



2014 Minerals Yearbook

KAZAKHSTAN

THE MINERAL INDUSTRY OF KAZAKHSTAN

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Kazakhstan produced a diverse range of mineral commodities and was the world's leading producer of uranium (41% of world output); the second-ranked producer of chromite (14% of world output); and the fourth-ranked producer of titanium sponge (5% of world output, excluding United States production) and magnesium metal (2% of world output). The country was also a significant producer of barite, bauxite, cadmium, copper, sulfur, and zinc. The mineral industry accounted for a significant share of the country's gross domestic product (GDP) and export revenue; petroleum and natural gas were the leading commodities in terms of production value. Kazakhstan's Government promoted the development of the mineral industry and owned interests in a number of significant mineral-commodity-producing companies (U.S. Energy Information Administration, 2015; World Nuclear Association, 2015; Apodaca, 2016; Bedinger, 2016; Bray, 2016a, b; Brininstool, 2016; Jaskula, 2016; McRae, 2016; Papp, 2016; Tolcin, 2016a, b).

Minerals in the National Economy

In 2014, Kazakhstan's real GDP increased by 4.4% compared with that of 2013, and the nominal GDP in 2014 was valued at \$217.9 billion.¹ Total industrial production was valued at \$103.4 billion, and real industrial production in 2014 increased only by 0.3% compared with that of 2013. Mineral extraction played a significant role in industrial production; \$61.7 billion, or 59.7% of the value of industrial production, was from this sector, which included \$50.7 billion from the extraction of crude petroleum, \$3.5 billion from the mining of nonferrous metal ores, \$1.2 billion from the mining of iron ore, \$1.2 billion from the extraction of coal and lignite, and \$478 million from the extraction of natural gas. In comparison with 2013, real output of nonferrous and precious metals increased by 10.1% in 2014; natural gas, by 7.6%; and ferrous metal ores, by 6.7%. On the other hand, real output of coal decreased by 1.9%; crude petroleum, by 1.2%; and ferrous ores, by 0.6%. In 2014, metallurgy contributed \$10.7 billion to industrial output, of which nonferrous metallurgy and production of precious metals contributed \$6.4 billion. Petroleum refining and coke production accounted for \$3.2 billion. Compared with 2013, real output of ferrous metals increased by 8.9% in 2014; that of petroleum refining and coke production increased by 2.5%, and real output of precious and nonferrous metals decreased by 3.8% (Agency of Statistics of the Republic of Kazakhstan, 2015a, b).

Government Policies and Programs

In 2014, Kazakhstan's Government was focused on accelerating exploration for mineral resources and increasing the rate of replenishment of mineral resources. At the

¹Where necessary, values have been converted from Kazakhstani tenge (KZT) to U.S. dollars (US\$) at an annual average exchange rate of KZT179.19=US\$1.00 for 2014.

beginning of the year, the Ministry of Industry and New Technologies (MINT) announced that the Government planned to announce tenders for exploration of 105 prospective lots. According to the program for development of the mineral resource base, the Government would invest 161 billion tenge (about \$898 million) between 2015 and 2019. The MINT reported that during 2000–13 Kazakhstan invested 234 billion tenge (about \$1.31 billion) in exploration. In addition, special attention would be paid to exploration in close proximity to towns and cities where livelihoods depended on the availability of minable mineral resources. An investment of 25 billion tenge (about \$139 million) would be invested in socioeconomic development of the cities of Jezkazgan and Satlaev and the Ulytau District of the Karaganda region. The investment program would focus on exploration for copper, gold, and rare metals. The Government anticipated that, as a result of increased investment in exploration, Kazakhstan could discover as many as 15 new world-class mineral deposits in the next several years (Mineral.ru, 2014n; MinerJob.ru, 2014e, l).

In addition to the Government's own spending on exploration, Government agencies encouraged private businesses to increase their exploration efforts. In February, TOO Kazzinc and the MINT signed a memorandum for mutual cooperation in the area of exploration. Kazzinc promised to invest at least 15 billion tenge (about \$84 million) in exploration in Kazakhstan between 2014 and 2018. Rio Tinto Group of Australia also started exploration work in Kazakhstan. The company's initial exploration budget was expected to amount to 2.73 billion tenge (about \$15 million). Rio Tinto's initial exploration efforts would be field work in the Karaganda region (MinerJob.ru, 2014k, m; 2015a).

In February, the Government prepared legislation that would allow the use of auctions as mechanisms for distribution of subsoil lots for exploration and mining. The introduction of such mechanisms would simplify the procedure for both the Government and the prospective subsoil users. It was expected that the competitive principle of resource distribution would increase transparency and would preclude corruption associated with the issuance of mining licenses. The new legislation included a total of 189 amendments to three separate laws of Kazakhstan. In addition to auctions, the new legislation would allow mining companies to change production volumes by up to 20% of the original volume without obtaining approval from the relevant Government entity. It would also expand access to available geologic information for the mining companies, and would exclude a prefeasibility study from the documents required for submission with a mining application. For the cases of less competitive resources, the Government would offer mining licenses on a first-come-first-served basis, with regular annual increases in user fees. The new legislation would be considered first by the lower chamber of Kazakhstan's Parliament (MinerJob.ru, 2014l).

In February, the Government announced that it would set quotas for foreign specialists to be employed in several projects of high priority. Foreign specialists would be employed in a total of 12 projects—construction of the Aktogay GOK (800 persons), construction of the Bozshakol GOK (1,920 persons), expansion of the Ekibastuz hydropowerplant (1,286 persons), construction of the Balkhashskaya thermal powerplant (800 persons), and several others, with the total demand for 5,142 foreign workers. In addition to the quota system, the Government planned to invite foreign specialists to Kazakhstan based on a point system. The point system would permit professionals to obtain temporary work permits based on their qualifications and then look for work in Kazakhstan. Government officials stated that the second system would be used mostly for college professors, engineers, managers, and researchers. The draft legislation was supposed to be considered by the Parliament in the fall of 2014, but no information was available about the outcome (MinerJob.ru, 2014a, f, g).

Beginning on April 1, 2014, the Government increased the export tariff on crude oil to \$80 per metric ton from \$60 per metric ton (to \$11 per barrel from \$8.20 per barrel). The announced reason for the increase was to increase Government revenues. The Eurasian Economic Commission (EEC) (the supranational body of the Eurasian Economic Union) reduced import tariffs for lead ores and concentrates to zero from 4% for the period from April 1, 2014, to March 31, 2015, in Belarus, Kazakhstan, and Russia. The measure covered ores and concentrates with a lead content of at least 45%. Kazakhstan, in particular, experienced shortages of lead produced domestically and imported from Russia and Tajikistan and had to import additional amounts from Peru. In April, the EEC announced its decision to set import tariffs for rare-earth metals, scandium, and yttrium, both as pure metals and in alloys, to zero from May 1, 2014, to April 30, 2015. The EEC explained that these metals were used to produce superhard materials and, therefore, the measure would promote development of advanced technologies in the countries of the Eurasian Economic Union (Mineral.ru, 2014b, h; MinerJob.ru, 2014h).

Production

Output of mineral commodities in 2014 generally remained close to the levels of output in 2013. Production of niobium increased by an estimated 64%; ammonia, by 39%; refined lead, by 38%; and cadmium, by 24%. Production of pig iron increased by 21%; phosphate rock, by 18%; barite, by 16%; gold, both refined and metal, by 15% each; cement and coke, by 13% each; and salt and sulfuric acid, by 12% each. At the same time, ferrosilicon production decreased by 29%; tantalum, by 28%, and copper smelter production, by 20%. These and other production data are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

In 2014, the value of Kazakhstan's exports accounted for \$79.5 billion, which was a 6.2% decrease compared with the value of exports in 2013. In 2014, Kazakhstan's imports decreased by 16.4% to \$41.3 billion. In the commodity structure of Kazakhstan's exports, mineral products accounted for 80.4%. The reduction in export revenues in 2014 compared with those in 2013 was because of the reduction in exports of the following commodities: crude oil, the revenues from which decreased by 6%, to \$53.6 billion from \$57.2 billion; uranium products, by 18%, to \$1.9 billion from \$2.3 billion; refined copper, by 36%, to \$1.7 billion from \$2.7 billion; ferroalloys, by 10%, to \$1.56 billion from \$1.72 billion; and ferrous ores and concentrates, by 29%, to \$1.1 billion from \$1.6 billion. On the other hand, exports of copper ores and concentrates increased by 43%, to \$840 million from \$588 million (because the Jezkazgan smelter did not operate during most of 2014), and zinc exports decreased by 21%, to \$588 million from \$487 million. Among final products, revenues from exports of refinery products were \$2.97 billion, which was a 6% decrease compared with the revenues in 2013 (Agency of Statistics of the Republic of Kazakhstan, 2015c; Kaznex Invest, 2015).

Kazakhstan's main export partner was Italy, which received 20.2%, by value, of the country's exports. It was followed by China (12.3%), the Netherlands (11.0%), Russia (8.0%), France (5.9%), Switzerland (5.7%), Romania (4.0%), Austria (3.6%), and Spain (3.0%). The major commodities imported were foodstuffs, machinery and equipment, and metal products. Kazakhstan's main import partner was Russia, which provided 33.4% of Kazakhstan's imports, by value. It was followed by China (17.8%); Germany (5.6%); the United States (4.8%); Ukraine (2.9%); France and the Republic of Korea (2.6% each); Italy, Turkey, and Uzbekistan (2.5% each); and Japan (2.2%) (Agency of Statistics of the Republic of Kazakhstan, 2015a, c).

Commodity Review

Metals

Copper.—In March, the MINT announced that Kazakhstan's forecast resources of copper were estimated to be about 100 million metric tons (Mt). From 2003 to 2012, between 25 and 53 deposits were being mined, and the total production was 5.2 Mt of copper. Annual production fluctuated between 472,000 and 567,000 metric tons per year (t/yr). During that period, the resources increased by 3.9 Mt, which was 76% of the resources depleted during the period. In 2012 (the latest year for which data were available), resources increased by 348,000 metric tons (t) of copper (Mineral.ru, 2014o).

Kazakhmys plc was the dominant producer of copper ore and copper metal in the country. In 2014, the company produced 83,500 t of copper cathodes, which was a 9% increase compared with 76,800 t that the same assets produced in 2013. The company stated that modernization increased the copper recovery rate at the Nikolayevskaya plant in eastern Kazakhstan to 88% from 82%. In 2014, Kazakhmys produced 4.6 Mt of copper ore, including 426,000 t produced at the Bozymchak Mine in Kyrgyzstan. In 2014, the average copper

content of all copper ores mined by the company was 2.35%. The revenue of the company was affected by the reduction of copper prices on the world market and by the reduced demand for copper. The company reported that of 83,500 t of copper cathodes produced in 2014, the company sold only 78,200 t during 2014 (Mineral.ru, 2014c, e).

In October 2014, Kazakhmys completed a restructuring. The mines and plants located in Balkhash, Jezkazgan, and Karaganda (approximately two-thirds of copper assets) were divested to Cuprum Holdings Groups, which was registered in Mauritius. Kazakhmys agreed pay \$240 million as working capital for the assets that were divested to Cuprum Holdings. The public company Kazakhmys plc retained the remaining assets and was renamed KAZ Minerals plc. KAZ Minerals retained mining and processing assets in eastern Kazakhstan and the Bozymchak Mine in Kyrgyzstan. It also continued working on major development projects Aktogay, Bozshakol, and Koksay. The company intended to concentrate on low-cost projects with long mine lives. Because of the reorganization, KAZ Minerals reduced its overall copper production in 2014 to 83,500 t from 294,000 t in 2013. The company sought to return to producing about 300,000 t in 2018 after the Aktogay and the Bozshakol sites were developed (Kayakiran, 2014).

Kazakhmys began construction of the Bozshakol mining and metallurgical complex (GOK) in the Pavlodar region in 2011. The total cost of the project was 406 billion tenge (about \$2.7 billion) and, as of November 2014, about 53% of the total investment was already expended. The Bozshakol GOK would have the capacity to process 100,000 t/yr of copper concentrate. The pilot production was to start at the end of 2014, and, in 2015, the plant would begin regular production of copper concentrate. Bozshakol is a polymetallic deposit containing copper, gold, molybdenum, and other metals (MinerJob.ru, 2014b, 2015b).

In 2014, Kazakhmys (the portion of the company presently known as KAZ Minerals) continued construction of the mine and processing facilities at its Aktogay deposit in eastern Kazakhstan. The company was building an open pit mine with a total construction cost of 245 billion tenge (about \$1.5 billion), about one-half of which was already expended. The first complex for processing of oxidized ores was to be completed in 2016. The complex would employ 1,500 workers and would have the capacity to produce 85,000 t/yr of copper concentrate and 25,000 t/yr of copper cathodes. The mine was expected to begin operations in March 2016, and to reach full capacity in 2018. According to earlier company plans, the mine was expected to be completed by 2012, but construction was delayed by contractors' holdups. In 2014, Non Ferrous China (NFC) became the primary construction contractor. In addition to the processing complex, the project involved the construction of powerlines and a railway line as well as excavations and cement works (MinerJob.ru, 2014c).

In February, Kazakhmys reported that it had obtained the rights to develop the Koksay deposit, which is located in the Alma-Aty region. The seller was a private nonaffiliated company, CCC Mining Construction B.V. of the Netherlands, and the total amount of the transaction was \$260 million. The transaction was subject to approval by the Government and its

regulatory agencies. The first payment of \$30 million was due on January 1, 2015, and the second payment of \$35 million was due on July 31, 2015, after the resources of the deposit were confirmed. The deposit is situated about 230 kilometers (km) from Alma-Aty in an area with well-developed infrastructure. The deposit's resources were estimated to contain 3.4 Mt of copper; the average grade of the resource was 0.48%. Additionally, the deposit contains gold, molybdenum, and silver. At the beginning of 2014, the Koksay project was undergoing early states of a feasibility study. The preliminary production plans assumed that the future mine would have the capacity to produce 80,000 t/yr in copper-cathode equivalent, 1,900 kilograms per year of gold, 12.4 t/yr of silver, and 1,000 t/yr of molybdenum in concentrates, with an expected mine life of 20 years (Mineral.ru, 2014d; MinerJob.ru, 2014d).

In October, the Jezkazgan smelter, which is located in Karagandy Province, resumed operations after a year-long conservation. The plant stopped operating in September 2013, in order to change the technology at the smelter. Previously, the smelter had employed an electric thermal furnace, which was appropriate for the concentrates obtained from the Jezkazgan Mine, but it was not able to process other types of concentrates, such as concentrates from the Bozshakol Mine. The modernization was to switch the smelter to hydrometallurgical technology that would be able to handle a wider variety of copper concentrates. The management of the smelter reported that after the reconstruction, the plant would have the same annual capacity as before—about 100,000 t/yr of copper cathodes. It appeared that the planned modernization would start in the near future and would continue through 2017. The opening of the new hydrometallurgical copper smelter was planned for the beginning of 2018 (Mineral.ru, 2014f; MinerJob.ru, 2014j).

In July, Orsu Metals Corp. (Orsu) of the United Kingdom and its partner TOO Asem Tas-N (a private Kazakhstani company) were granted an extension of exclusive rights for exploration of the East Balkhash-2 license area. The extension of 175 days was provided owing to the inclement weather conditions that delayed the drilling and geophysical work needed to evaluate the deposit's resources. Orsu intended to invest up to \$500,000 for exploration of the license area. If the results of the exploration warranted production, the two companies planned to create a joint venture, in which Orsu would hold a 55% share. East Balkhash is a polymetallic deposit located west of the Aktogay deposit. According to the exploration data from the Soviet period, one of the Balkhash segments contained resources grading between 1.3% and 5.8% copper and 100 grams per metric ton (g/t) silver. According to the exploration data from 2011, the deposit overall graded 0.98% copper, 20.2 g/t silver, and 0.2 g/t gold (Infogeo.ru, 2012; Mineral.ru, 2014k).

In October, the Governments of Kazakhstan and Russia signed an intergovernmental agreement to develop the Vesenne-Aralchinskoye deposit, which is located on the border between the two countries. ZAO Russian Copper Co. of Russia (RMK), which was one of the top three copper producers in Russia, had mining licenses for the deposit, both in Kazakhstan and in Russia, through its subsidiaries

ZAO Ormet in Russia and TOO Aktyubinskaya Copper Co. in Kazakhstan. The two subsidiaries planned to process ores mined in their respective countries. In 2013, RMK completed the blueprints of the underground mine in the Aralchinskiy sector of the deposit in Kazakhstan and started construction. The mine would have the capacity to produce 500,000 t/yr of ore and was expected to open in 2016. The resources of the entire Vesenne-Aralchinskoye deposit were estimated to contain 196,800 t of copper, 190,800 t of zinc, 1,270 kilograms of gold, and 100 t of silver (Mineral.ru, 2014m; MinerJob.ru, 2014i).

Molybdenum and Tungsten.—In November, TOO Joint Venture Kazakhstan and Russia Mining Co. announced a plan to build a processing complex for molybdenum-tungsten ores in Kostanay Oblast⁷. The total cost of the project would be 24 billion tenge (about \$134 million). The complex would have the capacity to process 5 Mt/yr of ore and to produce about 14,000 t/yr of molybdenum concentrate and about 3,400 t/yr of tungsten concentrate. According to the regional administration, the feasibility study had been completed and the required construction permits and mining licenses had been obtained. Production was expected to begin at the end of 2015 or the beginning of 2016, and the complex was expected to employ about 900 people (MinerJob.ru, 2014n).

Nickel and Cobalt.—In October, TOO Kaznickel announced that it was planning to open a mine at the Gornostayevskoye silicate nickel-cobalt deposit, which is located in eastern Kazakhstan. TOO Kaznickel was a subsidiary of AO Sat & Co., which acquired Kaznickel in 2009. Sat & Co. also owned the Eptic ferronickel plant and planned to create a full-cycle nickel mining and processing complex. Kaznickel had exploration and mining licenses for the Gornostayevskoye deposit. Kaznickel had been conducting prospecting and exploration work at the deposit since 2004, and, as of late 2014, the company had completed exploration and was ready to begin mining. According to Government records (1999), the deposit's inferred resources were 20.4 Mt containing 173,000 t of nickel and 12,000 t of cobalt. According to another preliminary resource estimate conducted in 2008, the deposit had indicated resources of 13.1 Mt containing 118,000 t of nickel and inferred resources of 13.2 Mt containing 117,000 t of nickel. The total cost of the mining project was estimated to be 33 billion tenge (about \$184 million), and the new mining complex would create about 600 jobs (Newskaz.ru, 2009; Inform.kz, 2014).

AO Kazzinc, which was a subsidiary of Glencore Xstrata plc of Switzerland, planned to build a plant for heap leaching of nickel ores with the capacity to process 500,000 t/yr of ore at the Kimpersay group of deposits in Aktobe Province. OAO Irgiredmet of Russia was testing the technology; the pilot project demonstrated that the nickel content in the concentrate was 73%. The projected production capacity of the plant was 3,890 t/yr of nickel and 116 t/yr of cobalt. The preliminary estimate of the cost of the project was 15 billion tenge (about \$84 million). According to the Government, the Kimpersay Group of deposits had 39 manifestations of silicate nickel ores and contained two deposits—the Bugor deposit and the Severo-Vostochnaya deposit. The deposits contained 12.8 Mt of mineralized material grading 1.16% nickel, 0.066% cobalt,

0.003% copper, and 2.08% chromium oxide. Earlier, several companies tried to build a plant at Kimpersay, most recently in 2010, but the economic crisis of 2008 and the negative nickel price trend prevented those projects from being completed (Mineral.ru, 2014j).

Industrial Minerals

Potash.—As of 2014, Kazakhstan did not produce potash; however, several projects were underway to start potash production. Junior mining company Kazakhstan Potash Corp. Ltd. (KPC), which was registered in Melbourne, Australia, had mining licenses for two potash deposits in Kazakhstan and was in the process of obtaining a license for one more. The first one was the Zhilyanskoye deposit, which is located in Aktobe Province, 10 km southwest of the city of Aktobe; it contained resources of polyhalite and sylvinit. In December 2014, KPC was negotiating the details of mine construction at the deposit with CITIC Construction Co. of China. According to the project feasibility study, mining at the Zhilyanskoye deposit would be conducted using an underground method. The company planned to produce both potassium chloride and potassium-magnesium sulfate. Initially, the plant would produce 600,000 t/yr of potassium chloride and would increase production to 1.2 Mt/yr within 3 years. The potassium-magnesium sulfate capacity of the plant would begin at 1.2 Mt/yr and increase to 2.4 Mt/yr within 3 years. The project was estimated to cost about \$1 billion, and construction was expected to start in 2015 (Kopylov and others, 2014; Mineral.ru, 2014l).

In July, KPC announced that it had signed an agreement to purchase TOO Satimola for \$140 million. TOO Satimola, through its wholly owned subsidiary TOO Satbor, had a mining license for the Satimola potash and borate deposit, which is located in western Kazakhstan. It was not clear which entity was the seller of TOO Satimola at the time. In 2006, Satimola was owned by Agapito Associates Inc. of the United States, which planned to start exploration of the deposit by 2008. According to the Joint Ore Reserves Committee (JORC) estimates, indicated and inferred resources of the Satimola deposit were 2.5 billion metric tons (Gt) of potassium chloride with an average K₂O content of 20.1% and a minimal content of 15%. KPC expected to begin production of 2 Mt/yr of potassium chloride and then gradually to increase the production capacity to 6 Mt/yr. The license for the third project, the Chelkarskoye deposit, which is located in western Kazakhstan, was acquired by KPC in 2011 (Kursiv.kz, 2014).

The Government of Kazakhstan was supporting the development of potash production in the country. According to the Government, plans were to produce 7 Mt/yr of potash by 2025. In December, the Government announced that Chinese businesses would invest \$3.8 billion in Kazakhstan's potash industry. The construction of mines and plants would start in 2015 and 2016 and would create 5,000 new jobs. The Government and the KPC signed a financing agreement with Industrial and Commercial Bank of China Ltd. (ICBC) and CITIC Capital Holdings Ltd. (CITIC Capital), an investment company of the CITIC Group Corp. of China (Thomson Reuters, 2014).

Mineral Fuels and Related Materials

Uranium.—In 2014, Kazakhstan increased uranium production to 22,829 t from 22,500 t in 2013, which was a 1.5% increase. The country remained the world's leading producer of uranium, accounting for about 41% of world uranium mine output. In 2015, Kazakhstan was planning to increase uranium production to 23,400 t. As of 2014, Kazakhstan had no nuclear powerplants, and all mined uranium was exported. In 2014, Kazakhstan exported \$1.9 billion worth of uranium. The primary export partners were China (62% or \$1.2 billion), Russia (11% or \$219 million), Canada (7%), and France (6%) (Mineral.ru, 2014a; Kaznex Invest, 2015; Newskaz.ru, 2015).

In October, Kazakhstan and Russia agreed to build a nuclear powerplant in East Kazakhstan Province. The agreement, which was signed by the Ministry of Energy of Kazakhstan and the Rosatom State Nuclear Energy Corporation of Russia, allowed for the construction a new power plant with a capacity of up to 1,200 megawatts (MW). The intragovernmental approval procedures were expected to continue through the end of 2014. The tentative location for the future plant was the city of Kurchatov, and construction was expected to begin in 2018 (Mineral.ru, 2014g; TengriNews.kz, 2014).

In June, a new mobile processing installation started operations in the South Kazakhstan Province. The installation was capable of processing the solutions used for underground leaching and was designed for small and remote uranium deposits, which were located far from the stationary processing complexes. The installation was capable of processing 100 cubic meters of solution per hour, which is equivalent to between 20 and 25 t/yr of uranium. The main benefits of the installation were low energy consumption, use of a limited number of chemicals, and a simplified technological scheme; combined, these features were expected to reduce production costs. The installation was developed by the Institute of High Technologies (TOO IVT), which was a subsidiary of the AO NAK Kazatomprom (Mineral.ru, 2014i).

AO NAK Kazatomprom produced 13,156 t of uranium, including production through its shares in joint ventures, which was a 4.4% increase compared with that of 2013. AO NAK Kazatomprom was the national operator for the nuclear industry. It exported uranium and its compounds; rare metals, such as beryllium, niobium, and tantalum; nuclear fuel for nuclear powerplants; and related technologies and equipment. The major activities of Kazatomprom were exploration for and mining of uranium, production of nuclear fuel, production of materials for use in the nuclear industry, and conducting research related to the nuclear industry. Kazatomprom was also developing renewable energy technologies in Kazakhstan. As of 2014, the company employed 25,000 workers (Newskaz.ru, 2015).

Outlook

Interest in Kazakhstan's mineral industry will likely continue to increase along with an increase in the number of projects aimed at exploiting the country's significant mineral resources. Projects involving copper, gold, rare metals, rare-earth elements, and uranium could be of particular interest. The number of exploration projects underway in Kazakhstan indicates the

potential for future increases in the production of mineral commodities in the country, but any future development will depend on a variety of factors, including mineral commodity prices and the development of Government policies and programs to encourage the growth of the industry.

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TABLE 1
 KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014
METALS					
Aluminum:					
Alumina	1,639,000	1,670,000	1,760,412	1,590,000 ^r	1,419,000
Bauxite, gross weight	5,310,200	5,495,200	5,170,200	5,192,000	4,515,600
Metal, primary	226,000	249,000	250,269	250,159	208,430
Antimony, Sb content of concentrate	785	800	865	-- ^r	481
Beryllium	NA	NA	2,526	1,913 ^r	1,776
Bismuth, metal, refined ^c	150	150	150	150	140
Cadmium, metal	1,400 ^e	1,300 ^e	1,200 ^e	1,319 ^r	1,633
Chromite, marketable ore	3,200,000	3,800,000	3,590,000	3,700,000	3,810,000
Copper:					
Mine output, Cu content of concentrate	380,600	405,300	419,200	440,300	460,300
Metal:					
Smelter, undifferentiated	318,637	302,975	302,576	269,220 ^r	214,058
Refined, primary	323,368	338,524	373,259	352,061 ^r	293,948
Gallium kilograms	18,702	18,703	15,711	15,500 ^e	15,500 ^e
Gold:					
Mine output, Au content do.	30,272	36,846	39,903	42,552	49,207
Metal, refined do.	13,456	16,672	21,133	23,220	26,680
Iron and steel:					
Iron ore, marketable:					
Gross weight	24,016,200 ^r	24,736,100 ^r	25,888,500 ^r	25,228,200	26,024,000
Fe content ^c	13,700,000 ^r	14,100,000	14,800,000 ^r	14,400,000	14,900,000
Metal:					
Pig iron	2,984,000	3,141,100 ^r	2,707,000	2,634,451	3,189,388
Ferrous alloys:					
Ferrochromium	1,311,302	1,289,917	1,305,343	1,336,532	1,351,896
Ferrosilicochromium	159,765	143,296	164,853	165,195	158,826
Ferrosilicon	4,813	1,683	494	472	334
Silicomanganese	224,627	232,039	251,530	203,986	200,802
Other	1,283	1,754	1,845	81	3,470
Total	1,701,790	1,668,689	1,724,065	1,706,266	1,715,328
Steel:					
Crude	3,338,000	3,699,300	3,775,836	3,477,000	3,693,000
Finished, rolled	2,899,800	3,107,900	2,402,300	2,277,000 ^r	2,532,200
Lead:					
Concentrate, Pb content	35,400	38,800	38,100	40,100	37,800
Refined, primary and secondary	103,110	111,249	88,099	91,072	125,289
Magnesium, metal, primary ^c	21,000	21,000	21,000	20,000	17,000
Manganese:					
Ore:					
Gross weight	3,044,700	2,963,000	2,975,000	2,850,500	2,608,800
Mn content ^e	610,000	590,000	595,000	570,000 ^r	522,000
Concentrate:					
Gross weight	1,094,400	1,096,300	1,070,500	1,121,000	1,092,300
Mn content ^e	390,000	390,000	390,000	404,000	390,000
Nickel, Ni content of laterite ore ^e	500	500	450	--	--
Niobium, metal	NA	NA	43	44 ^e	72
Silicon, metal ^c	1,500	8,000	10,000	10,000	10,000

See footnotes at end of table.

TABLE 1—Continued
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014
METALS—Continued					
Silver:					
Mine output, Ag content kilograms	552,060	650,649	963,182	963,829	981,882
Refined do.	548,990	646,685	958,495	958,258	976,434
Tantalum, metal	NA	NA	213	215 ^e	155
Titanium:					
Ilmenite and leucoxene ^c	25,000	25,000	25,000	20,000	20,000
Sponge	14,500	20,700	21,000 ^e	12,000 ^e	13,000 ^e
Zinc:					
Concentrate, Zn content	405,300	376,700	369,700	361,500	346,600
Smelter, primary and secondary	318,858	319,847	319,900	320,150	324,754
INDUSTRIAL MINERALS					
Asbestos, all grades	214,100	223,100	241,200	243,400	213,100
Barite:					
Ore and concentrate	358,000	466,200	590,100	563,700	655,500
Marketable ^c	200,000	200,000	230,000	250,000 ^f	290,000
Boron ^e thousand metric tons	300 ^f	300 ^f	300 ^f	348 ^f	507
Cement	6,686,300	7,642,100	7,050,000 ^f	7,071,500 ^f	7,976,800
Fluorspar	65,000 ^e	65,000 ^e	100,000 ^{e,f}	108,000	110,000 ^e
Gypsum	700,000 ^e	700,000 ^e	1,029,400 ^f	997,000	1,026,700
Lime	886,572	959,827 ^f	908,188 ^f	869,167	923,300
Nitrogen, N content of ammonia	75,347	105,067	83,255	95,135	132,113
Phosphate rock, beneficiated:					
Gross weight	2,000,000 ^f	1,900,000 ^f	2,100,000 ^f	1,700,000 ^f	1,840,000
P ₂ O ₅ content ^e	413,200 ^f	399,900 ^f	438,800 ^f	410,500 ^f	485,400
Rare-earth elements, rare-earth oxide content	--	--	-- ^f	-- ^f	240
Salt	276,131	364,222	463,960	531,429	596,508
Sulfuric acid	1,410,700	1,519,900	1,719,200	2,081,200	2,329,900
Sulfur, byproduct:					
Metallurgy ^e	300,000	300,000	300,000	300,000	320,000
Natural gas and petroleum	2,400,000 ^e	2,400,000 ^e	2,150,500 ^{f,3}	2,443,300 ^f	2,455,400
Total	2,700,000 ^e	2,700,000 ^e	2,450,500 ^f	2,743,300 ^f	2,775,400
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Bituminous thousand metric tons	99,285	103,015	112,780 ^f	107,694 ^f	102,378
Lignite do.	7,283	8,368	7,748	6,690	6,894
Total do.	106,568	111,383	120,528 ^f	114,384	109,272
Coke	2,526,800	2,663,300	2,569,300	2,379,100	2,697,800
Natural gas:					
Nonassociated gas thousand cubic meters	17,595,000	19,305,000	20,308,800	20,564,900 ^f	21,278,500
Associated gas do.	19,811,000	20,199,000	19,820,100	21,679,100 ^f	21,898,300
Total do.	37,406,000	39,504,000	40,128,900	42,244,000	43,176,800
Petroleum:					
Crude oil and gas condensate ⁴ 42-gallon barrels	578,000,000	582,000,000	576,200,000	594,589,000	585,986,000
Refinery products ⁵ do.	101,600,000	106,200,000	108,400,000	109,783,000 ^f	113,700,000
Uranium:					
U content	17,803	19,451	20,900	22,500	22,829
U ₃ O ₈ content	20,995	22,939	24,648	26,300	26,915

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^fRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through December 27, 2015.

²In addition to the commodities listed, Kazakhstan may also have produced a number of other mineral products, including mined bismuth, cesium, cobalt, germanium, indium, molybdenum, rhenium, scandium, selenium, tellurium, and vanadium, but available information was inadequate to make reliable estimates of output.

³Reported figure.

⁴Figures were converted to barrels from metric tons, which were reported as follows: 2010—79,684,800; 2011—80,060,900; 2012—79,224,500; 2013—81,786,700; and 2014—80,825,600.

⁵Figures were converted to barrels from thousand metric tons, which were reported as follows: 2010—12,794; 2011—13,393; 2012—13,668; 2013—13,844 (revised); and 2014—14,338.

TABLE 2
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Alumina	Aluminium of Kazakhstan JSC [Eurasian Natural Resources Corp. plc (ENRC)]	Pavlodar	1,600,000
Aluminum, primary	Kazakhstan Aluminium Smelter JSC [Eurasian Natural Resources Corp. plc (ENRC)]	do.	250,000
Barite	Vostochnoye Rudoupravleniye LLP	Shyganak, Zhambyl Province	NA
Do.	Zhartas LLC	Zhambyl Province	25,000
Do.	Stroyservice LLC	Kentau District, South Kazakhstan Province	30,000
Do.	Zhairemsky GOK ³ JSC [Eurasian Natural Resources Corp. plc (ENRC)]	Ushkatyn III, Zhairem, and Zhumanai deposits near Zhairem	NA
Do.	JSC Yuzhpolimetal	Kentau District, South Kazakhstan Province	NA
Do.	Barite Oil Kentau LLC	Kentau District, South Kazakhstan Province	NA
Bauxite	Kazakhstan Aluminium Smelter JSC [Eurasian Natural Resources Corp. plc (ENRC)]	Torgai and Krasnooktyabrsk mining complexes, Kostanay Province	5,400,000
Beryllium, metal	Ulba Metallurgical Plant JSC (Kazatomprom JSC)	Oskemen (also known as Ust-Kamenogorsk)	NA
Bismuth, metal	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	do.	NA
Do.	Chimkent metallurgical plant (JSC Yuzhpolimetal)	Shymkent	NA
Cadmium	do.	do.	NA
Do.	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	Oskemen (also known as Ust-Kamenogorsk)	NA
Chromite, marketable ore, 50% Cr ₂ O ₃ content	TNK Kazchrome [a subsidiary of Eurasian Natural Resources Corp. plc (ENRC)]	Khromtau, Aktobe Province	3,600,000
Do.	Oriel Resources Ltd. (OAO Mechel)	Voskhod GOK, ³ Khromtau, Aktobe Province	600,000
Copper:			
Mining, recoverable, Cu content	Kazakhmys plc: ⁴ Central Region:		
	Konyrat Mine	Karagandy Province	11,800
Do.	Sayak I and III Mines	do.	23,500
Do.	Shatyrkul Mine	Zhambyl Province	12,700
Do.	Abyz Mine	Karagandy Province	5,710
Do.	Nurkazgan Mine	do.	20,000
Do.	Akbastau Mine	East Kazakhstan Province	9,000
Do.	East Region:		
	Artemyevsky Mine	do.	25,000
Do.	Belousovsky Mine	do.	2,700
Do.	Irtysky Mine	do.	5,750
Do.	Nikolayevsky Mine	do.	25,700
Do.	Orlovsky Mine	do.	86,200
Do.	Yubileyno-Snegirikhinsky Mine	do.	14,200
Do.	Jezkazghan Region:		
	Annensky Mine	Karagandy Province	25,000
Do.	East Mine	do.	35,000
Do.	North Mine	do.	28,000
Do.	South Mine	do.	30,000
Do.	Stepnoy Mine	do.	30,000
Do.	West Mine	do.	23,300
Do.	Zhomart Mine	do.	60,000

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Copper—Continued:			
Mining, recoverable, Cu content— Continued	Kazzinc JSC (Glencore International plc, 69.61%): Ridder complex:		
	Ridder-Sokolny Mine	East Kazakhstan Province	NA
Do.	Shubinsky Mine	do.	2,750
Do.	Tishinsky Mine	do.	15,000
Do.	Zyrianovsk complex:		
	Maleevsky Mine	15 kilometers north of Zyryanovsk	40,000
Do.	Grekhovskiy Mine	NA	NA
Do.	Aktyubinsk Copper Co. TOO (CJSC Russian Copper Co.)	50th Anniversary of October Mine, at Koktau, Aktobe Province	NA
Do.	JSC Polymetal	Varvarinskoye deposit, Kostanay Province	NA
Concentrate, Cu content	Kazakhmys plc:		
	Central Region:		
	Balkhash concentrator	Karagandy Province	40,000
Do.	Karagaily concentrators:		28,000
	Abyz	do.	
	Akbastau	do.	
	Kosmurun	do.	
Do.	Nurkazgan concentrator	do.	15,000
Do.	East Region:		
	Orlovskiy concentrator	do.	70,000
Do.	Belousovskiy concentrator	East Kazakhstan Province	13,000
Do.	Irtyskiy concentrator	do.	6,000
Do.	Nikolayevskiy concentrator	do.	30,000
Do.	Jezkazghan Region:		
	Satpayev concentrator	do.	30,000
Do.	Jezkazghan No. 1 concentrator	do.	88,800
Do.	Jezkazghan No. 2 concentrator	do.	95,000
Do.	Kazzinc JSC (Glencore International plc, 69.61%): Ridder complex: Ridder concentrator	Karagandy Province	10,000
Do.	Zyrianovsk complex: Zyrianovsk concentrator	do.	10,000
Do.	Aktyubinsk Copper Co. TOO (CJSC Russian Copper Co.)	50th Anniversary of October Mine, at Koktau, Aktobe Province	55,000
Do.	JSC Polymetal	Varvarinskoye deposit, Kostanay Province	NA
Metal	Kazakhmys plc mines or plants:		
	Central Region:		
	Balkhash smelter	Karagandy Province	250,000
Do.	Balkhash refinery	do.	250,000
Do.	Jezkazghan Region:		
	Jezkazghan smelter	do.	250,000
Do.	Jezkazghan refinery	do.	250,000
Do.	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	Oskemen (also known as Ust-Kamenogorsk)	70,000
Do.	Central Asia Metals plc	Karagandy Province	10,000
Ferroalloys:			
Ferrochrome:			
High-, medium-, and low-carbon FeCr containing 69% Cr	Aktobe plant {Kazchrome [Eurasian Natural Resources Corp. plc (ENRC)]}	Aktobe	450,000
High-carbon FeCr containing 69% Cr	Aksu plant {Kazchrome [Eurasian Natural Resources Corp. plc (ENRC)]}	Aksu	850,000
Ferrosilicon	do.	do.	NA
Ferrosilicochromium	do.	do.	NA
Silicomanganese	do.	do.	NA
Do.	Taraz Metallurgical Plant LLP (SAT & Co.)	Taraz, Zhambyl Province	NA
Do.	Temirtau Electrometallurgical Complex	Temirtau, Karagandy Province	NA

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Gallium	Aluminium of Kazakhstan JSC [Eurasian Natural Resources Corp. plc (ENRC)]	Pavlodar	NA
Gold, mined	Kazzinc JSC (Glencore International plc, 69.61%)	Northern Kazakhstan	NA
Do.	Kazakhmys JSC	do.	NA
Do.	Polyus Gold International, Ltd.	do.	NA
Do.	JSC Polimetal	do.	NA
Do.	Nord Gold N.V.	Suzdal Mine	NA
Do.	GMK Kazakhaltyn	Northern Kazakhstan	NA
Do.	AK Altynalmas	Eastern Kazakhstan	NA
Do.	TOO Yubileynoye	Aktobe Province	NA
Indium	Kazzinc JSC (Glencore International plc, 69.61%)	NA	NA
Iron and steel:			
Pig iron	ArcelorMittal Temirtau	Temirtau, Karagandy Province	5,700,000
Steel, crude	do.	do.	6,000,000
Iron ore, marketable, gross weight	JSC Sokolov-Sarbai Mining Production Association [Eurasian Natural Resources Corp. plc (ENRC)]	4 open pit mines and 1 underground mine in Kostanay Province	20,000,000
Do.	TOO Orken (ArcelorMittal Temirtau)	Karagandy Province	5,000,000
Lead:			
Mining, recoverable Pb content of ore	Kazzinc JSC (Glencore International plc, 69.61%): Ridder complex: Shubinsky Mine	15 kilometers east of Ridder	630
Do.	Tishinsky Mine	15 kilometers southwest of Ridder	15,000
Do.	Zyrianovsk complex: Maleevsky Mine	15 kilometers north of Zyrianovsk	26,000
Do.	TOO ShalkiyaZinc Ltd.	Shalkiya Mine, 15 kilometers northeast of Zhanakorgan	NA
Concentrate, Pb content	Kazzinc JSC (Glencore International plc, 69.61%): Ridder concentrator	Ridder, East Kazakhstan Province	NA
Do.	Zyrianovsk concentrator	Zyrianovsk, East Kazakhstan Province	NA
Do.	TOO ShalkiyaZinc Ltd.	Kentau concentrating plant, South Kazakhstan Province	NA
Do.	TOO Nova Zinc (JSC Chelyabinsk Zinc Plant)	Akzhai	4,000
Metal	Chimkent metallurgical plant (JSC Yuzhpolimetal)	Shymkent	NA
Do.	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	Oskemen (also known as Ust-Kamenogorsk)	130,000
Magnesium, metal	Ust-Kamenogorsk titanium-magnesium plant	do.	NA
Manganese, crude ore	Facilities: Kazmarganets {Kazchrome JSC [Eurasian Natural Resources Corp. plc (ENRC)]} Zhairesky GOK ³ JSC [Eurasian Natural Resources Corp. plc (ENRC)] Atasurda mining and processing complex (TOO Orken) TOO Arman 100 Temirtau electrometallurgical complex	Locations: Tur and East Kamys Mines, Karagandy Province Perstenevsky, Ushkatyn III, Zhomart and Zapadny Zhomart Mines near Zhairam Atasu 170 kilometers east of Zhezkazgahan, Karagandy Province Temirtau, Karagandy Province	NA ⁵
Minor metals (indium, selenium, tellurium, thallium, and so forth)	Belogorskiy rare-metals plant	Asubulak, East Kazakhstan Province	NA ⁶
Do.	Chimkent metallurgical plant (JSC Yuzhpolimetal)	Shymkent	NA ⁶
Do.	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	Oskemen (also known as Ust-Kamenogorsk)	NA
Natural gas	Companies: Tengizchevroil (Chevron Corp., 50%; KazMunaiGas JSC, 20%; ExxonMobil Kazakhstan Inc., 25%; LukArco B.V., 5%) Karachaganak Petroleum Operating B.V. (BG Group plc., 29.25%; ENI S.p.A., 29.25%; Chevron Corp., 18%; OAO Lukoil, 13.5%; KazMunaiGas JSC, 10%) Additional production at smaller fields	Locations: Tengiz and Korolev fields Karachaganak field NA	NA ⁵

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e	
Niobium, metal	Ulba Metallurgical Plant (Kazatomprom JSC)	Oskemen (also known as Ust-Kamenogorsk)	NA	
Petroleum:				
Crude	Tengizchevroil (Chevron Corp., 50%; KazMunaiGas JSC, 20%; ExxonMobil Kazakhstan Inc., 25%; LukArco B.V., 5%) Karachaganak Petroleum Operating B.V. (BG Group plc., 29.25%; ENI S.p.A., 29.25%; Chevron Corp., 18%; OAO Lukoil, 13.5%; KazMunaiGas JSC, 10%) CNPC AktobeMunaiGas (China National Petroleum Corp., 85.42%) PetroKazakhstan Inc. (China National Petroleum Corp., 67%, and KazMunaiGas JSC, 33%) Mangistaumunaigaz JSC Ozenmunaigas (KazMunaiGas JSC) Embamunaigas (KazMunaiGas JSC) JV Kazgermunai LLP (KazMunaiGas JSC) JSC Karazhanbasmunai (CITIC Group and KazMunaiGas JSC) North Buzachi oilfield Additional producers	Tengiz and Korolev fields Karachaganak field Aktobe Province South Turgai basin Mangistau Province do. Western Kazakhstan Kyzylorda Province Mangistau Province do. NA	NA ⁵	
Refined, crude oil throughput	42-gallon barrels per day	JSC Pavlodar Oil Chemistry Refinery (KazMunaiGas JSC, 58%)	Pavlodar	120,000
Do.	do.	Atyrau refinery (KazMunaiGas, 99.49%)	Atyrau	100,000
Do.	do.	PetroKazakhstan Inc. (China National Petroleum Corp., 67%, and KazMunaiGas JSC, 33%)	Shymkent	110,000
Phosphate rock, beneficiated	Chulaktau mining and processing complex (Kazphosphate LLC)	Chulaktau, Zhambyl Province	NA	
Do.	Karatau mining and processing complex (Kazphosphate LLC)	Zhanatas, Zhambyl Province	NA	
Do.	Temir Service LLP (Sunkar Resources plc)	Chilisai deposit, northwestern Kazakhstan	400	
Rare-earth metals, products	SARECO (AO NAK Kazatomprom and Sumitomo Corp.)	Stepnogorsk	1,500	
Rhenium:				
Ammonium perrhenate (containing 69.2% Re)	Zhezkazganredmet (RedMet) (Government owned)	Jezkazghan, Karagandy Province	NA	
In tailings from copper ore processing	Balkhash copper mining-metallurgical complex (Kazakhmys plc)	Karagandy Province	NA	
Silicon, metal	Silicium Kazakhstan LLP	Karaganda	12,500	
Silver, refined	Facilities: Chimkent metallurgical plant (JSC Yuzhpolimetall) Ust-Kamenogorsk metallurgical complex [Kazinc JSC (Glencore International plc, 69.61%)] Balkhash refinery (Kazakhmys plc)	Locations: Shymkent Oskemen (also known as Ust-Kamenogorsk) Karagandy Province	1,000 ⁵	
Tantalum, metal	Ulba Metallurgical Plant JSC (Kazatomprom JSC)	Oskemen (also known as Ust-Kamenogorsk)	NA	
Titanium:				
Ore	Tioline LLP	Obuhovskoye deposit, just north of Kokshetau, Akmola Province	NA	
Do.	Satpaevsk Titanium Mines Ltd. (Ust-Kamenogorsk titanium-magnesium plant, 49%)	Bektemir deposit, East Kazakhstan Province	NA	
Do.	Shokash deposit	Aktobe Province	NA	
Metal (sponge)	AO Ust-Kamenogorsk titanium-magnesium plant (UKTMK)	Oskemen (also known as Ust-Kamenogorsk)	35,000	

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ⁶
Uranium, U content	Companies:	Locations:	19,500 ⁵
	Akbastau JV (Kazatomprom JSC, 50%, and Uranium One Inc., 50%)	Blocks 1, 3, and 4 of the Budenovskoye deposit, Sozak Region, South Kazakhstan Province	
	Appak LLP (Kazatomprom JSC, 65%; Sumitomo Corp., 25%; Kansai Electric Power Co. Inc., 10%)	West Mynkuduk Mine of the Mynkuduk deposit, Sozak Region, South Kazakhstan Province	
	Baikent-U LLP (Kazatomprom JSC, 60%, and Japanese consortium, 40%)	Block No. 2 of the Kharassan deposit, Zhanakorgan Region, Kyzylorda Province	
	Betpak Dala JV (Uranium One Inc., 70%, and Kazatomprom JSC, 30%)	Akdala Mine and Site No. 4 (South Inkai) Mine of the Inkai deposit, Sozak Region, South Kazakhstan Province	
	Inkai JV (Cameco Corp., 60%, and Kazatomprom JSC, 40%)	Blocks 1, 2, and 3 of the Inkai deposit, Sozak Region, South Kazakhstan Province	
	Karatau LLP (Kazatomprom JSC, 50%, and Uranium One Inc., 50%)	Block No. 2 of the Budenovskoye deposit, Sozak Region, South Kazakhstan Province	
	Katco JV (Areva Group, 51%, and Kazatomprom JSC, 49%)	Tortkuduk Mine and Block No. 1 of the South Moinkum deposit, Sozak Region, South Kazakhstan Province	
	JSC Ken Dala.kz (Kazatomprom JSC, 100%)	Central Mynkuduk deposit, Sozak Region, South Kazakhstan Province	
	Kyzylkum LLP (Japanese consortium, 40%; Uranium One Inc., 30%; Kazatomprom JSC, 30%)	Block No. 1 of the Kharassan deposit, Zhanakorgan Region, Kyzylorda Province	
	Mining Company LLP (Kazatomprom JSC, 100%): Mining Group No. 6 LLP	North and South Karamurun Mines, Shieli and Zhanakorgan Regions, Kyzylorda Province	
	Stepnoye Mining Group LLP	Uvanas and East Mynkuduk Mines, Sozak Region, South Kazakhstan Province	
	Taukent Mining Chemical Plant LLP	Kanzhugan and South Moinkum Mines, Sozak Region, South Kazakhstan Province	
	Semizbai-U (Kazatomprom JSC and its subsidiary, Mining Company LLP, 51%, and China Guangdong Nuclear Power Group, 49%)	Irkol Mine in Kyzylorda Province and Semizbai Mine, on the border of North Kazakhstan and Akmolat Province	
	Stepnogorsk Mining-Chemical Complex LLP (Kazatomprom JSC, 100%)	Shantobe Mine of the Vostok and Zvezdnoe deposits, 300 kilometers west of Stepnogorsk	
	JV Zarechnoye JSC (Kazatomprom JSC, 49.67%, and JSC Atomredmetzoloto, 49.67%)	Zarechnoye and South Zarechnoye deposits, Orlarski Region, South Kazakhstan Province	

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014^{1,2}

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e
Zinc:			
Mine output, Zn content	Kazakhmys plc:		
	East Region complex:		
	Artemyevsky Mine	East Kazakhstan Province	90,000
Do.	Belousovsky Mine	do.	NA
Do.	Irtysky Mine	do.	18,000
Do.	Nikolaevsky Mine	do.	20,000
Do.	Orlovsky Mine	do.	78,200
Do.	Yubileyno-Snegirikhinsky Mine	do.	16,500
Do.	Central Region complex: Abyz Mine	Karagandy Province	13,500
Do.	Kazzinc JSC (Glencore International plc, 69.61%):		
	Ridder complex:		
	Ridder-Sokolny Mine	East Kazakhstan Province	NA
Do.	Shubinsky Mine	do.	4,000
Do.	Tishinsky Mine	do.	65,000
Do.	Shaimerden deposit	Kostanay Province	NA
Do.	Zyrianovsk complex: Maleevsky Mine	do.	135,000
Do.	TOO Nova Zinc (JSC Chelyabinsk zinc plant)	Akshatau, Karagandy Province	NA
Do.	TOO ShalkiyaZinc Ltd.	Kyzylorda Province	NA
Concentrate, Zn content	Kazakhmys plc:		
	East Region complex:		
	Artemyevsky concentrator	do.	55,000
Do.	Belousovsky concentrator	do.	5,800
Do.	Irtysky concentrator	do.	11,000
Do.	Nikolaevsky concentrator	do.	36,000
Do.	Orlovsky concentrator	do.	60,000
Do.	Karaganda Region complex: Karagaily concentrator	Karagandy Province	8,000
Do.	TOO Nova Zinc (JSC Chelyabinsk zinc plant)	Akshatau, Karagandy Province	35,000
Do.	TOO ShalkiyaZinc Ltd.	Kyzylorda Province	NA
Do.	Kazzinc JSC (Glencore International plc, 69.61%):		
	Ridder concentrator	do.	NA
Do.	Zyrianovsk concentrator	Zyryanovsk, East Kazakhstan Province	NA
Metal	Kazzinc JSC (Glencore International plc, 69.61%):		
	Ridder zinc refinery	East Kazakhstan Province	110,000
Do.	Ust-Kamenogorsk metallurgical complex	do.	190,000

^eEstimated; estimated data are rounded to no more than three significant digits. Do., do., Ditto. NA Not available.

¹Table includes data available through December 26, 2015.

²Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.

³GOK is the abbreviation for gorno-obogatitelnyi kombinat, which translates as "mining and beneficiation complex."

⁴Kazakhmys plc was restructured and renamed KAZ Minerals plc. in October 2014.

⁵Capacity estimates are totals for all enterprises that produce that commodity.

⁶It is unknown which, if any, rare metals are still being produced at this facility.