accounted for 4.3% and 30.1%, respectively, of the GDP compared with 4.6% and 31.0% in 2012, and 5.1% and 31.8%, respectively, in 2010. The annual rates of growth of mining and manufacturing GDP from 2012 to 2013 were 1.5% and 6.8%, respectively, which were lower than the annual rate of growth for the general economy. The decrease in the mining and manufacturing sectors' share of the total GDP and the lower rates of growth of these two sectors compared with that of the overall economy reflect the country's economic transformation from an economy based upon infrastructure development and exports to one based upon domestic consumption. In 2014, the mining and manufacturing sectors employed about 6 million and 52 million people, respectively, which accounted for 3.2% and 28.7%, respectively, of the country's total urban employment. The average annual wages in mining and manufacturing were $10,027 and $8,352, respectively, compared with the national average annual wage of $9,164 (National Bureau of Statistics of China, 2015a–e).

As of 2014, the number of industrial enterprises above a designated size (enterprises with annual sales revenue of more than CNY20 million, or $3.2 million) was 377,888, of which 16,249, or 4.3%, were in mining and 352,365, or 93.2%, were in manufacturing. According to the National Bureau of Statistics of China, the total assets of industrial enterprises was $15.6 trillion, of which $1.54 trillion, or 9.8%, was in mining and $11.9 trillion, or 76.8%, was in manufacturing. The total revenue of industrial enterprises was $18.0 trillion, of which $1.1 trillion, or 5.8%, was in mining and $15.9 trillion, or 88.4%, was in manufacturing. The total profit of industrial enterprises was $1.1 trillion, of which $104 billion, or 9.5%, was in mining and $925 billion, or 83.5%, was in manufacturing. The ratio of profit to revenue was 9.9% for mining, 5.8% for manufacturing, and 6.1% for the overall industrial sector (National Bureau of Statistics of China, 2015u).

[1]Where necessary, values have been converted from Chinese renminbi (CNY) to U.S. dollars (US$) at an annual average rate of CNY6.15=US$1.00 for 2014.

In 2014, according to the National Bureau of Statistics of China, the number of enterprises above a designated size that were engaged in the manufacture of nonmetallic mineral products was 33,993; the total revenue of these enterprises was $934 billion, with a profit-to-cost ratio of 7.74%. The number of enterprises above a designated size that were engaged in the manufacture of metal products was 20,784; the total revenue of these enterprises was $592 billion, with a profit-to-cost ratio of 6.27%. The number of enterprises above a designated size that were engaged in the smelting and pressing of ferrous metals was 10,363; the total revenue of these enterprises was $1.2 trillion, with a profit-to-cost ratio of 2.44%. The number of enterprises above a designated size that were engaged in the smelting and pressing of nonferrous metals was 7,385; the total revenue of these enterprises was $834 billion, with a profit-to-cost ratio of 3.29%. The number of industrial enterprises above a designated size that were engaged in the mining and washing of coal was 6,850; the total revenue of these enterprises was $493 billion, with a profit-to-cost ratio of 4.75%. The number of enterprises above a designated size that were engaged in the mining and processing of nonmetal ores was 3,758; the total revenue of these enterprises was $86 billion, with a profit-to-cost ratio of 8.6%. The number of enterprises above a designated size that were engaged in the mining and processing of ferrous metal ores was 3,312; the total revenue of these enterprises was $151 billion, with a profit-to-cost ratio of 10.04%. The number of enterprises above a designated size that were engaged in the mining and processing of nonferrous metal ores was 2,002; the total revenue of these enterprises was $102 billion, with a profit-to-cost ratio of 10.29%. The number of enterprises above a designated size that were engaged in support activities for mining was 166; the total revenue of these enterprises was $34 billion, with a profit-to-cost ratio of 2.57%. The number of enterprises above a designated size that were engaged in the extraction of petroleum and natural gas was 142; the total revenue of these enterprises was $186 billion, with a profit-to-cost ratio of 44.38%. The number of enterprises above a designated size that were engaged in the mining of other ores was 19; the total revenue of these enterprises was $390 million, with a profit-to-cost ratio of 6.45%. The average profit-to-cost ratio for the entire industrial sector was 6.25%. The relatively low profit-to-cost ratios of metal processing and of the coal industry were attributed to the low price of these commodities as well as overcapacity in these sectors (National Bureau of Statistics of China, 2015v).

In 2014, the total investment in fixed assets (excluding rural households) was $8.15 trillion, of which $2.7 trillion was invested in the manufacturing sector and $236 billion was invested in the mining sector. In the manufacturing sector, $1.4 trillion was invested in new construction projects, and $503 billion, in expansion projects. In the mining sector, $117 billion was invested in new construction projects, and $40 billion, in expansion projects. With respect to specific commodities, investment in the manufacturing of nonmetallic mineral products was $257 billion; manufacturing of metal products, $157 billion; smelting and pressing of nonferrous metals, $94 billion; smelting and pressing of ferrous metals, $78 billion; mining and washing of coal, $76 billion; extraction of petroleum and natural gas, $64 billion; mining and processing of nonmetal ores, $33 billion; mining and processing of ferrous metal ores, $27 billion; mining and processing of nonferrous metal ores, $27 billion; and support activities for mining, $8.3 billion (National Bureau of Statistics of China, 2015k).

As a result of investment in the mining and manufacturing sectors in 2014, annual production capacities increased in some subsectors, including the energy, ferrous metal, and nonferrous metal sectors, as follows: coal, with a newly added capacity of 295 million metric tons per year (Mt/yr) in 2014 compared with a capacity addition of 399 Mt/yr in 2013; coke, 50 Mt/yr compared with 67 Mt/yr in 2013; petroleum, 27 Mt/yr compared with 27 Mt/yr in 2013; natural gas, 15,700 million cubic meters per year compared with 14,600 million cubic meters per year in 2013; iron ore (gross weight), 133 Mt/yr compared with 237 Mt/yr in 2013; pig iron, 13 Mt/yr compared with 14 Mt/yr in 2013; crude steel, 22 Mt/yr compared with 25 Mt/yr in 2013; copper ore (gross weight), 23 Mt/yr compared with 44 Mt/yr in 2013; and alumina, 1.6 Mt/yr compared with 2.1 Mt/yr in 2013 (National Bureau of Statistics of China, 2015l).

Government Policies and Programs

On April 29, the Administrative Regulations for the Monitoring of the Geological Environment (The 59th Decree of the Ministry of Land and Resources, 2014) was issued by the Ministry of Land and Resources in accordance with the Mineral Resources Law, and the Regulations on the Prevention and Control of Geological Disasters and other applicable laws and regulations. The new regulations establish the purpose, basis, definition, principles, subjects, applicable scope, and legal liabilities for geologic environmental monitoring, which focuses on the effects of natural geologic processes and construction projects on the environment. The Regulations on the Administrative Penalties for Land and Resources (The 60th Decree of the Ministry of Land and Resources, 2014) was issued on May 7. The regulations establish the primary principles for applying executive restrictions to land and natural resource activities that are in violation of the Mineral Resources Law. Both the 59th and the 60th Decrees became effective on July 1 (Ministry of Land and Resources, 2014f; g).

On October 9, the State Administration of Taxation released the Notice on Implementing the Reform of Coal Resources Tax (CS [2014] No.72), the Notice on Adjusting the Policies of Crude Oil and Natural Gas Resources Tax (CS [2014] No. 73), and the Notice on Solving the Problems about Coal, Crude Oil and Natural Gas Charges Funds (CS [2014] No. 74). According to these notices, starting on December 1, 2014, the mineral resource compensation rate (a fee charged for mineral resource extraction) for coal, oil, and gas is reduced to zero and the resource tax on coal is to be charged based on sale price rather than volume. The range of the resource tax on coal is 2% to 10%, as determined by the local government. Some associated charges to the coal industry were removed. The applicable tax rate for crude oil and natural gas resources was raised from 5% to 6%. In 2014, China collected $3.2 billion in compensation fees for mineral resources, which was a decrease of 8.4% compared with the fees collected in 2013, and $17.6 billion in resource taxes, which was an increase

of 7.8% compared with the resource tax revenue in 2013 (State Administration of Taxation, 2014a, b; Ministry of Finance, 2014; Ministry of Land and Resources, 2015a, p. 26).

In May, the Ministry of Land and Resources, together with the National Development and Reform Commission, the Ministry of Finance, the Ministry of Industry and Information Technology, the Ministry of Environmental Protection, and the Ministry of Commerce, initiated the third round of planning for exploration, exploitation, and use of mineral resources. The planning, which would be conducted at the Provincial, municipal, and county levels, sought to secure a mineral supply, improve processing and efficient use, and prevent environmental damage. The plan would use statistical data and indicators for the mineral industry in 2015 as a basis for establishing goals for 2020 and 2025 (Ministry of Land and Resources, 2014h).

On June 5, the Ministry of Land and Resources released the 2014 annual production quotas for rare-earth oxides (REOs) and tungsten ore. The production quota for REOs was 105,000 metric tons (t), of which heavy rare earths was 17,900 t and light rare earths was 87,100 t. The quotas for major light rare-earth mining regions included Inner Mongolia (59,500 t of REOs), Sichuan (25,000 t), and Shandong (2,600 t). The quotas for major heavy rare-earth mining regions included Jiangxi (9,000 t of REOs), Guangxi (2,500 t), Guangdong (2,200 t), Hunan and Fujian (2,000 t each), and Yunnan (200 t). The production quota for tungsten concentrate (65% WO_3 content) was 89,000 t, of which primary mining production was 71,000 t and byproduct recovery was 18,000 t. The quotas for major primary tungsten mining regions included Jiangxi (34,350 t of tungsten concentrate), Hunan (19,000 t), Yunnan (5,250 t), Guangdong (3,200 t), Fujian (2,500 t), and Guangxi (2,000 t). The quotas for major tungsten byproduct recovery regions included Henan (6,000 t of tungsten concentrate), Hunan (4,100 t), Jiangxi (3,400 t), Heilongjiang (1,100 t), and Guangxi (1,000 t). In 2014, the Ministry of Land and Resources did not issue antimony ore production quotas (Ministry of Land and Resources, 2014a, c).

As of yearend 2014, the national pilot program of green mines (environmentally friendly mines) construction included 661 mining companies. According to the Ministry of Land and Resources, these mines served as examples for the rest of mining industry in terms of circular economic development (sustainable development), efficient resource use, green technology application, and environmental protection. In 2014, the Ministry of Land and Resources released the Measures on the Acceptance Inspection of State-level Green Mine Pilots (Trial Implementation), and completed the evaluation of the progress of the first 37 pilot entities (Ministry of Land and Resources, 2015a, p. 19–20).

On December 31, the Ministry of Land and Resources released the minimum index requirements regarding the extraction recovery rate, concentration recovery rate, and comprehensive utilization rate for 8 minerals (asbestos, bauxite, chromite, graphite, manganese ore, molybdenum, pyrite, and tungsten); this brought the total number of minerals for which index requirements were released during the past 3 years to 20. The index requirements were established for specific types and grades of ores based on collective studies of industrial practice, and detailed testing and calculation procedures were provided. The requirements would be the minimum design standards for all new and expansion projects, and all existing facilities were required to meet these standards within 2 years (Ministry of Land and Resources, 2014b, 1, 11; 2014d).

In 2011, the Ministry of Industry and Information Technology, National Development and Reform Commission, Ministry of Supervision, Ministry of Finance, Ministry of Land and Environmental Protection, and other Government agencies had jointly issued the Notice on the Assessment and Implementation of the Program Aimed at Eliminating Outdated Production Capacity (the Ministry of Industry and Information Technology [2011] No. 46). According to the Ministry of Industry and Information Technology, in 2014 the program achieved its target and eliminated the following annual capacities: 4.86 gigawatts (GW) of electrical generating capacity, 230 million metric tons (Mt) of coal, 87.73 Mt of cement, 31.13 Mt of steel, 28.23 Mt of iron, 18.53 Mt of coke, 2.62 Mt of ferroalloys, 1.94 Mt of calcium carbide, 760,000 t of copper smelting, 510,000 t of electrolytic aluminum, 360,000 t of lead smelting, and 114,000 t of rare-earths separation capacity. In 2013, the following outdated annual production capacities were eliminated by the program: 5.44 GW of electrical generating capacity,, 145.78 Mt of coal, 105.78 Mt of cement, 24 Mt of coke, 8.84 Mt of steel, 6.18 Mt of iron, 2.1 Mt of ferroalloys, 1.18 Mt of calcium carbide, 960,000 t of lead smelting, 860,000 t of copper smelting, 270,000 t of electrolytic aluminum, and 190,000 t of zinc smelting (Ministry of Industry and Information Technology, 2011, 2014c, 2015b).

In May, the Bureau of Geological Survey inaugurated a national database for major minerals and mines in China. The database was established based on the results of a comprehensive survey and evaluation of the extraction recovery rate, concentration recovery rate, and comprehensive utilization rate at 16,061 important mineral mines. The minerals covered by the database included antimony, bauxite, coal, copper, fluorite, gold, graphite, iron, lead, manganese, molybdenum, natural gas, nickel, oil, phosphorus, potassium, pyrite, rare earths, tin, tungsten, and zinc. The database contained comprehensive information about the mines, including basic information about the mining enterprises, mineral reserves, technical conditions, extraction operations, beneficiation operations, use of coexisting minerals, waste treatment and use of tailings, economic indicators about the operations, and the application of new technologies. The database was expected to provide support for the evaluation of mine development and mineral use, and serve as a reference for mining research, policy, and planning for industry and Government agencies (Cao and Liu, 2014).

Production

In 2014, the output of iron ore (gross weight of crude ore) was 1.51 billion metric tons (Gt), which was an increase of 4% compared with that of 2013; crude steel, 822 Mt (an increase of 3%); and rolled steel, 1.13 Gt (an increase of 5%). The output of refined copper was 6.8 Mt in 2014, which was an increase of 10% compared with that of 2013, and primary aluminum, 28.3 Mt, which was an increase of 6.8%.* In 2014, the output of

*Correction posted on September 18, 2017.

gold was 486 t, which was an increase of 14% compared with that of 2013. China's production of crude steel and gold ranked first in the world.

China was the leading energy producing and consuming country in the world in 2014. Primary energy output totaled 3.6 Gt of standard coal equivalent (SCE), which was an increase of 0.5% compared with that of 2013. Energy consumption increased by 2% to 4.3 Gt of SCE in 2014, and the self-sufficiency rate was 84.5%. China's energy mix had changed continuously since 2011; the use of coal in total energy consumption was reduced and the share of natural gas and other clean fuels was increased. Coal production in 2014 totaled 3.9 Gt, which was a decrease of 2.2% compared with that of 2013. Crude oil production was 211 Mt (1.53 billion 42-gallon barrels) in 2014, which was an increase of 0.7% compared with that of 2013. The output of natural gas was 130 billion cubic meters in 2014, which was an increase of about 7% (Ministry of Land and Resources, 2015a, p. 14).

In 2014, the output of cement was 2.5 Gt which was an increase of 3% compared with that of 2013; potash fertilizer (100% K_2O), 6.1 Mt, which was an increase of 15%; and phosphate rock (30% P_2O_5), 120 Mt, which was an increase of 7% (table 1). Data on mineral production are in table 1.

Structure of the Mineral Industry

In China, the majority of the mining and processing activities were conducted by state-owned or state-holding enterprises. In 2014, state-owned and state-holding petroleum and natural gas extraction enterprises accounted for 87% of the total number of enterprises and 99% in terms of the total assets in the sector; support activities for mining, 42% and 97%, respectively; mining and processing of nonferrous metal ores, 21% and 64%, respectively; coal mining and washing, 20% and 87%, respectively; manufacturing of petroleum, coking coal, and the processing of nuclear fuel, 17% and 71%, respectively; smelting and pressing of nonferrous metals, 11% and 62%, respectively; mining and processing of nonmetal ores, 8% and 45%, respectively; manufacturing of nonmetallic mineral products, 7% and 33%, respectively; mining and processing of ferrous metal ores, 6% and 58%, respectively; smelting and pressing of ferrous metals, 5% and 71%, respectively; and manufacturing of metal products, 4% and 21%, respectively. The share of state ownership was high in the energy sector and relatively low in the downstream metal manufacturing sector, and the state-owned companies were mostly large in size, whereas private enterprises were small and distributed (National Bureau of Statistics of China, 2015w–x).

On February 19, China Petroleum & Chemical Corp. (Sinopec) announced that the company would start ownership reform by introducing social and private capital participation. It was the first attempt in the energy sector to shift from a monopoly state-owned enterprise to a mixed-ownership business. The proportion of private capital holdings would not exceed 30%. It was expected that more state-owned enterprises would follow Sinopec and diversify equity and develop mixed-ownership businesses (Xinhuanet.com, 2014a).

Mineral Trade

In 2014, the total value of exported goods was $2.34 trillion compared with $2.21 trillion in 2013. The value of mineral product exports accounted for 1.7% of total exports compared with 1.6% in 2013. Exports of base metals and the articles made of them accounted for 7.8% of the total compared with 7.1% in 2013. The country's exports to Asia accounted for 51% of total exports; Europe, 19%; North America, 18%; South America, 6%; Africa, 5%; and Oceania and the Pacific Islands, 2%. The share of these export destinations remained unchanged from 2013 (National Bureau of Statistics of China, 2015m, o).

In 2014, exports of rolled steel were valued at $70.8 billion compared with $53.2 billion in 2013; petroleum (refined products), $25.8 billion compared with about $24.5 billion in 2013; rolled aluminum, $11.9 billion compared with $10.4 billion in 2013; iron or copper nails and bolts, $5.2 billion compared with $4.7 billion in 2013; rolled copper, $4.2 billion compared with about $4.2 billion in 2013; unwrought copper and its alloys, $1.9 billion compared with $2.3 billion in 2013; coke and semicoke, $1.7 billion compared with $1.1 billion in 2013; unwrought aluminum and its alloys, $1.4 billion compared with $1.3 billion in 2013; cement and cement clinkers, $772 million compared with $796 million in 2013; coal, $695 million compared with $1.1 billion in 2013; and natural graphite, $298 million compared with $276 million in 2013. The rolled steel exports increased by 33% in terms of value, and by 50% in terms of the tonnage of output (from 62 Mt to 94 Mt) in 2014 compared with that of 2013. China became a net exporter of steel in recent years, and the increase in exports is likely to continue to increase owing to the overcapacity in China's steel industry (table 3; National Bureau of Statistics of China, 2015n, p).

In 2014, the total value of imported goods was $1.96 trillion compared with $1.95 trillion in 2013. The value of mineral product imports accounted for 23% of the total compared with 24% in 2013. Imports of base metals and the articles made of them accounted for about 5% of the total and remained unchanged from the percentage in 2013. Imports from Asia accounted for 55% of total imports; Europe, 17%; North America, 9%; and Africa, Oceania and Pacific Islands, and South America, 6% each. The percentage share of imports from these areas remained unchanged from that of 2013 (National Bureau of Statistics of China, 2015m, o).

Imports of crude oil amounted to $228 billion compared with $220 billion in 2013; iron ore, $94 billion compared with $106 billion in 2013; copper and copper alloys, $29.6 billion compared with $28.5 billion in 2013; petroleum (refined products), $23 billion compared with $32 billion in 2013; coal, $22 billion compared with $29 billion in 2013; copper ores, $21.6 billion compared with about $19.5 billion in 2013; rolled steel, $18 billion compared with $17 billion in 2013; rolled copper, $6.0 billion compared with $6.4 billion in 2013; rolled aluminum, $3.0 billion compared with $3.0 billion in 2013; manganese ores, $2.7 billion compared with $3.2 billion in 2013; potassium chloride, $2.5 billion compared with $2.4 billion in 2013; aluminum oxide, $1.9 billion compared with $1.4 billion in 2013; chromium ores, $1.8 billion

compared with $2.4 billion in 2013; and compound fertilizers of nitrogen, phosphor and calcium, $640 million compared with $753 million in 2013 (table 4; National Bureau of Statistics of China, 2015n).

In 2014, the foreign direct investment (FDI) actually utilized in China was $120 billion, the same as that of 2013. In 2014, about 0.5% of the FDI was in the mining sector compared with 0.3% in 2013, and 33% was in the manufacturing sector compared with 38% in 2013. The number of projects financed by FDI was 35 for mining and 5,178 for manufacturing. The FDI in mineral-related activities was mainly in downstream processing rather than in mining and extraction (National Bureau of Statistics of China, 2015q, r).

In 2014, overseas direct investment (ODI) by China totaled $123 billion for the year compared with $108 billion in 2013. Hong Kong received $71 billion of China's ODI, followed by the United States, which received $7.6 billion. As of yearend 2014, the accumulated amount of China's ODI was $883 billion, of which Hong Kong had received $510 billion and the United States had received $38 billion. In 2014, about 13% of the ODI was in the mining sector compared with 23% in 2013, and 7.8% was in the manufacturing sector compared with 6.7% in 2013. As of yearend 2014, mining accounted for 14% of the accumulated amount of China's ODI, and manufacturing, 6% (National Bureau of Statistics of China, 2015s, t).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—Production of primary aluminum was 28.3 Mt in 2014 compared with 26.5 Mt in 2013.* Owing to the low price of coal, the average cash cost (including tax) decreased by 9.8% from that of 2013 to $1,983 per metric ton. The number of electrolytic aluminum companies operating in China was 101, of which 26 companies had the capacity to produce more than 400,000 metric tons per year (t/yr) of aluminum. The total capacity of all producers was 35.84 million metric tons per year (Mt/yr). In 2014, 4.74 Mt/yr of capacity was added by new projects, 1.6 Mt/yr of capacity was recommissioned, and 3.35 Mt/yr of capacity was discontinued. About 39% of the new capacity was added in the Xinjiang Uygur Autonomous Region owing to its competitive electricity cost. Net imports were 180,000 t in 2014 compared with 260,000 t in 2013. Consumption of primary aluminum was estimated to be 28.0 Mt in 2014 compared with 25.0 Mt in 2013 (Yao, 2015, p. 8–10, 15, 19).*

The leading consumer of primary aluminum in China was the construction sector, which accounted for 35.5% of total consumption, followed by electronics and electricity (14.0%), transportation (12.1%), exports of manufactured products (11.6%), and durable consumer goods (11.3%). The demand for aluminum depended mainly on growth in the automobile, electricity, and real estate sectors (Yao, 2015, p. 15–18).

Copper.—Production of copper concentrate (copper content) was 1.62 Mt in 2014 compared with 1.54 Mt (revised) in 2013. Production in five Provinces (Anhui, Gansu, Inner Mongolia, Jiangxi, and Yunnan) exceeded 100,000 t each in 2014. Imports of copper concentrate amounted to 3.07 Mt in 2014 compared with 4.26 Mt in 2013. Imports were sourced mainly from Chile, Mongolia, and Peru. Mongolia became the third-ranked import partner in 2014 after the Oyu Tolgoi copper mine started production. Total copper supply in the country amounted to 4.69 Mt compared with 4.26 Mt in 2013. Consumption of copper concentrate was estimated to be 4.46 Mt in 2014 compared with 3.97 Mt in 2013. The oversupply was estimated to be 221,000 t, which was less than the 294,000-t oversupply in 2013 (He, 2015, p. 8, 11).

Production of refined copper was 6.82 Mt in 2014 compared with 6.18 Mt (revised) in 2013. Production in six Provinces (Anhui, Gansu, Hubei, Jiangxi, Shandong, and Yunnan) exceeded 400,000 t each in 2014. Imports of refined copper amounted to 3.58 Mt in 2014 compared with 3.20 Mt in 2013. Consumption of refined copper concentrate was estimated to be 8.72 Mt in 2014 compared with 8.20 Mt in 2013. The oversupply was estimated to be 1.42 Mt in 2014, which was more than the 892,000-t oversupply in 2013. New capacities added in 2014 were 650,000 t/yr for smelting and 900,000 t/yr for refining. As of yearend 2014, the total capacities for smelting and refining were 5.5 Mt/yr and 9.86 Mt/yr, respectively (He, 2015, p. 7, 13).

In 2014, consumption of refined copper in China was for electricity generation and transmission (which consumed 4.2 Mt of refined copper), air conditioning (1.36 Mt), transportation (855,000 t), electronics (625,000 t), construction (740,000 t), and others (890,000 t). Consumption for electricity generation and transmission and air conditioning increased by 7.6% and 9.7%, respectively, in 2014, compared with that of 2013 (He, 2015, p. 11).

On April 14, in order to reduce redundant construction in the copper industry, the Ministry of Industry and Information Technology issued Copper Smelting Industry Standard Conditions (Bulletin No. 29 of 2014), which established some minimum requirements for the copper industry. Smelting capacity must be 100,000 t/yr or more for new and reconstructed copper smelting facilities using concentrates and copper-bearing secondary resources. For existing copper smelting enterprises using copper-bearing secondary resources, the production capacity should be no less than 50,000 t/yr. Requirements for energy and water consumption per metric ton of copper production were also established (Ministry of Industry and Information Technology, 2014a, b).

On August 1, Glencore announced the completion of the sale of Las Bambas copper mine project to a Chinese consortium owned by MMG Ltd. (a subsidiary of China's state-owned company China Minmetals Corp.) (62.5%), Guoxin International Investment Corp. Ltd. (22.5%), and CITIC Metal Co., Ltd. (15.0%), effective July 31, 2014. The value of the transaction was approximately $7 billion. Las Bambas project, which is located at Cotabambas in the Apurimac Region of Peru, had the potential to be developed as an open pit mine and was expected to produce about 400,000 t/yr of copper and 5,000 t/yr of molybdenum. The project was at an advanced stage of construction and was scheduled to commence production in 2015 (Facing Finance, 2014; Glencore Xstrata plc, 2014; Ministerio de Energía y Minas, 2015, p. 108).

*Correction posted on September 18, 2017.

Iron Ore and Iron and Steel.—In 2014, production of iron ore amounted to 1.51 Gt (gross weight), which was an increase of 56.9 Mt, or 3.9%, compared with that of 2013. In December 2014, production was 126 Mt, which was a decrease of 4.6% compared with that of December 2013, and the third consecutive month of declining production compared with that of 2013. Imports increased to 933 Mt in 2014, or by 13.8% compared with those of 2013. In December 2014, imports were 86.9 Mt, which was an increase of 28.9% compared with those of December 2013. Dependence on foreign iron ore (metal content basis) increased to 78.5% in 2014 from 69.8% in 2013. Iron ore port stocks decreased slightly for 7 consecutive months after peaking in May. At yearend, port stocks were 98.24 Mt, representing an increase of 11 Mt compared with the beginning of the year. In 2014, iron ore prices maintained their overall downward trend. The annual average import price was $100 per metric ton, which was $29 per metric ton lower than that of 2013. The average import price was $75 per metric ton in December 2014, which was $4 per metric ton lower than that of December 2013 (China Iron and Steel Industry Association, 2015).

In 2014, production of manufactured steel amounted to 1.13 Gt; crude steel, 822 Mt; and pig iron, 714 Mt, representing increases of 5.4%, 5.6%, and 0.7%, respectively, compared with those of 2013. By comparison, the annual rate of growth for and manufactured steel, crude steel, and pig iron in 2013 was 11.4%, 7.5%, and 6.2%, respectively. The decreases were attributable to the lower rate of demand growth as the overall economy slowed. In 2014, China's crude steel production accounted for 50% of the world's total (China Iron and Steel Industry Association, 2015).

Exports of manufactured steel increased by 50.5% to 93.8 Mt in 2014 compared with that of 2013; imports of manufactured steel increased by 2.5% to 14.43 Mt. Net exports of crude steel equivalent were 84.4 Mt, which was an increase of about 33.1 Mt compared with that of 2013. By yearend 2014, China's total imports of manufactured steel since 1949 amounted to 594 Mt, whereas exports of manufactured steel amounted to 596 Mt. China became a net exporter of steel in 2006, and the volume of net exports had increased since 2009 (China Iron and Steel Industry Association, 2015).

In March, it was announced that the first "Chinese Iron Ore Long-term Development Plan" was in preparation and would be submitted to the State Council for approval by the end of 2014. The plan sought to decrease reliance on iron imports by increasing the share of domestic supply to more than 50%. New mine expansions, mergers, acquisitions, and other means would be adopted to improve industrial concentration and to accelerate industry restructuring and upgrading. About six to eight large mining groups with ore production capacities of more than 30 Mt/yr would be formed. On October 11, Anshan Iron and Steel Group Corp. announced the formation of the Anshan Iron and Steel Mining Group Co., which was the first domestic iron ore mining company with a capacity of more than 100 Mt/yr. The company held 11 Gt of iron ore reserves with the potential to reach 30 Gt in the future. As of yearend 2014, the mining and beneficiation capacities of the Anshan Iron and Steel Mining Group Co. were 400 Mt/yr and 120 Mt/yr, respectively (Anshan Iron and Steel Group Corp., 2014; Li, 2014).

Lead.—Production of lead concentrate was 2.80 Mt (lead content) in 2014 compared with 2.85 Mt (revised) in 2013. This was the first time in more than 10 years that lead concentrate production had decreased; the decrease was attributable to low lead prices and stricter environmental regulations. From January to November, the leading lead-concentrate-producing Province was Inner Mongolia (which produced 883,000 t of lead concentrate), followed by Hunan (405,000 t), Sichuan (241,000 t), and Guangxi (188,000 t). Imports of lead concentrate amounted to 900,000 t (metal content) in 2014 compared with 740,000 t in 2013. Consumption of lead concentrate was estimated to be 3.31 Mt in 2014 compared with 3.45 Mt in 2013. The oversupply was estimated to be 385,000 t, which was more than the 140,000-t oversupply in 2013 (Zhang, 2015, p. 11, 12, 14).

Production of refined lead was 4.74 Mt in 2014 compared with 4.78 Mt in 2013. The decrease was mainly attributable to the slow growth in demand, a shortage of raw material supply, and a shutdown of some capacities owing to low metal prices and facility upgrading to meet environmental regulations. From January to November, the leading refined-lead-producing Province was Henan (which produced 1.2 Mt of refined lead), followed by Hunan (1.1 Mt), Yunnan (416,000 t), and Hubei (304,000 t). Net exports of refined lead were 35,000 t in 2014 compared with 20,000 t in 2013. Major export partners included Malaysia, the Republic of Korea, Taiwan, Vietnam, and other countries in Southeast Asia. Consumption of refined lead was estimated to be 4.96 Mt in 2014 compared with 4.70 Mt in 2013. The supply shortfall was 255,000 t compared with an oversupply of 61,000 t in 2013 (Zhang, 2015, p. 17, 23).

The leading use of refined lead in China was for the production of lead-acid batteries, which accounted for 80% of total consumption. In 2014, the production of lead-acid batteries increased by 6.7%. Another major use was the production of mobile communications equipment, which increased by about 121% in 2014. These markets were expected to continue to grow in 2015 and to support a steady demand for refined lead (Zhang, 2015, p. 17–19).

Molybdenum.—In 2014, China's exports of molybdenum (molybdenum content in all products) increased by 59.4% to 22,795 t compared with that of 2013. The leading molybdenum export product, in terms of tonnage, was molybdenum concentrates (which totaled 7,863 t, representing an increase of 55.2% compared with that of 2013 and accounting for 34.5% of total exports in 2014); followed by molybdenum rod, bar, profile, and special profile (3,946 t, 46.9% increase, and 17.3% of the total); and molybdenum oxide (1,875 t, 96.3% increase, and 8.2% of the total). Other export products included ammonium molybdate (1,772 t), ferromolybdenum (1,558 t), and molybdenum powder (1,079 t). Total imports of molybdenum products amounted to 16,816 t, which was an 8.3% increase compared with that of 2013. Imports of molybdenum concentrate decreased by 48% to 5,182 t, accounting for 30.8% of total imports. Imports of molybdenum oxide and hydroxide were 743 t, accounting for 4.3% of the total (Tungsten & Molybdenum Monthly, 2015a).

On December 29, the Ministry of Commerce issued "2015 Export Quotas and Enterprises List for Tungsten, Antimony, Silver, Indium, Tin, and Other Metals." According to the document, export quotas for molybdenum and tungsten were canceled starting in 2015 and the export qualification requirements for molybdenum companies were also eliminated. The list of qualified tungsten export companies (other companies were not allowed to export their tungsten products) remained unchanged. The cancellation was an adjustment to the export tariffs and quotas on rare metals implemented in 2010 that sought to protect rare-metal resources by restricting exports. Some major consuming countries brought this trade-restriction issue to the World Trade Organization (WTO), which ruled in October 2014 against China. The lifting of export restrictions on molybdenum was expected to have limited effect on export quantities in the short term because, during the past 2 years, the actual exports accounted for only 60% to 70% of the quotas (Zhu, 2014).

China Molybdenum Co. Ltd. (also known as Luoyang Luanchuan Molybdenum Industry Group Co. Ltd.) was one of the world's leading producers of molybdenum. In 2014, the company operated the Luanchuan molybdenum-tungsten mine, which was located at Luanchuan, Henan Province. As of yearend 2014, the proven and probable reserves were estimated to be 321 Mt of ore at a grade of 0.11% molybdenum and 0.11% WO_3. The molybdenum metal content was estimated to be about 333,000 t, and the WO_3 content, about 381,000 t. The company had a molybdenum mining capacity of 30,000 metric tons per day (t/d), ferromolybdenum smelting capacity of 25,000 t/yr, and molybdenum roasting capacity of 40,000 t/yr. According to the company, these capacities were all ranked first in the country. In 2014, the production of molybdenum (metal content) was 16,270 t, and the molybdenum recovery rate was 85.3% (China Molybdenum Co., Ltd., 2015a, p. 12; 2015b, p. 12, 33).

Tin.—Production of tin concentrate was 99,000 t (metal content) in 2014 compared with 97,000 t (revised) in 2013. Imports of tin concentrate were estimated to be 17,000 t (metal content) in 2014 compared with 13,500 t in 2013. Major import partners were Bolivia, Burma, the Democratic Republic of the Congo [Congo (Kinshasa)], and Tanzania. Bolivia was the leading import source before 2013. In 2014, Burma became the leading import source, accounting for 97.22% of imports by gross volume. Metal content in Burma's tin concentrate was relatively low compared with other sources. The considerable increase in tin concentrate imports was an indicator of the shortage of domestic raw material supply (Sun, 2015, p. 8).

Production of refined tin was 187,000 t in 2014 compared with 159,000 t (revised) in 2013. From January to November, the leading refined-tin-producing Province was Yunnan, which produced 89,106 t of refined tin, followed by Hunan (42,537 t), Jiangxi (19,642 t), and Guangxi (13,192 t). Imports of refined tin were 7,000 t in 2014 compared with 13,000 t in 2013. The decrease was owing mainly to the lower domestic price compared with the international market price. Imports from Indonesia decreased by 67% to 2,147 t, which was attributable to the export ban on certain grades of refined tin that was implemented in 2013 by the Government of Indonesia. Imports from Bolivia remained at 3,000 t, which was unchanged in recent years. Exports decreased by 59.4% to 941 t. Consumption of refined tin was estimated to be 161,000 t in 2014 compared with 156,000 t in 2013, accounting for 46% of world consumption. In 2014, the rate of growth of production was higher than the rate of growth of consumption and the surplus of refined tin increased compared with that of 2013 (Sun, 2015, p. 8–10, 12, 15).

The leading use of refined tin in China was to produce solder, which accounted for 61% of total consumption, followed by tin chemicals (16%), tin plate (11%), copper alloy (4%), lead-acid batteries (4%), and others (4%). Solder was used by the electronics and information industries, which experienced a high rate of growth in China during past 10 years. The markets for lead-acid batteries and tin chemicals were experiencing steady rates of growth. In 2014, consumption of tin plate increased by 6% to 16,000 t compared with that of 2013 (Sun, 2015, p. 14–16).

Tungsten.—Production of tungsten concentrates (65% WO_3) was 71,000 t (tungsten content) in 2014 compared with 71,000 t (revised) in 2013. The leading producers included China Molybdenum Co., Ltd. in Henan (which produced 12,343 t of tungsten concentrates), Jiangxi Tungsten Industry Group Co., Ltd. in Jiangxi (11,000 t), Shizhuyuan Tungsten Mine in Hunan (5,357 t), Jiangxi Rare Earth and Rare Metals Tungsten Group Corp. in Jiangxi (4,410 t), Chongyi Zhangyuan Tungsten Co., Ltd. in Jiangxi (4,100 t), and Xianglu Mountain Tungsten Mine in Jiangxi (4,000 t) (Tungsten & Molybdenum Monthly, 2015b).

Imports of tungsten concentrates amounted to 3,327 t. The leading importing Provinces were Fujian (which imported 2,462 t of tungsten concentrate), Inner Mongolia (366 t), and Tianjin (166 t). The sources of tungsten imports were Brazil, Canada, Mongolia, Nigeria, Russia, Rwanda, Vietnam, and others. The leading importing companies were Xiamen Jialu Metals Industry Co., Ltd. (which imported 73% of total tungsten concentrate imports); T&B International Logistics Group; Erenhot Yuantonneg Trade Co., Ltd.; Erenhot Yangguang Trade Co., Ltd.; and Zhuzhou Keneng New Material Co., Ltd. Imports of sodium tungstate increased by about 1,900% to 410 t compared with that of 2013. Unwrought sodium tungstate was mainly imported from Vietnam for ammonium paratungstate (APT) production (Tungsten & Molybdenum Monthly, 2015b).

Exports of tungsten products increased by 12.7% to 20,467 t compared with that of 2013 owing to increased foreign demand for tungsten and declining stocks in other countries. The major exported products included yellow tungsten dioxide (3,617 t, which was an increase of 18.2% compared with the amount exported in 2013), blue tungsten dioxide (3,255 t, 18.5%), APT (2,119 t, 8%), ammonium metatungstate (1,326 t, 2.8%), tungsten carbide powder (961 t, 45.18%), and ferrotungsten (342 t, 529%) (Tungsten & Molybdenum Monthly, 2015b).

Total tungsten metal consumption (excluding the consumption of recycled tungsten) increased by 2.4% to 34,000 t in 2014 compared with that of 2013, of which 20,400 t (4% increase from 2013) was used for cemented carbide, and 10,534 t (1% increase from 2013) was consumed by the specialty steel sector (Tungsten & Molybdenum Monthly, 2015b).

Zinc.—Production of zinc concentrate was 4.93 Mt (zinc content) in 2014 compared with 4.73 Mt (revised) in 2013.

The leading zinc-concentrate-producing Provinces included Inner Mongolia (1.2 Mt), Hunan (666,000 t), Yunnan (643,000 t), Guangxi (473,000 t), Shanxi (450,000 t), and Sichuan (370,000 t). The production in Inner Mongolia increased by 16.5% compared with that of 2013. Imports of zinc concentrate were estimated to be 940,000 t (zinc content) in 2014 compared with 890,000 t in 2013. Major import partners were Australia, Mongolia, and Peru. The average zinc content of imported zinc concentrate was 45% to 47% (Fan, 2015, p. 11–12, 16).

Production of refined zinc was 5.6 Mt in 2014 compared with 5.2 Mt in 2013. The increase was mainly attributable to the improvement in the metal price since June. In the second half of 2014, all large facilities in China operated at full capacity, and medium and small facilities operated at 80% or more of their designed capacity. The leading refined-zinc-producing Provinces included Hunan (1.2 Mt), Yunnan (1.1 Mt), Shanxi (832,000 t), Inner Mongolia (530,000 t), and Guangxi (483,000 t). Net imports of refined zinc were 620,000 t in 2014 compared with 640,000 t in 2013. Consumption of refined zinc was estimated to be 6.25 Mt in 2014 compared with 5.96 Mt in 2013. The supply and demand of refined zinc were in balance in 2014. Based on the demand for refined zinc and domestic mine output in recent years, China would need to import an estimated 1 Mt of zinc (in the form of refined zinc or zinc concentrate) every year to maintain the balance (Fan, 2015, p. 13–14, 17).

The leading use of refined zinc in China was galvanization, which accounted for 55% of total consumption, followed by die-casting alloy (25.8%), zinc oxide (9.2%), brass (5.7%), and batteries (3.9%). Galvanization was the fastest growing use with an annual rate of growth of 10.2% during the past 3 years owing to the increase in galvanized steel production in China. The annual rate of growth for zinc oxide consumption was 9.0% during the past 3 years owing to the increase in automobile tire production. Consumption in other industries was slow or declining (Fan, 2015, p. 14–16).

Industrial Minerals

Cement.—In 2014, the rate of growth of investment in real estate development was 11.9% compared with 19.8% in 2013. China's fixed asset investment growth rate was 15.8% compared with 19.9% in 2013. The fixed asset investment rate of growth in 2014 was the lowest in 10 years, which led to a sharp decline in demand for cement. The rate of growth in infrastructure investment, however, remained high at more than 20%, which helped to maintain the demand for cement. In 2014, the annual rate of growth of cement output was 2%, which was the lowest rate of growth since 1991 (table 1; Digital Cement, 2015).

In 2014, cement production in Jiangsu Province was 190 Mt, which was ranked first in the country, followed by Henan and Shandong Provinces, which had outputs of more than 150 Mt each. Guangdong Province also had a high level of output and rate of growth, and shifted in rank from fifth in 2013 to fourth in 2014. Cement production in Guizhou Province increased by 17% in 2014, which ranked the Province first in the country in terms of rate of growth in cement production for 4 consecutive years. Production in 14 Provinces maintained single-digit growth, and 13 Provinces had production decreases. The decline in production was fastest in Hebei Province; where cement production had decreased for 3 consecutive years (Digital Cement, 2015).

In 2014, investment in the cement industry decreased 16% compared with that of 2013. The investment had declined for 4 consecutive years since 2011. The decline was attributable to weak demand owing to the decreasing rate of growth of fixed asset investment as well as production overcapacity. Despite the decreased investment, 54 cement clinker production lines came online in 2014, adding a total of 70.3 Mt /yr of production capacity, which was 24 Mt/yr less (or a 25% decrease) than the capacity addition in 2013. Of the 54 new clinker production lines, 31 lines had a clinker production capacity of 5,000 t/d; 17 lines had a clinker production capacity of 2,500 to 4,000 t/d, 2 lines had a clinker production capacity of 2,000 t/d, and 4 lines had a clinker production capacity of less than 2,000 t/d. The average capacity of these 54 lines was 4,200 t/d. New capacity was mainly in Guizhou and Yunnan Provinces. In total, 25 Mt/yr of new capacity was added in these two Provinces, which accounted for 36% of the country's added capacity (Chen, Bolin, 2015; Digital Cement, 2015).

By the end of 2014, the total number of cement production lines that used the dry process was 1,758 (including discontinued but operational capacity), with total production capacity of 1.77 billion metric tons per year. The production capacity increase in 2014 accounted for about 4% of total capacity, whereas overall consumption increased by only about 2%, making the supply and demand situation more challenging in 2014 (Chen, Bolin, 2015; Digital Cement, 2015).

China Building Materials Group Co., Ltd. was a state-owned building materials company. By the end of 2014, the company's cement production capacity was 400 Mt/yr, which was about 40 times higher than that in 2006 (11 Mt/yr) and ranked the company first in the world in terms of capacity in 2014. In the same time period, the company's concrete production capacity increased from zero to 413 million cubic meters, which also ranked the company first in the world in 2014. The company's gypsum board production capacity increased to 1.78 billion square meters in 2014 from 360 million square meters in 2006 which ranked the company first in Asia in 2014. In 2014, the company sold 292 Mt of cement compared with 285 Mt in 2013, and 87 million cubic meters of concrete, which was the same as that of 2013 (China Building Materials Group Co. Ltd., 2015a, p. 2, 15–16; 2015b).

Graphite.—In 2013, natural graphite production in China was 810,000 t, accounting for 68% of global production. In 2014, the country's natural graphite production was estimated to be 780,000 t. China was the world's leading consumer of graphite, accounting for 50% of global consumption. In China, crystalline graphite was mainly used in steel metallurgy and refractory materials, accounting for 40% of the total consumption, followed by the foundry industry (20%), and other applications, such as forging colloidal graphite, drawing colloidal graphite, and energy-saving additives. China's annual graphite exports in terms of tonnage accounted for 80% of total world graphite exports, and its major export partners were Germany, Japan, the Republic of Korea, and the United States.

Japan was the world's leading importer of graphite, and 98% of its graphite imports were from China. The United States was completely dependent on imports of natural flake graphite, of which 48% came from China (Liu, 2015).

In recent years, graphite had been deemed a strategic resource that had broad aerospace, electronics, military, and nuclear power applications. It is a raw material for graphene, which has unique material properties for high-tech applications. In recent years, the Government had issued a series of policies that sought to develop downstream processing technology and value-added products for graphite. In November, the National Development and Reform Commission, the Ministry of Finance, and the Ministry of Industry and Information Technology jointly issued the "Key Material Upgrading Project Implementation Plan," which identified graphene as one of the strategic materials for which the Government intended to achieve commercial production and applications by 2016 (Ministry of Industry and Information Technology, 2014d, p. 1–3; Liu, 2015).

Potash.—On January 10, the Lop Nur Salt Lake 1.2-Mt/yr potassium sulfate technology research and development project was awarded the National Science and Technology Progress Prize. The project was operated by Xinjiang Lop Nur Potassic Salt Scientific and Technology Development Co., which had produced 3.55 Mt of potash since 2011. The potassium hydroxide content in the product was 51.9%, and the recovery rate was 57.5%. The production accounted for more than 78% of the domestic market share (China Chemical Industry Group, 2014).

Improving agricultural yields are important to China owing to the country's relatively limited amount of arable land—China has 9% of the world's arable land and 20% of the world's population. Use of fertilizer has increased the agriculture yields in the country by 50%. China was the second-ranked consumer of potash in the world. Annual imports of potash totaled about 6 Mt. The Lop Nur project increased China's potash self-sufficiency rate from 30% to more than 50%. The technologies and equipment developed at the Lop Nur project were expected to be applied at other domestic and foreign sulfate salt lakes (China Chemical Industry Group, 2014).

Rare Earths.—China was the world's leading rare-earth producer, consumer, and exporter in 2014. As of yearend 2014, 21 mining companies and more than 100 processing companies were registered under the Ministry of Industry and Information Technology for a total rare-earth mining capacity of about 300,000 t/yr and a total rare-metal production capacity of about 60,000 t/yr. In addition, secondary rare-earth products were also produced from waste materials by some recycling companies (State Council, 2012, p. 1–6; Chen, Zhanheng, 2015).

In January, the State Council approved the rare-earth industry integration plan that was prepared by the Ministry of Industry and Information Technology and other agencies. According to the plan, six large rare-earth companies would be formed to integrate the rare-earth industry and improve the industry's international competitiveness. The six companies were Aluminum Corporation of China Ltd. (Chinalco), which would integrate rare-earth enterprises in Guangxi, Jiangsu, Shandong, and Sichuan; Baogang Group, which would integrate rare-earth enterprises in Gansu and Inner Mongolia; China Minmetals Corp., which would integrate rare-earth enterprises in Hunan, although it also had enterprises in Fujian, Guangdong, Jiangxi, and Yunnan; Ganzhou Mining Group, which would integrate rare-earth enterprises in Jiangxi; Guangdong Rising Nonferrous Group, which would integrate rare-earth enterprises in Guangdong; and Xiamen Tungsten Group, which would integrate rare-earth enterprises in Fujian. According to the plan, a series of policies, such as production quotas, mandatory regulations, and new mining and permitting processes would be issued to support the operation of these companies. The formation of these large enterprises in the rare-earth industry was expected to improve the efficiency of resource utilization in the industry as well as the effectiveness of policy implementation by the Government (Xinhuanet.com, 2014b; Chen, Zhanheng, 2015).

In 2014, China's rare-earth exports had a gross weight of 27,729 t (with a rare-earth-oxide-equivalent content of about 80% to 90%) and an average price of $13.4 per kilogram compared with 22,493 t at an average price of $25.50 per kilogram in 2013. From 2009 to 2014, the tonnage of exports peaked at 39,813 t in 2010 (average price $23.60 per kilogram), and the average export price peaked at $158.21 per kilogram in 2011 (gross weight of 16,860 t). In 2014, the leading export partners, in terms of export tonnage, were Japan (which received 45% of China's rare-earth exports), the United States (33%), the countries of the European Union (14%), and others (8%). In terms of export value, the leading export partners were Japan (which received 47% of China's rare-earth exports), the United States (21%), the countries of the European Union (14%), and others (18%). The leading rare-earth elements exported were lanthanum and cerium, which accounted for 52% and 25%, respectively, of the total export tonnage, and 24% and 11%, respectively, of the total export value. The price peak observed in 2011 was owing to an export quota placed on rare-earth exports by the Government; this quota was subsequently challenged by export partners at the WTO. On March 26, 2014, a WTO panel issued a ruling stating that the rare-earth export quotas applied by the Chinese Government were in violation of WTO rules and commitments. On April 17, China's Ministry of Commerce submitted a formal appeal to the WTO appellate body, and on August 7, the WTO appellate body issued its final ruling, which was against China's position. In compliance with the verdict, on December 31, the Ministry of Commerce and the General Administration of Customs announced that the removal of the rare-earth export quotas would take effect on January 1, 2015 (Chen, Zhanheng, 2015; China Rare Earth Industry Association, 2015).

Mineral Fuels

Coal.—In 2014, China's energy output, including coal, natural gas, petroleum, primary electricity, and other energy, amounted to 3.6 Gt of standard coal equivalent (SCE), which was a 0.3% increase compared with that of 2013. Consumption of energy amounted to 4.17 Gt of SCE, which was a 2.1% increase compared with that of 2013. In 2014, output of coal accounted for 73.2% of the country's total energy output compared with 75.4% in 2013. From 1978 to 2014, coal's

share of the energy output was in the range of 70% to 78%, and from 2011 to 2014, decreased gradually to 73.2% from 77.8%. Coal accounted for 66% of total energy consumption in 2014 compared with 67.4% in 2013. The share was in the range of 66% to 76% from 1978 to 2014; the maximum share was reached in the early to mid-1990s, and a gradual decrease (about 1% each year) took place from 2011 to 2014. The decrease in coal output and consumption was attributable to China's strategic decision to mitigate environmental effects by reducing high-emission and high-pollution energy. In the Energy Development Strategy Action Plan (2014–2020), which was issued by the State Council on June 7, the consumption of coal would continue to decrease to less than 62% by 2020. The approaches proposed in the plan included eliminating outdated production capacity in high-energy-consuming industries and developing natural gas and nonfossil-fuel energy supplies as coal substitutes (State Council, 2014; National Bureau of Statistics of China, 2015i, j).

In 2014, coal output in China decreased for the first time in 14 years. The profits of coal enterprises above a designated size totaled $18 billion, which was a decrease of 44.4% compared with that of 2013. About 70% of the coal enterprises had losses in 2014, and the total losses amounted to $11.1 billion, which was an increase of 61.6% compared with that of 2013. Annual coal exports were 5.74 Mt, which was a decrease of 23.5% compared with losses in 2013. China's coal production capacity exceeded 4 Gt in 2014, and about 10 Mt of capacity was under construction. China's annual net imports of coal were more than 200 Mt for 4 consecutive years since 2011, which accounted for about 8% of domestic coal consumption. Owing to the overcapacity of the global coal market, coal imports are expected to remain high. On the other hand, demand was expected to continue to decrease as China's economic growth slows further, and the Government continued to implement its strategic plans to reduce coal as a primary source of energy production, reduce energy consumption per unit of GDP, and reduce emissions and other pollutants (Ministry of Land and Resources, 2015b).

Natural Gas.—In 2014, output of natural gas accounted for 4.8% of total energy output in China compared with 4.4% in 2013. From 1978 to 2014, natural gas' share of energy output was in the range of 1.9% to 4.8%, and showed a general increasing trend. Natural gas accounted for 5.7% of total energy consumption in 2014 compared with 5.3% in 2013. From 1978 to 2014, the share of natural gas in the country's total energy output was in the range of 1.8% to 5.7%, and showed a gradual increase from 1998 (1.8%) to 2014. The increase in natural gas output and consumption was attributable to China's strategic decision to promote low-emission energy. In the Energy Development Strategy Action Plan (2014–2020), the consumption of natural gas would continue to increase to more than 10% of energy consumption by 2020. The approaches outlined in the plan included developing natural gas transportation systems and expanding natural gas imports. According to the plan, natural gas would be supplied to all urban residents by 2020 (State Council, 2014; National Bureau of Statistics of China, 2015i, j).

On September 13, China National Petroleum Corp. announced that it had started the construction of the China-Central Asia gas pipeline D line segment. The total length of this pipeline would be 1,000 kilometers (km), of which 840 km would be in Kyrgyzstan and Tajikistan. The designed annual transportation capacity was 30 billion cubic meters. Gas would be sourced from gasfields in Turkmenistan. This pipeline, together with pipelines A, B, and C that connected Turkmenistan, Uzbekistan, and Kazakhstan, would form a China-Central Asia gas pipeline network. The network was expected to improve the cooperation between China and Central Asian countries. As of September 1, the China-Central Asia gas pipelines A, B, and C had transported 19.1 billion cubic meters of gas to China in 2014, and 95 billion cubic meters in total since the pipelines started operation. After completion of pipeline D, the total capacity of the China-Central Asia gas pipeline network would be 85 billion cubic meters (China National Petroleum Corp., 2014b).

On September 15, China National Offshore Oil Corp. announced that high-yield gas flow was obtained at its deepwater Offshore Oil 981 rig (in Lingshui 17–2 gasfield) in the northern South China Sea. This was the first major independent discovery of a deepwater oil and gas field by a Chinese company. The Lingshui 17–2 gasfield is located in the Lingshui Nanhai Qiong Basin, 150 km from Hainan Island. The average water depth at the operation is 1,500 meters. The gas flow was 1.6 million cubic meters per day. The South China Sea is a highly prospective area for oil and gas, and deepsea reserves were estimated to account for 70% of the reserves. The discovery of the Lingshui 17–2 gasfield was expected to facilitate efforts to exploit the potential for oil and gas production in the region (China National Offshore Oil Corp., 2014).

In March, China Petrochemical Corp. announced that its Fuling shale gasfield would advance to commercial development and that a facility with a production capacity of 5 billion cubic meters would be built by 2015. This would be the first shale gas operation in China. The reserves at the Fuling shale gasfield were estimated to be 107 billion cubic meters. As of October 29, about 1 billion cubic meters of shale gas had been produced at the Fuling shale gasfield since the first well started production on January 9, 2013. China's technically recoverable shale gas resources were estimated to be 31.5 trillion cubic meters, which would make them the largest in the world and almost two times those of the United States. Shale gas exploration and development was identified as a strategic emerging industry by the Government (U.S. Energy Information Administration, 2013; China Petrochemical Corp., 2014).

On May 21, China National Petroleum Corp. and Public Joint Stock Company Gazprom of Russia signed the Sino-Russian East Natural Gas Pipeline Project Cooperation Contract. Under the contract, Russia would begin to supply natural gas to China in 2018 through the eastern natural gas pipeline between China and Russia, and the volume of gas would increase year by year during the first 5 years, and would reach 38 billion cubic meters per year in the sixth year. Natural gas would be sourced mainly from the Chayandin and the Kovyktin gasfields of eastern Siberia in Russia (China National Petroleum Corp., 2014a).

Petroleum.—In 2014, the output of crude oil accounted for 8.4% of total energy output in China, which was the same as in 2013. Crude oil's share of energy output was 23.7% in 1978, and it had gradually decreased since then. It remained at 8.4% from 2011 to 2014. The consumption of crude oil accounted for 17.1% of total energy consumption in 2014, which was the same as that of 2013. From 1978 to 2014, crude oil's share of energy consumption was in the range of 16.6% to 22.7%, and remained at 17% from 2007 to 2014. The relatively unchanged output was attributable to the depletion of old oilfields in eastern areas, such as the Songliao Basin and the Bohai Bay Basin, although some new fields had been developed in western areas, such as the Tarim Basin, the Ordos Basin, the Junggar Basin, and the Qaidam Basin. In the Energy Development Strategy Action Plan (2014–2020), some approaches were outlined to increase crude oil output, which included consolidation of existing oilfields; development of low-grade resources; application of advanced oil recovery technology; and exploration and development of offshore oil and gas in the Bohai Sea, the East China Sea, and the South China Sea (State Council, 2014; National Bureau of Statistics of China, 2015i, j).

Uranium.—In December, Tianshan Uranium Co. completed phase I construction and started trial production at the Mengqiguer uranium mine in Xinjiang. The designed production capacity was 500 t/yr of uranium content. Phase II of the project had started construction and would have a production capacity of 1,000 t/yr of uranium content. The resources discovered in China since 2000 were more than the total resources discovered in the 45 years prior to 2000. As of October, China had invested $737 million in overseas uranium projects in Mongolia, Namibia, Niger, and Zimbabwe, and owned 86,000 t of reserves (in terms of contained U) and 850 t/yr of production capacity. On January 21, China National Nuclear Corp. (CNNC) signed an agreement with Paladin Energy of Australia to purchase a 25% stake in the Langer Heinrich uranium mine in Namibia for $190 million. Under the agreement, CNNC would be able to buy 25% of production, which was about 550 t/yr, at spot market prices. According to China's Energy Development Strategy Action Plan (2014–2020), installed nuclear power capacity would be 58,000 GW and the capacity under construction would be 30,000 GW in 2020, which would generate strong demand for nuclear fuels (Chen, 2014, p. 34; Komnenic, 2014; Ministry of Land and Resources, 2014e; State Council, 2014).

Reserves and Resources

According to the Ministry of Land and Resources, the number of newly discovered deposits totaled to 249, including those of such major minerals as bauxite, coal, crude oil, gold, manganese ore, molybdenum, natural gas, shale gas, and tungsten. Of 45 major minerals, the resources of 36 increased in 2014, those of 5 decreased, and those of 4 remained unchanged. The resources of shale gas were reported for the first time in 2014 (Ministry of Land and Resources, 2015a, p. 3–5).

On January 20, the Geological Survey of Shaanxi Province announced that a large niobium-rubidium-tantalum deposit was identified in southeastern Shaanxi Province. The deposit was estimated to contain 300,000 t of niobium-tantalum reserves, and 80,000 t of rubidium. Another large rare-metal deposit had been discovered at Baicheng in southern Xinjiang. The reserves at the Baicheng deposit were estimated to be 100,000 t of niobium and 10,000 t of tantalum. Other metals, such as hafnium and rare-earth elements, were also identified at the deposit (Cui, 2009; Hou, Tang, and Yang, 2014).

As of 2014, China's proven and probable bauxite (ore) reserves were estimated to be 983 Mt, which is the same as in 2013. The reserve level was in the range of 730 Mt to 1.1 Gt from 2005 to 2014. The leading regions for bauxite reserves were Guangxi (which had 466 Mt of proven and probable bauxite reserves), Henan (149 Mt), Shanxi (145 Mt), Guizhou (133 Mt), Chongqing (64 Mt), Yunnan (15 Mt), Hubei (5 Mt), and Hunan (3 Mt) (table 5; National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable chromite ore reserves were estimated to be 4.2 Mt compared with 4.0 Mt in 2013. The reserve level was in the range of 4.0 to 5.8 Mt from 2005 to 2014, and had remained at a relatively low level since 2009. The leading regions for chromite ore reserves were Tibet (which had 1.7 Mt of proven and probable reserves), Gansu (1.4 Mt), Inner Mongolia (560,000 t), Xinjiang (440,000 t), Hebei (46,000 t), and Qinghai (37,000 t) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable copper reserves were estimated to be 28.4 Mt (copper content) compared with 27.5 Mt in 2013. The reserve level was in the range of 27 to 30 Mt from 2005 to 2014. The leading regions for copper reserves were Jiangxi (which had 9.4 Mt of proven and probable reserves), Inner Mongolia (4.2 Mt), Yunnan (3.0 Mt), Tibet (2.7 Mt), Xinjiang (2.1 Mt), Anhui (1.7 Mt), Shanxi (1.6 Mt), and Gansu (1.4 Mt) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable iron ore reserves were estimated to be 20.7 Gt compared with 19.9 Gt in 2013. The reserve level was in the range of 19 to 22 Gt from 2005 to 2014. The leading regions for iron ore reserves were Liaoning (which had 5.2 Gt of proven and probable reserves), Hebei (2.9 Gt), Sichuan (2.6 Gt), Inner Mongolia (2.5 Gt), Shanxi (1.7 Gt), Shandong (910 Mt), Anhui (875 Mt), and Xinjiang (521 Mt). China's iron ore had an average grade of about 30% iron, which was lower than that on global markets (normally about 60% iron) (National Bureau of Statistics of China, 2015g).

As of 2014, China's proven and probable lead reserves were estimated to be 17.2 Mt (lead content) compared with 15.8 Mt in 2013. The reserve level was in the range of 13 to 17 Mt from 2005 to 2014. The leading regions for lead reserves were Inner Mongolia (which had 5.8 Mt of proven and probable reserves), Yunnan (2.1 Mt), Guangdong (1.2 Mt), Sichuan (993,000 t), Tibet (929,000 t), Henan (577,000 t), Jiangxi (532,000 t), and Hunan (511,000 t) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable manganese ore reserves were estimated to be 214 Mt compared with 215 Mt 2013. The reserve level was in the range of 182 to 234 Mt from 2005 to 2014, and showed a gradual increase from 2009. The leading regions for manganese ore reserves were Guangxi (which had 85 Mt of proven and probable reserves), Guizhou (44 Mt), Hunan (19 Mt), Liaoning (14 Mt), Yunnan (12 Mt),

Hubei (6.6 Mt), Inner Mongolia (5.7 Mt), and Xinjiang (5.6 Mt) (National Bureau of Statistics of China, 2015g).

As of 2014, China's proven and probable tungsten reserves were estimated to be 2.33 Mt (WO_3 content) compared with 2.35 Mt in 2013. The reserve level was in the range of 1.56 Mt (in 2011) to 2.60 Mt (in 2005) from 2005 to 2014, and had remained at 2.33 Mt since 2012. (National Bureau of Statistics of China, 2015f).

As of 2014, China's proven and probable molybdenum reserves were estimated to be 8.37 Mt (molybdenum content) compared with 8.07 Mt in 2013. The reserve level had increased gradually from 2005 (3.63 Mt) to 2014. Production of molybdenum concentrates (molybdenum content) was 132,000 t in 2014 compared with 115,000 t in 2013. Consumption of molybdenum increased by 2.8% to 74,000 t in 2014 compared with that of 2013 (Jiang and others, 2015; National Bureau of Statistics of China, 2015f; Tungsten & Molybdenum Monthly, 2015a).

As of 2014, China's proven and probable tin reserves were estimated to be 1.11 Mt (tin content) compared with 1.17 Mt in 2013. The reserve level was in the range of 1.11 to 1.55 Mt from 2005 to 2014, and decreased gradually from 2005 (1.55 Mt) to 2014 (National Bureau of Statistics of China, 2015f).

As of 2014, China's proven and probable titanium reserves were estimated to be 216 Mt (ore) compared with 220 Mt in 2013. The reserve level was in the range of 210 to 245 Mt from 2005 to 2014. The leading regions for titanium reserves were Sichuan (which had 194 Mt of proven and probable reserves), Hubei (11 Mt), Shandong (7.8 Mt), Hebei (2.8 Mt), Xinjiang (457,000 t), Yunnan (31,000 t), and Henan (4,600 t) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable vanadium reserves were estimated to be 9.0 Mt (V_2O_5 content) compared with 9.1 Mt in 2013. The reserve level was in the range of 8.8 Mt to 14.0 Mt from 2005 to 2014, and decreased gradually since 2006. The leading regions for vanadium reserves were Sichuan (which had 5.7 Mt of proven and probable reserves), Guangxi (1.7 Mt), Gansu (900,000 t), Hubei (290,000 t), Hebei (100,000 t), Shaanxi (74,000 t), Jiangxi (65,000 t), and Anhui (59,000 t) (National Bureau of Statistics of China, 2015g).

As of 2014, China's proven and probable zinc reserves were estimated to be 40.3 Mt (zinc content) compared with 37.7 Mt in 2013. The reserve level was in the range of 31 to 42 Mt from 2005 to 2014. The leading regions for zinc reserves were Inner Mongolia (which had 11.8 Mt of proven and probable reserves), Yunnan (9.1 Mt), Gansu (3.1 Mt), Sichuan (2.3 Mt), Guangdong (2.1 Mt), Xinjiang (1.8 Mt), Guangxi (1.5 Mt), and Qinghai (1.1 Mt) (National Bureau of Statistics of China, 2015h).

China was ranked first in graphite reserves in the world before 2013, but in 2013, Brazil surpassed China. As of 2013, the world's natural graphite proven reserves were about 130 Mt; the countries with the largest reserves were Brazil, China, and India. Reserves in China were estimated to be about 41.3 Mt. China's graphite reserves were located mainly in Heilongjiang, Hunan, Inner Mongolia, Jilin, Shandong, and Shanxi. Reserves in Inner Mongolia and Heilongjiang were mainly crystalline graphite, and those in Hunan were mainly amorphous graphite. Identified resources of crystalline graphite increased to 220 Mt in 2013 from 185 Mt in 2010 (Liu, 2015).

As of 2014, China's proven and probable kaolin reserves were estimated to be 575 Mt compared with 496 Mt in 2013. The reserve level was in the range of 380 to 650 Mt from 2005 to 2014, and had increased gradually since 2011. The leading regions for kaolin reserves were Guangxi (which had 319 Mt of proven and probable reserves), Fujian (536 Mt), Guangdong (534 Mt), Inner Mongolia (481 Mt), Jiangxi (298 Mt), Hunan (199 Mt), Hainan (192 Mt), and Zhejiang (83 Mt) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable magnesite (ore) reserves were estimated to be 1,080 Mt compared with 1,210 Mt in 2013. The reserve level was in the range of 1,080 to 2,080 Mt from 2005 to 2014, and had deceased gradually since 2009. The leading regions for magnesite reserves were Liaoning (which had 925 Mt of proven and probable reserves), Shandong (148 Mt), Hebei (9 Mt), Sichuan (2 Mt), and Qinghai (0.5 Mt) (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable phosphorus (ore) reserves were estimated to be 3,070 Mt compared with 3,020 Mt in 2013. The reserve level was in the range of 2,890 to 3,700 Mt from 2005 to 2014. The leading regions for phosphorus reserves were Hubei (which had 800 Mt of proven and probable reserves), Guizhou (664 Mt), Yunnan (648 Mt), Sichuan (470 Mt), Hebei (193 Mt), Liaoning (81 Mt), Jiangxi (62 Mt), and Qinghai (60 Mt) (National Bureau of Statistics of China, 2015h).

As of 2014, China's potash reserves were estimated to be 595 Mt (KCl content) compared with 534 Mt in 2013. The reserve level was in the range of 270 to 610 Mt from 2005 to 2014, and had remained at the high end since 2011 (National Bureau of Statistics of China, 2015h).

As of 2014, China's proven and probable pyrite (ore) reserves were estimated to be 1,340 Mt compared with 1,300 Mt in 2013. The reserve level was in the range of 1,300 to 1,900 Mt from 2005 to 2014, and had decreased gradually since 2005. The leading regions for pyrite reserves were Sichuan (which had 380 Mt of proven and probable reserves), Guangdong (160 Mt), Inner Mongolia (149 Mt), Anhui (148 Mt), Jiangxi (140 Mt), Henan (60 Mt), Guizhou (57 Mt), and Yunnan (49 Mt) (National Bureau of Statistics of China, 2015h).

In June 2012, the Information Office of the State Council issued a white paper titled "Situation and Policies of China's Rare Earth Industry." The white paper provided an overview of the status of China's rare-earth industry and policies for future development. According to the white paper, China's rare-earth reserves accounted for about 23% of the world's total. Although the total REO reserves of China could not be determined officially, they were estimated to be 43.5 Mt or more REO in 2014. Light rare-earth reserves were located mainly in Baotou, Inner Mongolia, and Liangshan, Sichuan. Ion-absorbed-type middle and heavy rare-earth deposits were found mainly in Ganzhou, Jiangxi, Longyan, Fujian, and some other southern areas (State Council, 2012, p. 1–6; Chen, Zhanheng, 2015).

As of 2014, China's coal reserves were estimated to be 240 Gt compared with 240 Gt in 2013. The reserve level was in the range of 210 to 330 Gt from 2005 to 2014, and had remained

at a relatively low level since 2011. The leading regions for coal reserves were Shanxi (which had 92 Gt of reserves), Inner Mongolia (49 Mt), Xinjiang (16 Gt), Shaanxi (9.5 Gt), Henan (8.6 Gt), Anhui (8.4 Gt), and Heilongjiang (6.2 Gt) (National Bureau of Statistics of China, 2015g).

As of 2014, China's crude oil reserves (proven and probable) were estimated to be 3.43 Gt compared with 3.37 Gt in 2013. The reserve level was in the range of 2.49 to 3.40 Gt from 2005 to 2014, and had increased gradually since 2005. The leading regions for crude oil reserves were Xinjiang (which had 589 Mt of proven and probable reserves), Shaanxi (363 Mt), Heilongjiang (219 Mt), Jilin (181 Mt), and Liaoning (158 Mt). The offshore crude oil reserves were 558 Mt (National Bureau of Statistics of China, 2015g).

As of 2014, China's natural gas reserves were estimated to be 4.95 trillion cubic meters compared with 4.6 trillion cubic meters in 2013. The reserve level was in the range of 2.8 to 5.0 trillion cubic meters from 2005 to 2014, and had increased gradually since 2005. The leading regions for natural gas reserves were Sichuan (which had 1.2 trillion cubic meters of reserves), Xinjiang (975 billion cubic meters), Inner Mongolia (810 billion cubic meters), Shaanxi (805 billion cubic meters), Chongqing (246 billion cubic meters), Qinghai (146 billion cubic meters), Heilongjiang (134 billion cubic meters), and Jilin (66 billion cubic meters). The offshore natural gas reserves were 410 billion cubic meters (National Bureau of Statistics of China, 2015g).

Outlook

Annual economic growth in 2015 is expected to be about 7%, and in 2016 may be further moderated to 6% to 6.5%. Since 2012, China's GDP growth has been about 7.5%, which is 1.8% below the 2008 to 2012 average annual rate of growth of 9.3%. As the growth momentum moderates, the raw material industries, including iron and steel, nonferrous metals, cement, and heavy chemicals, are facing slower growth in demand from downstream industries, such as real estate and manufacturing (Ministry of Industry and Information Technology, 2015a).

The output of the mineral industry in China is expected to be steady and the raw material sector is expected to grow at a relatively moderate rate of about 8% (in terms of value-added GDP). China's Government is expected to implement strategic projects, such as rebuilding of outdated residential areas in cities, developing infrastructure in the Midwest, and implementing the "one belt one road" initiative (a development strategy and framework that focuses on connectivity and cooperation among countries primarily between China and the rest of Eurasia, and consists of two main components—the land-based "Silk Road Economic Belt" and oceangoing "Maritime Silk Road") in order to achieve steady economic growth in 2015 and beyond. These projects are intended to provide stable support to the raw materials industries. Some mineral industries with serious excess capacity, such as aluminum and steel, will face greater difficulties, and growth within these industries will likely slow further. Elimination of outdated capacities is expected to continue. The overcapacity situation may not improve in the short term considering that significant new capacities are being added each year and some inactive facilities could be reactivated. The growth in demand may depend largely on the growth in downstream industries, which are also adjusting to the new normal economy. For some minor minerals and metals, new demand could come from some new technologies and products that might be sufficient to generate growth (Ministry of Industry and Information Technology, 2015a).

China will likely play a growing role in the world's metals and minerals markets in the coming years. The effect of China's mineral industry on the global mineral industry is much larger than that previously because of significant accumulated growth in the past two decades. China's mineral companies are expected to participate in global mining activities at a greater level in the coming years, to invest in mineral-rich countries to secure raw material supplies, and to look for opportunities to sell their excess capacity to the world—for example, the Las Bambas copper mine deal and increasing steel exports. The lifting of China's trade restriction on some materials is expected to improve its role as a global supplier of these materials in the long term, although the export volume may not change in the short term.

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TABLE 1
CHINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Metric tons unless otherwise specified)

Commodity[3]		2010	2011	2012	2013	2014
METALS						
Aluminum:						
Bauxite, gross weight	thousand metric tons	44,000	45,000	47,000	50,400 r	65,000
Alumina	do.	29,000	34,100	37,700	44,400	47,800
Metal:*						
Primary	do.	16,200	20,100 r*	23,500 r*	26,500 r*	28,300 *
Secondary	do.	4,000	4,100	4,200	3,100	3,700
Total	do.	20,200	24,200	27,700	29,600 r	32,000
Antimony:						
Mine, Sb content		150,000	150,000	136,000	121,000 r	120,000
Metal		193,000	200,000	240,000	250,000 r	255,000
Bismuth:						
Mine output, Bi content		6,500	7,000	7,500	7,500	7,800
Metal		14,000	15,000	15,000	15,500	16,000
Cadmium, smelter		7,360	6,670	7,270	7,000	7,500
Chromite, gross weight	thousand metric tons	200	200	200	200	210
Cobalt:						
Mine output, Co content		6,380	6,800	7,500	7,200	7,700
Metal		4,120	5,430	6,400	6,500	6,000
Copper:						
Mine output, Cu content		1,160,000	1,270,000	1,410,000 r	1,540,000 r	1,620,000
Metal:						
Smelter, primary	thousand metric tons	2,900	3,030	3,600	4,000	3,600
Refined:						
Primary	do.	2,950	3,390	3,930	4,180 r	4,820
Secondary	do.	1,700	1,850	1,950	2,000 r	2,000
Total	do.	4,650	5,240	5,880	6,180 r	6,820
Germanium		100	110	105	110	115
Gold, mine output, Au content		345	362	403	428 r	486
Indium, primary and secondary		330	380	405	430	460
Iron and steel:						
Iron ore, gross weight	thousand metric tons	1,070,000	1,330,000	1,330,000	1,450,000	1,510,000
Pig iron[4]	do.	597,330	640,510	663,500	708,970	713,740
Ferroalloys	do.	24,300	28,400	31,300	37,700	39,800
Steel, crude[4]	do.	637,230	685,280	723,880	779,040	822,300
Steel, rolled[4]	do.	802,760	886,190	955,780	1,067,620	1,125,130
Lead:						
Mine output, Pb content	do.	1,980	2,400	2,610	2,850 r	2,800
Metal:						
Smelter, primary	do.	2,800	3,110	3,120	3,200	3,050
Refined:						
Primary	do.	2,800	3,200	3,220	3,280	3,140
Secondary	do.	1,360	1,400	1,370	1,500	1,600
Total	do.	4,160	4,600	4,590	4,780	4,740
Magnesium, metal and alloy		654,000	675,000	698,000	770,000	874,000
Manganese:						
Ore, Mn content	thousand metric tons	2,600	2,800	2,900	3,000	3,200
Metal		1,370,000	1,480,000	1,200,000	1,300,000	1,350,000
Mercury, mine output, Hg content		1,600	1,500	1,350	1,600	2,200
Molybdenum, mine output, Mo content		96,600	103,000	120,000	115,000	132,000
Nickel:						
Mine output, Ni content		80,000	90,000	93,300	93,300	98,400
Matte		139,000	166,000	153,000	160,000	168,000
Smelter		159,000	175,000	197,000	245,000	350,000

See footnotes at end of table.

TABLE 1—Continued
CHINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Metric tons unless otherwise specified)

Commodity[3]		2010	2011	2012	2013	2014
METALS—Continued						
Niobium and tanlatum, mine output:						
Nb_2O_5 content		32	25	20	21	20
Ta_2O_5 content		86	75	80	72	72
Rhenium, Re content in NH_4ReO_4[5]	kilograms	2,000	2,100	2,200	2,300	2,350
Silicon, metal	thousand metric tons	1,140	1,350	1,130	1,300	1,200
Silver, mine output, Ag content		3,500	3,700	3,900	4,100	4,060
Tin:						
Mine output, Sn content		93,200 r	105,000 r	95,000 r	97,000 r	99,000
Metal		149,000	156,000	148,000	159,000 r	187,000
Titanium:						
Ilmenite, TiO_2 equivalent		700,000	850,000	800,000	850,000	850,000
Sponge		57,000	68,000	82,000	105,000	101,000
Tungsten, mine output, W content		59,000	61,800	64,400 r	71,100 r	71,000
Vanadium, V_2O_5 in vanadiferous slag product		58,000	65,000	71,000	80,000	80,000
Zinc:						
Mine output, Zn content	thousand metric tons	3,840	4,050	4,500 r	4,730 r	4,930
Refined:						
Primary	do.	5,030	5,040	4,770	5,160 r	5,610
Secondary	do.	175	173	120	150	170
Total	do.	5,210	5,210	4,890	5,310	5,780
INDUSTRIAL MINERALS						
Asbestos		400,000	385,000	420,000	420,000	410,000
Barite	thousand metric tons	3,700 r	4,100 r	4,200	3,200 r	3,900
Bentonite	do.	3,400	3,500	3,500	3,600	3,650
Boron, mine, B_2O_3 equivalent		150,000	150,000	160,000	160,000	160,000
Bromine		100,000	100,000	105,000	110,000	110,000
Cement, hydraulic[4]	million metric tons	1,882	2,099	2,210	2,411 r	2,492
Diatomite		400,000	440,000	420,000	420,000	420,000
Dolomite	thousand metric tons	8,200	8,200	8,300	8,300	8,500
Feldspar	do.	2,000	2,100	2,100	2,500	2,500
Fluorspar	do.	4,600	4,200	4,400	4,400	3,900
Graphite		700,000	800,000	820,000	810,000 r	750,000
Gypsum	thousand metric tons	126,000	127,000	128,000	129,000	130,000
Kaolin	do.	3,260	3,200	3,300	3,300	3,200
Lime	do.	190,000	200,000	220,000	230,000	235,000
Lithium, Li content, all types		6,000	7,200	9,500	10,500	11,000
Magnesite	thousand metric tons	14,000	19,000	16,000	17,000	16,000
Mica		750,000	760,000	770,000	780,000	785,000
Nitrogen, N content of ammonia[4]	thousand metric tons	40,870	43,250	45,520	48,326 r	45,642
Phosphate rock, P_2O_5 equivalent	do.	20,400	24,000	28,500	33,500 r	36,000
Potash, marketable, K_2O equivalent	do.	3,600	3,800	3,770	5,300 r	6,110
Rare earths, rare-earth oxide equivalent		120,000	105,000	100,000	95,000	105,000
Salt[4]	thousand metric tons	70,380	67,420	69,120	73,676 r	70,497
Sodium compounds:						
Mirabilite	do.	6,500	6,000	5,500	5,000	5,500
Soda ash, natural and synthetic[4]	do.	20,350	22,940	24,010	24,320 r	25,260
Strontium carbonate		150,000	145,000	140,000	130,000	140,000
Sulfur:						
Native	thousand metric tons	1,100	1,100	1,200	930 r	1,000
Content of pyrite	do.	4,400	5,300	5,400	4,580 r	5,000
Byproduct, all sources	do.	4,100	3,300	3,300	2,600 r	2,840
Total	do.	9,600	9,700	9,900	8,110 r	8,840
Talc and related materials	do.	2,000	2,200	2,100	2,200	2,100

See footnotes at end of table.

TABLE 1—Continued
CHINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Metric tons unless otherwise specified)

Commodity[3]		2010	2011	2012	2013	2014
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	thousand metric tons	500,000	450,000	500,000	540,000 r	530,000
Bituminous	do.	2,420,000	2,800,000	2,830,000	3,070,000 r	3,000,000
Lignite	do.	320,000	270,000	330,000	356,000 r	350,000
Total	do.	3,240,000	3,520,000	3,660,000	3,970,000 r	3,880,000
Coke, all types[4]	do.	388,640	432,710	447,790	481,794 r	479,809
Gas, natural:						
Gross	billion cubic meters	95	102	107	121 r	130
Marketed	do.	83	90	95	100	115
Petroleum:						
Crude, including crude from oil shale	million 42-gallon barrels	1,480	1,480	1,510	1,520	1,530
Refinery products	do.	4,220	4,470	4,640	4,790	5,370
Uranium		1,350	1,500	1,600	1,650	1,700

rRevised. do. Ditto.
[1]Estimated data are rounded to no more than three significant digits; may not add to totals shown.
[2]Table includes data available through January 19, 2016.
[3]In addition to the commodities listed, China also produces beryllium, diamond, gallium, iodine, platinum-group metals, selenium, stone, tellurium, and zirconium, but available information is inadequate to make reliable estimates of output.
[4]Reported by China's National Statistical Bureau.
[5]Includes rhenium from imported copper and molybdenum concentrates.
*Correction posted on September 18, 2017.

TABLE 2
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(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:			
Alumina	Chongqing Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Chongqing	800
Do.	Chongqing Dingtai Tuoyuan Alumina Co.	do.	150
Do.	Nanchuan Pioneer Alumina Co.	do.	200
Do.	Guangxi Huayin Aluminum Co. Ltd.	Guangxi, Bose	2,000
Do.	Pingguo Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Guangxi, Pingguo	1,200
Do.	Guizhou Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Guizhou, Guiyang	1,200
Do.	Chalco Zunyi Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Guizhou, Zunyi	1,000
Do.	Luoyang Wanji Xiangjiang Aluminum Co. Ltd.	Henan, Luoyang	800
Do.	Sanmenxia Yixiang Aluminum Co. Ltd. (Henan Yima Coal Group)	Henan, Mianchi	600
Do.	Pingdingshan Huiyuan Chemical Co.	Henan, Pingdingshan	300
Do.	Yangquan Coalmine Aluminum (Sanmenxia) Co. Ltd.	Henan, Sanmenxia	1,200
Do.	Orient Hope (Sanmenxia) Aluminum Co. Ltd.	do.	1,200
Do.	Zhengzhou Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Henan, Zhengzhou	2,200
Do.	Zhongzhou Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Hunan, Zhongzhou	2,800
Do.	Shandong Huayu Alumina Co. Ltd. (Shandong Chiping Xinfa Aluminum and Electricity Group)	Shandong, Chiping	1,800
Do.	Longhou Donghai Alumina Co. Ltd. (Nanshan Group)	Shandong, Nanshan, Longkou	1,600
Do.	Shandong Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Shandong, Zibo	2,000
Do.	Bingzhou Weiqiao Aluminum Co.	Shandong, Zouping	1,600
Do.	Shanxi Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Shanxi, Hejin	2,700
Do.	Liulin Senze Group	Shanxi, Liulin	600
Do.	Coalmine Aluminum (Sanmenxia) Co. Ltd.	Shanxi, Sanmenxia	1,200
Do.	Shanxi Luneng Jinbei Aluminum Co. Ltd.	Shanxi, Yuanping	2,000
Do.	Wenshan Aluminum Co. Ltd. (Yunnan Aluminum Co.)	Yunnan, Wenshan	800
Metal	Baiyin Aluminum Plant	Gansu, Baiyin	500
Do.	Gansu Dongxing Aluminum Co. Ltd. (Jiuquan Iron and Steel Co. Ltd.)	Gansu, Jiayuguan	900
Do.	Lanzhou Aluminum Plant (Jiuquan Iron and Steel Co. Ltd.)	Gansu, Lanzhou	210
Do.	Liancheng Aluminum Plant	do.	235
Do.	Gansu Dongxing Aluminum Co. Ltd. (formerly Gansu Longxi Aluminum Plant) (Jiuquan Iron and Steel Co. Ltd.)	Gansu, Longxi	360
Do.	Yinhai Aluminum Co. Ltd.	Guangxi, Laibin	125
Do.	Pingguo Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Guangxi, Pingguo	380
Do.	Guizhou Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Guizhou, Guiyang	400
Do.	Chalco Zunyi Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Guizhou, Zunyi	250
Do.	Henan Zhongfu Industry Co. Ltd.	Henan, Gongyi	180
Do.	Jiaozuo Wanfang Aluminum Co. Ltd.	Henan, Jiaozuo	420
Do.	Henan Wanji Aluminum Co. Ltd.	Henan, Luoyang	125
Do.	Henan Zhongmai Mianchi Aluminum Plant	Henan, Mianchi	400
Do.	Shangqiu Aluminum Smelter	Henan, Shangqiu	180
Do.	Yichuan Yugang Longquan Aluminum Co.	Henan, Yichuan	600
Do.	Shangqiu Shenhuo Foguang Aluminum Co. Ltd.	Henan, Yongcheng	280
Do.	Hanjiang Danjiangkou Aluminum Co. Ltd.	Hubei, Danjiangkou	110
Do.	Hunan Chuanquan Aluminum Co. Ltd.	Hunan, Taoyuan	210
Do.	Fushun Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Liaoning, Fushun	340
Do.	Baotou Aluminum Plant	Nei Mongol, Baotou	250
Do.	Orient (East Hope) Aluminum Plant (Orient Group)	do.	800
Do.	Nei Mongol HMHJ Aluminum Electricity Co. Ltd.	Nei Mongol, Holin Gol	400
Do.	Qingtongxia Aluminum Plant (China Power Investment Corp. and Ningxia Qingtongxia Energy Group Co. Ltd.)	Ningxia, Qingtongxia	1,150
Do.	Qiaotou Aluminum Co. Electrolysis Branch	Qinghai, Datong	750
Do.	Qinghai Aluminum Smelter [Aluminum Corporation of China (Chinalco)]	Qinghai, Xining	560
Do.	Qinghai West Mining Baihe Aluminum Co. Ltd.	do.	112
Do.	Tongchuan Xingguang Aluminum Co. Ltd.	Shaanxi, Tongchuan	250

See footnotes at end of table.

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

(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—Continued:				
Metal—Continued		Shandong Chiping Xinfa Aluminum and Power Group	Shandong, Chiping	360
Do.		Taishan Aluminum-Power Co. Ltd.	Shandong, Fecheng	125
Do.		Shandong Nanshan Aluminum Co. Ltd. (Nanshan Group)	Shandong, Nanshan, Longkou	156
Do.		Shandong Aluminum Plant [Aluminum Corporation of China (Chinalco)]	Shandong, Zibo	120
Do.		Bingzhou Weiqiao Aluminum Co.	Shandong, Zouping	250
Do.		Zouping Aluminum Co. Ltd.	do.	150
Do.		Huaze Aluminum and Power Co. Ltd.	Shanxi, Hejin	400
Do.		New Orient Aluminum Co. Ltd.	Shanxi, Taiyuan	75
Do.		Chalco Shanxi Huasheng Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Shanxi, Yongji	220
Do.		Shanxi Guanlv Aluminum Co. Ltd.	Shanxi, Yuncheng	210
Do.		Qient (East Hope) Aluminum Plant (Orient Group)	Xinjiang, Changji Prefecture	540
Do.		Xinjiang Qiya Aluminum Co. Ltd.	do.	450
Do.		Xinjiang Nongliushi Aluminum Co. Ltd.	Xinjiang, Wujiaqu	1,200
Do.		Yunnan Aluminum Plant	Yunnan, Kunming	500
Antimony		Huaxi (China Tin) Group Industrial Co.	Guangxi, Hechi	25
Do.		Jiyuan Wangyang Smelter (Jiyuan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	10
Do.		Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Yuanling	20
Do.		Hsikuangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Group)	Hunan, Lengshuijiang	40
Asbestos		China National Nonmetallic Industry Corp.	Nei Mongol, Baotou; Shanxi, Lai Yuan, and Lu Liang	130
Barite		do.	Guizhou, Xiangshou	NA
Bismuth	metric tons	Guangzhou Smelter	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	do.	Zhuzhou Smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	1,000
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	800
Coal		Liuzhuang Mining Co. Ltd. coal mine (State Development and Investment Corp.)	Anhui, Bengbu	11,400
Do.		Xieqiao Coal Mine (Huainan Mining (Group) Co. Ltd.)	Anhui, Fuyang, Yingshang	9,600
Do.		Fengfeng Group Co. Ltd. coal mines (Jizhong Energy Group Co. Ltd.)	Hebei, Handan	20,000
Do.		Handan Mining Group Co. Ltd. coal mines (Jizhong Energy Group Co. Ltd.)	do.	11,000
Do.		Jixi Mining Group coal mines (Heilongjiang Longmay Mining Holding Group Co. Ltd.)	Heilongjiang, Jixi	16,000
Do.		Zhongguo Pingmei Shenma Energy Chemical Group Co. Ltd. coal mines (China Pingmei Shenma Group)	Henan, Pingdingshan	40,000
Do.		Buetai Coal Mine [(Shendong Coal Group Co. Ltd.) Shenhua Group Corp. Ltd.]	Nei Mongol, Erdos	20,000
Do.		Bulianta Coal Mine [(Shendong Coal Group Co. Ltd.) Shenhua Group Corp. Ltd.]	do.	25,000
Do.		Heidaigou Coal Mine [(Shenhua Group Zhungeer Energy Co. Ltd.) Shenhua Group Corp. Ltd.]	do.	25,000
Do.		Suancigou Coal Mine (Nei Mongol Yitai Coal Co. Ltd.)	Nei Mongol, Jungar Banner	12,000
Do.		Diliuta Coal Mine [(Shendong Coal Group Co. Ltd.) Shenhua Group Corp. Ltd.]	Shaanxi, Yulin	20,000
Do.		Hancheng Coal Mine [(Hancheng Coal Bureau) Shaanxi Coal and Chemical Industry Group Co. Ltd.]	Shaanxi, Hancheng	20,000
Do.		Chenghe Coal Mine [Chenghe Mining Bureau) Shaanxi Coal and Chemical Industry Group Co. Ltd.	Shaanxi, Chengcheng	20,000
Do.		Yanzhou Coalfield [(Yanzhou Coal Mining Co. Ltd.) Yankuang Group Co., Ltd.]	Shandong, Jining	35,000
Do.		Antaibao Coal Mine [(Pingshuo Coal Industry Co., operator) China National Coal Group Corp.]	Shanxi, Pingshuo	20,000
Do.		Tongxin Coal Mine (Datong Coal Mine Group Co. Ltd.)	Shanxi, Datong	10,000

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Coal—Continued		Xishan, Hedong, and Huoxi coalfields [(Xishan Coal and Electricity Coking Coal Group Co.) Shanxi Coking Coal Group Co. Ltd.]	Shanxi, Taiyuan	33,000
Do.		Lu'an Mining Group Co. Ltd.	Shanxi, Changzhi, Xiangyuaj	90,000
Cobalt	metric tons	Jinchuan Nonferrous Metals Corp.	Gansu, Jinchang	10,000
Do.	do.	Huayou Cobalt Co. Ltd.	Zhejiang, Tongxiang	3,000
Copper, 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	60
Do.		Zijin Copper Co. Ltd.	Fujian, Shanghang	200
Do.		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	100
Do.		Jinchuan Nonferrous Metals Corp.	Gansu, Jinchuan	600
Do.		do.	Guangxi, Fangchenggang	400
Do.		Luoyang Copper Processing Factory	Henan, Luoyang	50
Do.		Daye Nonferrous Metals Co.	Hubei, Daye	400
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)	Liaoning, Huludao	100
Do.		Chifeng Fubang Copper Co. Ltd.	Nei Mongol, Chifeng	100
Do.		Chifeng Jingeng Copper Co. Ltd.	Nei Mongol, Chifeng, Harqin Banner	100
Do.		Shandong Dongying Fangyuan Nonferrous Metals Co. Ltd.	Shandong, Dongying	400
Do.		Shandong Jinsheng Nonferrous Metals Corp.	Shandong, Linyi	100
Do.		Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group)	Shandong, Liaocheng, Yanggu	600
Do.		Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	200
Do.		Taiyuan Copper Industry Co.	Shanxi, Taiyuan	100
Do.		Yuanqu Smelter (Zhongtiaoshan Nonferrous Metals Group Co. Ltd.)	Shanxi, Yuangu	100
Do.		Huili Kunpeng Co. Ltd.	Sichuan, Huili	100
Do.		Tianjin Datong Copper Co. Ltd. (formerly Tianjin Copper Electrolysis Factory)	Tianjin	200
Do.		Yunnan Smelter (Chinalco Yunnan Copper Group Co. Ltd.)	Yunnan, Kunming	250
Do.		Hangzhou Fuchunjiang Smelting Co. Ltd.	Zhejiang, Fuchunjiang	100
Gallium	metric tons	Chalco Zunyi Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Guizhou, Zunyi	40
Do.	do.	Pingguo Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Guangxi, Pingguo	40
Do.	do.	Shandong Aluminum Plant	Shandong, Zibo	20
Gas, natural	billion cubic meters	China National Petroleum Corp.	Sichuan	10
Germanium	metric tons	Shaoguan Smelter (Shenzhen Nonfemet Co.)	Guangdong, Shaoguan	30
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	30
Do.	do.	Nei Mongol Xilingol Tongtai Germanium Refine 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.	Zijin Copper Co. Ltd.	Fujian, Shanghang	5
Do.	do.	China National Gold Corp.	Henan, Lingbao	10
Do.	do.	Zhongyan Gold Smelter (Zhongjin Gold Co. Ltd.)	Henan, Sanmenxia	30
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	20
Do.	do.	Laizhou Gold Co.	Shandong, Laizhou	15
Do.	do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group)	Shandong, Liaocheng, Yanggu	20
Do.	do.	Shandong Yanggu Xiangguang Co. Ltd.	Shandong, Yanggu	20
Do.	do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	5
Do.	do.	Zhaoyuan Gold Co.	Shandong, Zhaoyuan	15
Do.	do.	Great Wall Gold Silver Refinery	Sichuan, Chengdu	100
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	130

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Graphite		Jixi Aoyu Graphite Co. Ltd.	Heilongjiang, Jixi and Luo	60
Do.		Nei Mongol Xinghe Jingxin Graphite Co. Ltd.	Nei Mongol, Xinghe	10
Indium	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	85
Do.	do.	Liuzhou Zinc Products Co.	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	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 and steel:				
Iron ore		Ma'anshan Iron and Steel Co.	Anhui, Maanshan	10,000
Do.		Shoudu (Capital) Mining Co.	Beijing	20,000
Do.		Jiuquan Iron and Steel Co. Ltd.	Gansu, Jiayuguan	4,000
Do.		Hainan Iron Mine	Hainan, Changjiang	4,600
Do.		Handan Xingtai Metallurgical Bureau (Hebei Iron and Steel Group Co.)	Hebei, Handan	3,800
Do.		Tangshan Iron and Steel Co. (Hebei Iron and Steel Group Co.)	Hebei, Tangshan	3,000
Do.		Wuhan Iron and Steel (Group) Co. (Wugang)	Hubei, Wuhan	5,100
Do.		Meishan Metallurgical Co.	Jiangsu, Nanjing	2,000
Do.		Banshigou Iron Mine Mining Co.	Jilin, Hunjiang	1,400
Do.		Anshan Mining Co.	Liaoning, Anshan	30,000
Do.		Benxi Iron and Steel Co.	Liaoning, Benxi	13,700
Do.		Baotou Iron and Steel and Rare Earth Co.	Nei Mongol, Baotou	10,000
Do.		Taiyuan Iron and Steel Co.	Shanxi, Taiyuan	4,000
Do.		Dabaoshan Mining Co.	Guangdong, Qujiang	1,670
Do.		Panzhihua Mining Co.	Sichuan, Panzhihua	13,000
Do.		Kunming Iron and Steel Co.	Yunnan, Kunming	1,400
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.	Gansu, Yongdeng	60
Do.		Zunyi Ferroalloy Co.	Guizhou, Zunhi	100
Do.		Zhejiang Huaguang Smelting Group	Jiangxi, Hengfeng	50
Do.		Jilin Ferroalloy Co.	Jilin, Jilin	250
Do.		Jinzhou Ferroalloy Co.	Liaoning, Jinzhou	90
Do.		Liaoyang Ferroalloy Co.	Liaoning, Liaoyang	70
Do.		Shanghai Iron and Steel Co. Ltd.	Shanghai	180
Do.		Emei Ferroalloy Co.	Sichuan, Emei	70
Do.		Hengshan Ferroalloy Co.	Zhejiang, Jiande	70

See footnotes at end of table.

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

(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 and steel—Continued:			
Crude steel	Ma'anshan Iron and Steel Co.	Anhui, Maanshan	10,000
Do.	Liuzhou Iron and Steel Group	Guangxi, Liuzhou	6,000
Do.	Shougang-Tangshan Iron and Steel Group Co. Ltd.	Hebei, Caofeidian	10,000
Do.	Handan Iron and Steel General Work (Hebei Iron and Steel Group Co.)	Hebei, Handan	12,000
Do.	Shougang Qianan Iron and Steel Co. Ltd. (Shougang)	Hebei, Qianan	7,800
Do.	Tangshan Iron and Steel Co. (Taigang) (Hebei Iron and Steel Group Co.)	Hebei, Tangshan	15,000
Do.	Wuhan Iron and Steel (Group) Co. (Wugang)	Hubei, Wuhan	12,000
Do.	Shagang Group Co. Ltd.	Jiangsu, Zhangjiagang	30,000
Do.	Anshan Iron and Steel (Group) Co. (Angang) (Anben Iron and Steel Group)	Liaoning, Anshan	16,000
Do.	Benxi Iron and Steel Co. (Bengang) (Anben Iron and Steel Group)	Liaoning, Benxi	6,000
Do.	Anshan Iron and Steel (Group) Co. (Angang) (Anben Iron and Steel Group)	Liaoning, Yingkou, Bayuquan	6,500
Do.	Baotou Iron and Steel and Rare Earth Co. (Baogang Group)	Nei Mongol, Baotou	10,000
Do.	Baoshan Iron and Steel (Group) Corp. (Baosteel) [Baogang Group]	Shanghai	19,000
Do.	Shanghai Iron and Steel Co. Ltd.	do.	6,000
Do.	Shandong Jinan Iron and Steel Group Co. (Shandong Iron and Steel Group)	Shandong, Jinan	10,000
Do.	Shandong Laiwu Iron and Steel Group Co. (Shandong Iron and Steel Group)	Shandong, Laiwu	10,000
Do.	Taiyuan Iron and Steel Co. (Taigang)	Shanxi, Taiyuan	5,000
Do.	Panzhihua Iron and Steel (Group) Co. (Pangang)	Sichuan, Panzhihua	6,000
Do.	Xinjiang Biyi Iron and Steel Group (Baogang Group)	Xinjiang, Urumqi	6,000
Lead	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.)	Guangdong, Shaoquan	100
Do.	Laibin Smelter [Huaxi (China Tin) Group Co.]	Guangxi, Laibin	100
Do.	Hechi Nanfang Nonferrous Metals Smelting Co. Ltd.	Guangxi, Hechi	80
Do.	Anyang Smelter (Yubei Metal Co.)	Henan, Anyang	160
Do.	Jiyuan Wangyang Smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	Jinli Smelter (Jiyuan Jinli Smelting Co.)	Henan, Jiyuan	300
Do.	Jiyuan Smelter (Yuguang Gold-Lead Co. Ltd.)	do.	300
Do.	Henan Lingye Co. Ltd.	Henan, Lingbao	100
Do.	Hanjiang Smelter	Hubei, Luhekou	50
Do.	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	100
Do.	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	Shaaxi, Baoji	100
Do.	Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	100
Do.	Kunming Smelter	Yunnan, Kunming	100
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	100
Lithium, carbonate	Tibet Mineral Development Co. Ltd.	Gansu, Baiyin	5
Do.	Jiangxi Ganfeng Lithium Co. Ltd.	Jiangxi, Xinyu	3
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	10
Do.	Sichuan Aba Guangsheng Lithium Industrial Co. Ltd.	Sichuan, Wenchuan	2
Do.	Qinghai Yanhu Industry Group Co. Ltd.	Qinghai, Golmud	10
Do.	Qinghai CITIC Guoan Technology Development Co. Ltd.	do.	20
Do.	Qinghai Lithium Industry Co. Ltd.	Qinghai, Xining	20
Do.	Xinjiang Haoxin Lithium Salt Development Co. Ltd. (formerly Xinjiang Lithium Co.)	Xinjiang, Urumqi	5

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Magnesium	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.	Wenxi Yinguang Magnesium Group	do.	40
Manganese, metal	Chongqing Tycoon Manganese Co. Ltd.	Chongqing	23
Do.	Guangxi Dameng Manganese Industry Co. Ltd.	Guangxi, Nanning	70
Molybdenum, concentrate	Luoyang Luanchuan Molybdenum Industry Group Co., Ltd.	Henan, Luanchuan	30
Do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	30
Nickel, refined	Jinchuan Nonferrous Metals Corp.	Gansu, Jinchuan	130
Do.	Guangxi Yinyi Science and Technic Mine	Guangxi, Yulin, Bohai	10
Do.	Guangxi Yulin Weinie Co. Ltd.	Guangxi, Bobai	18
Do.	Jiangxi Jiangli Science and Technology Co. Ltd.	Jiangxi, Fenyi	50
Do.	Jilin Jien Nickel Industry Co. Ltd.	Jilin, Panshi	10
Do.	Inco 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	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, Fukang	15
Do.	Xinjiang Xinxin Mining Co. Ltd.	Xinjiang, Fuyun	7
Do.	Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5
Palladium and platinum kilograms	Jinchuan Nonferrous Metals Corp.	Gansu, Jinchang	3,500
Petroleum, crude	Shengli Administration	Hebei, Shengli	33,500
Do.	Daqing Administration	Heilongjiang, Daqing	55,000
Do.	Liaohe Administration	Liaoning, Liaohe	15,000
Do.	Bohai Offshore Oil Corp.	Bohai	4,000
Do.	Nanhai East Corp.	Nanhai	5,000
Potash	Qinghai Yanhu Industry Group Co. Ltd.	Qinghai, Charhan	2,000
Do.	Xinjiang Lop Nur Potassic Salt Scientific and Technology Development Co.	Xinjiang, Ruoqiang	1,200
Rare earths	Fujian Changting Jinlong Rare Earth Co. Ltd.	Fujian, Changting	4
Do.	Gansu Rare Earths Co.	Gansu, Baiyin	32
Do.	Zhujiang Smelter	Guangdong, Guangzhou	5
Do.	Jiangyin Jiahua Advanced Material Resources Co. Ltd. (Neo Material Technologies)	Jiangsu, Jiangyin	3
Do.	Liyang Rhodia Rare Earth New Material Co. Ltd. (Rhodia Group)	Jiangsu, Liyang	12
Do.	Jiangsu Guosheng Rare Earth Co. Ltd.	Jiangsu, Taixing	5
Do.	Yixing Xinwei Leeshing Rare Earth Co. Ltd. (China Rare Earth Holdings Ltd.)	Jiangsu, Yixing	6
Do.	Dingnan Nanfang Rare Earth Co. Ltd.	Jiangxi, Ganzhou, Dingnan	4
Do.	Longnan Guangdong Rising Rare Earth Smelting Co. Ltd.	Jiangxi, Ganzhou, Longnan	4
Do.	Baotou Iron and Steel and Rare Earths Corp. (Baogang Group)	Nei Mongol, Baotou	55
Do.	Leshan Primet (Puruimei) New Materials Co. Ltd. (US Primet LLC)	Sichuan, Leshan	8
Do.	Sichuan Jiangxi Copper Rare Earth Co. Ltd. (Jiangxi Copper Co. Ltd.)	Sichuan, Mianning	18
Rhenium, rhenate kilograms	Guixi Smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	3,000
Do. do.	Western Xinxing Metal Materials Co. Ltd.	Shaanxi, Luonan	200
Salt	Shandong Haihua Group Co. Ltd.	Shandong, Weifang	1,400
Do.	Zigong Zhangjiaba Salt Chemical Plant	Sichuan, Zigong	250
Selenium metric tons	Jinchuan Nonferrous Metals Corp.	Gansu, Jinchang	50
Do. do.	Guixi Smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	300

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Silver metric tons	Zijin Copper Co. Ltd.	Fujian, Shanghang	125
Do. do.	Jinchuan Nonferrous Metals Corp.	Gansu, Jinchang	150
Do. do.	Laibin Smelter [Huaxi (China Tin) Group Co.]	Guangxi, Laibin	80
Do. do.	Daye Nonferrous Metals Co.	Hubei, Daye	300
Do. do.	Jiyuan Wangyang Smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	1,600
Do. do.	Jinli Smelter (Jiyuan Jinli Smelting Co.)	Henan, Jiyuan	800
Do. do.	Jiyuan Smelter (Yuguang Gold-Lead Co. Ltd.)	do.	730
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, Liaocheng, Yanggu	600
Do. do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	80
Do. do.	Great Wall Gold Silver Refinery	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 Redbutterfly 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
Tellurium, concentrate metric tons	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	50
Tin, smelter	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.	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 Nonferrous Metals Corp.	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
Do.	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.	Jinzhou Huashen Nonferrous Metals Plant	Liaoning, Jinzhou	10
Do.	Baoti 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	Yunnan, Lufeng	10
Tungsten, concentrate	Ninghua Hangluoken Tungsten Mine (Amoi Tungsten Co. Ltd.)	Fujian, Ninghua	4
Do.	Shizhuyuan Nonferrous Metals Co.	Hunan, Chenzhou	5
Do.	Yaogangxian Tungsten Mine	Hunan, Yizhang	3
Do.	Jiangxi Tungsten and Rare Earth Co. Ltd.	Jiangxi, Ganzhou	15

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners[1]	Location of main facilities[2]	Annual capacity[e]
Uranium	metric tons	Tianshan Uranium Co.	Mengqiguer, Xinjiang	500
Zinc		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.		Xingan Copper and Zinc Smelter	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 either the Central Government or a Provincial government.

[2]Listed by Province or Autonomous Region, followed by locality.

TABLE 3
CHINA: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2014

Commodity	Quantity (metric tons)	Value (thousands)
METALS		
Aluminum:		
Alumina	118,028	$108,421
Metal and alloys:		
Unwrought	666,772	1,432,777
Semimanufactures	3,670,000	11,947,994
Antimony, unwrought	1,444	12,892
Copper, metal and alloys:		
Unwrought	268,719	1,894,552
Semimanufactures	507,840	4,231,309
Iron and steel:		
Pig iron and cast iron	240,000	97,520
Steel:		
Bars and rods	30,870,000	16,261,230
Shapes and sections	4,750,000	2,903,914
Sheets and plates	43,670,000	32,791,085
Tube and pipe	1,680,000	4,583,815
Wire of steel or iron	2,160,000	2,328,081
Ferroalloys	540,000	1,226,051
Scrap	957	1,257
Manganese, unwrought	308,697	649,405
Molybdenum, ores and concentrates	11,145	152,451
Tin, metal and alloys, unwrought	941	21,481
Tungsten, tungstates	3,023	95,095
Zinc:		
Metal and alloys, unwrought	132,719	293,205
Oxide and peroxide	12,444	22,385
INDUSTRIAL MINERALS		
Barite	2,670,000	348,237
Cement	13,910,000	772,442
Fluorspar	410,000	120,205
Granite	7,460,000	3,963,123
Graphite, natural	280,000	298,006
Magnesia, fused	2,280,000	618,354
Rare-earth products	27,769	374,691
Talc	670,000	167,539
MINERAL FUELS AND RELATED MATERIALS		
Coal	5,740,000	695,433
Coke, semicoke	8,510,000	1,709,153
Petroleum:		
Crude oil	600,000	490,435
Refinery products	29,670,000	25,783,636

Source: General Administration of Customs of the People's Republic of China, 2014, China monthly exports and imports, no. 12.

TABLE 4
CHINA: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2014

(Metric tons unless otherwise specified)

Commodity	Quantity	Value (thousands)
METALS		
Aluminum:		
Bauxite	36,280,965	$2,067,208
Alumina	5,280,000	1,924,508
Metal and alloys, unwrought	353,649	744,697
Semimanufactures	499,874	3,016,794
Scrap	2,310,000	3,462,025
Chromium, chromite	9,390,000	1,830,659
Cobalt:		
Ore and concentrates	192,262	397,896
Unwrought and powder	4,323	40,157
Copper:		
Ore and concentrates	11,810,000	21,645,117
Metal and alloys, unwrought	4,220,000	29,610,311
Semimanufactures	603,951	6,036,918
Scrap	3,870,000	10,924,064
Iron and steel:		
Iron ore	932,510,000	93,642,293
Steel:		
Bars and rods	1,200,000	1,724,262
Seamless pipe	480,000	1,990,343
Shapes and sections	420,000	448,195
Sheets and plates	12,080,000	12,380,276
Scrap	2,560,000	1,684,280
Lead ore and concentrates	1,810,000	2,163,258
Manganese ore	16,210,000	2,718,748
Nickel:		
Ore and concentrates	47,758,290	4,578,467
Metal, refined greater than 99.95% Ni	5,916	107,660
Metal, other refined	124,063	2,107,599
Titanium dioxide	216,022	589,069
INDUSTRIAL MINERALS		
Diamond kilograms	2,597	9,145,609
Nitrogen, phosphorus, and potassium fertilizers:		
Compound fertilizers	1,110,000	639,997
Diammonium phosphate	230,000	99,850
Potassium chloride	8,030,000	2,521,818
Potassium sulfate	50,000	30,353
Urea	5,867	3,049
MINERAL FUELS AND RELATED MATERIALS		
Coal	291,220,000	22,249,979
Liquefied natural gas	19,830,000	12,222,286
Petroleum:		
Crude oil	308,380,000	228,311,556
Refinery products	30,000,000	23,434,886

Source: General Administration of Customs of the People's Republic of China, 2014, China monthly exports and imports, no. 12.

TABLE 5
CHINA: RESERVES OF MAJOR MINERAL COMMODITIES IN 2014

(Thousand metric tons unless otherwise specified)

Commodities		Reserves[1, 2]
Antimony, Sb		532
Barite, ore	million metric tons	30
Bauxite	do.	983
Chromite, ore		4,200
Coal	billion metric tons	240
Copper, Cu		28,400
Fluorspar, ore		39,800
Gas, natural	billion cubic meters	4,950
Gold, Au	metric tons	2,020
Graphite, mineral		41,300
Iron ore, ore	million metric tons	20,700
Kaolin	do.	575
Lead, Pb		17,200
Magnesite, ore	million metric tons	1,080
Manganese, ore	do.	214
Mirabilite, Na_2SO_4	do.	5,510
Molybdenum, Mo		8,370
Nickel, Ni		2,530
Petroleum	million metric tons	3,430
Phosphorus, ore	do.	3,070
Potash, KCl	do.	595
Pyrite, ore	do.	1,340
Rare earths (rare-earth oxide)		43,500
Salt, NaCl	billion metric tons	83
Silica, ore	million metric tons	1,900
Silver, Ag		39
Talc, ore	million metric tons	84
Tin, Sn		1,110
Titanium, ore	million metric tons	216
Tungsten, WO_3		2,330
Vanadium, V_2O_5		9,000
Zinc, Zn		40,300

[1]Rounded to three significant digits.

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

Source: China Statistical Yearbook 2015 (http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm).