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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 (38% of world output); the second-ranked producer of chromite (13% of world output); the fourth-ranked producer of titanium sponge (6% of world output) and magnesium metal (3% of world output); and the fifth-ranked producer of rhenium (5% of world output). The country was also a significant producer of barite, bauxite, cadmium, copper, gallium, 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 (Apodaca, 2015; Bedinger, 2015; Bray, 2015a, b; Brininstool, 2015; Jaskula, 2015; McRae, 2015; Papp, 2015; Polyak, 2015; Tolcin, 2015a, b; U.S. Energy Information Administration, 2015; World Nuclear Association, 2015).

Minerals in the National Economy

In 2013, Kazakhstan's real GDP increased by 6.0% compared with that of 2012, and the nominal 2013 GDP was valued at $231.9 billion.[1] Total industrial production was valued at $117.0 billion, of which $70.2 billion (60.0% of the value of industrial production) was from mineral extraction (which included $58.9 billion from the extraction of crude petroleum, $3.5 billion from the mining of nonferrous metal ores, $1.7 billion from the mining of iron ore, $1.4 billion from the extraction of coal and lignite, and $535 million from the extraction of natural gas). Metallurgy contributed $11.5 billion to industrial output, of which nonferrous metallurgy and production of precious metals contributed $7.3 billion (Agency of Statistics of the Republic of Kazakhstan, 2014a, b).

Government Policies and Programs

In December 2012, the President of Kazakhstan gave an order to cancel the Government moratorium on the issuance of new mining licenses. The moratorium was initially introduced in 2008 and was motivated by the Government's understanding of the need for the country to adopt a new mining code and to reduce irregularities surrounding the process of issuing licenses. Since 2008, new licenses had been available only to firms that had formed joint ventures with Tau-Ken Samruk, which was the vertically integrated Government-owned company working in the spheres of mining and metallurgy. The moratorium applied both to mining licenses and those for the production of hydrocarbons. Cancellation of the moratorium was effective starting in January 2013. The President expected that this measure would encourage investment in Kazakhstan's mining and petroleum industries, especially in the remote areas of the country. The Ministry of Industry and New Technologies (MINT) was also discussing the possibility of offering companies mining licenses without going through the standard competition procedures in exchange for companies agreeing to make large investments in the mining projects. The MINT also noted that, despite its rich mineral resources, Kazakhstan attracted less than 1% of world investment in metallic deposits. The Ministry expected that legislation supporting the expedited procedures for issuing mining licenses could be written and adopted in 2013 (Mineral.ru, 2012; MinerJob.ru, 2013e).

In September, the President suggested simplifying the system of issuing exploration licenses and precluding speculative resale of the mineral deposits. To adopt a new system, the Law on Subsoil and Subsoil Use would have to be amended. The Government planned to prepare a relevant proposal by the end of the year. Also, the MINT had expected to terminate about 40 mining licenses by the end of 2013 because there had been no development at the licensed areas. The Government was planning to amend mining license contracts to add stipulations requiring companies to invest certain amounts of funds in mine development (Mineral.ru, 2013f; MinerJob.ru, 2013g).

In October, the Government announced that it would invest 164 billion tenge (about $1.08 billion) in geologic exploration through 2019. Combined with the funds of national companies, the total investment in exploration would amount to 490 billion tenge (about $3.22 billion). A primary focus would be on exploration in close proximity to one-company towns, such as Balkhash and Zhezkazgan, especially in East Kazakhstan Province, where the Government stated that there was a notable need to expand development of mineral resources (MinerJob.ru, 2013f).

Production

Output of mineral commodities generally remained close to the levels of output in 2012, but decreased more significantly for some minerals. Production of other ferroalloys decreased by 60%; titanium sponge, by 43%; ilmenite and leucoxene, by an estimated 20%; silicomanganese, by 19%; rolled steel, by 15%; lignite, by 13.7%; cement, by 12.1%; and smelted copper, by 10.9%. Salt production, on the other hand, increased by 14.5%; that of sulfur, by 12.0%; and that of associated natural gas, by 10.9%. These and other production data are in table 1.

Structure of the Mineral Industry

In the beginning of 2013, the four most significant producers of nonfuel mineral commodities in Kazakhstan were Eurasian Natural Resources Corp. plc (ENRC) of the United Kingdom (aluminum, ferroalloys, and iron ore), Kazakhmys plc of the United Kingdom (copper and zinc), the state-owned company

[1]Where necessary, values have been converted from Kazakhstani tenge (KZT) to U.S. dollars (US$) at an annual average exchange rate of KZT152.13=US$1.00 for 2013.

Kazatomprom JSC (uranium and rare metals), and Kazzinc JSC (lead and zinc, and byproducts, such as minor metals and gold). ENRC and Kazakhmys were both listed on the London Stock Exchange, and Kazzinc was majority owned by Glencore International plc of Switzerland, which was also listed on the London Stock Exchange. In 2012, Glencore announced that it was planning to increase its share of Kazzinc to 69.61% from 50.3%. In February 2013, however, Samruk-Kazyna Fund announced that it had acquired a 29% share in Kazzinc (Mineral.ru, 2013c; Xstrata plc, 2013).

Although ENRC and Kazakhmys had headquarters in the United Kingdom, both companies were originally Kazakhstani companies, and a combination of Kazakhstani nationals and the Government of Kazakhstan still owned a majority of the shares of both companies. The core assets of all four companies were obtained in the early to mid-1990s when Kazakhstan's mining and metals production facilities were privatized. Each company controlled a majority of Kazakhstan's output of at least one mineral commodity, and Kazatomprom controlled all production of uranium in Kazakhstan; private companies were able to participate in the uranium industry only through partnerships with Kazatomprom (Eurasian Natural Resources Corp. plc, 2013, p. 65, 94; Kazakhmys plc, 2013, p. 121).

In December, the shareholders of ENRC voted to reregister the company as a closed company. The new company would be named Eurasian Natural Resources Corporation Ltd. In November, ENRC had completed delisting of its shares at the London Stock Exchange and also stopped circulation of its stock on the Kazakhstan Stock Exchange. In July 2013, the consortium of the three founders of the company and the Government, who together owned a 53.88% share of ENRC, offered to buy out all other shares from the minority shareholders. Based on the dollar value per share implied by the offer, the total value of the company would be about $3 billion British pounds (about $4.51 billion) (MinerJob.ru, 2013a).

Mineral Trade

In 2013, the value of Kazakhstan's exports accounted for $84.7 billion, which was a 2.0% decrease compared with the value of exports in 2012. In 2013, Kazakhstan's imports (by value) increased by 5.3% to $48.8 billion. In the commodity structure of Kazakhstan's exports, mineral products accounted for 80.1%, of which 95% was mineral fuels and other energy products. Another 9.2% of total exports was contributed by metals and articles made of them. In 2013, Kazakhstan exported 377,800 t of copper (a 13.2% increase compared with that of 2012) valued at $2.6 billion. Aluminum exports increased by 5.1% to 242,500 t, and their value was $464 million. Zinc exports decreased by 11.8% to 258,700 t, and their value was $456 million. Lead exports decreased by 1.2%, but their value increased by 7.3% to $159 million. Kazakhstan's main export partner was Italy, which received 19.5%, by value, of the country's exports. It was followed by China (17.0%), the Netherlands (11.5%), Russia (6.9%), France (6.4%), Switzerland (5.1%), Austria (4.3%), and Turkey (3.1%). The major commodities imported were foodstuffs, machinery and equipment, and metal products. Kazakhstan's main import partner was Russia, which provided Kazakhstan with 36.8% of its imports, by value. It was followed by China (17.1%), Germany (5.0%), Ukraine (4.7%), the United States (4.4%), the Republic of Korea (2.6%), Japan (2.2%), and France and Italy (2.1% each) (Agency of Statistics of the Republic of Kazakhstan, 2014a, b; Mineral.ru, 2014a).

Commodity Review

Metals

Chromium.—Kazakhstan produced about 13% of the world's output of chromite and was the world's second-ranked producer behind South Africa. Of the two producers of chromite in Kazakhstan, TNK Kazchrome, which was a division of ENRC, was by far the leading producer. The second-ranked producer of chromite in Kazakhstan was Oriel Resources Ltd., which was a subsidiary of OAO Mechel of Russia, which owned the Voskhod mining and beneficiation complex (GOK Voskhod) in Chromtau, Kazakhstan. Chromite ore produced at Voskhod was sent to Mechel's Tikhvin ferroalloys plant, which was located in Tikhvin, Leningrad Oblast, Russia. GOK Voskhod included a modern chromite mine and a beneficiation plant capable of producing chromium concentrates. According to Australian Joint Ore Reserves Committee (JORC)-compliant estimates, the proven and probable reserves of the Voskhod Mine were 20.3 Mt of ore. The capacity of the beneficiation plant was 900,000 metric tons per year (t/yr) of chromium concentrate. The Tikhvin ferroalloys plant had the capacity to produce 120,000 t/yr of ferrochromium (MinerJob.ru, 2013h, 2014a; Papp, 2015).

At the end of 2013, Mechel announced the sale of two of its subsidiaries, GOK Voskhod and the Tikhvin ferroalloys plant, to Yildirim Group of Turkey. Yildirim Group paid $425 million in cash for both plants. According to Mechel, the two main goals of the transaction were to spin off subsidiaries whose activities were outside Mechel's primary areas of interest and to raise cash to help reduce the company's debt (MinerJob.ru, 2013h, 2014a).

Gold.—In 2013, Kazakhstan produced 42,552 kilograms (kg) of unprocessed, semiprocessed, and powdered gold, which was a 6.6% increase compared with the output in 2012. Kazzinc was the leading gold producer in the country and produced 18,100 kg, which was a 4.0% increase compared with the company's output in 2012. AO Altyntau Resources was a collection of all gold-producing assets that were owned by Kazzinc. The major assets managed by Altyntau Resources were TOO Altyntau Kokshetau, which was mining the Vasilkovskiy Mine, and TOO Altyntau Vostok, which was mining the Ridder-Sokol'nyi Mine as well as operating the Ust-Kamenogorskiy gold refinery. Some of the other producers of mined gold included AK Altynalmas, GMK Kazakhaltyn, Kazakhmys, JSC Polymetal of Russia, Nord Gold N.V. (which was a gold-producing subsidiary of OAO Severstal of Russia), Polyus Gold International Ltd. of Russia, and TOO Yubileynoye (table 2; IA Novosti—Kazakhstan, 2013; MinerJob.ru, 2013b; Mineral.ru, 2014b; Murtazin, 2014).

In December, TOO Tau-Ken Altyn of Kazakhstan opened a new gold refinery in Astana; the refinery had been under construction since 2010. Tau-Ken Altyn was a 100%-owned subsidiary of Tau-Ken Samruk, which was a Government-

owned conglomerate working in the mineral industry. The planned initial capacity of the new refinery was 25 t/yr of gold and 50 t/yr of silver, and the total cost of the project was 5.5 billion tenge (about $36 million). It was expected that the refinery's capacity would eventually increase to 75 t/yr of gold and 400 t/yr of silver. The plant would employ a total of 84 workers (Mineral.ru, 2013a, e).

Kazakhstan also had two other gold refineries. One of them was part of the Ust-Kamenogorsk metallurgical complex and a division of Kazzinc. It had the capacity to produce 8 t/yr of gold and 300 t/yr of silver and to produce ingots that meet the Good Delivery standard. The Good Delivery standard is a set of rules issued by the London Bullion Market Association; the rules include minimum fineness (995 parts per thousand), required dimensions of the bullion, and content and appearance of special marks imprinted on the bullion. Another refinery was located in central Kazakhstan and belonged to Kazakhmys. It had the capacity to refine 10 t/yr of gold and 650 t/yr of silver that met the requirements of Kazakhstan's national standard, which was lower than the rules of the Good Delivery standard (Kazakhmys plc, 2013).

Industrial Minerals

Phosphate Rock.—OAO EuroChem of Russia, which ranked among the top 10 producers of mineral fertilizers in the world, started construction of a mining and beneficiation complex at the Kok-Jon deposit, which is located in Jambyl Oblast'. EuroChem was planning to commission a mining complex that would have the capacity to produce 640,000 t/yr of phosphorite powder in 2014; the plant would be located in the city of Janatas. EuroChem was planning to build a chemical complex in Janatas in 2016 and to commission a fertilizer production complex in Karatau in 2018. The Karatau complex would have the capacity to produce 1 million metric tons per year (Mt/yr) of fertilizer. The initial investment in the mining complexes would amount to $120 million, and EuroChem's total investment in Kazakhstan's mineral fertilizer industry was expected to reach $2.3 billion. Both Janatas and Karatau were mono-cities (that is, cities that rely on a single employer); they were built around phosphate mining and processing plants but lost their livelihood after the industry declined 25 years ago. The Government of Kazakhstan was hoping to revive the cities and to improve the socioeconomic situation in the region when the mining and chemical complexes start operations. Several other phosphorite projects, including those at the Chilisay, Gheres, and Ushbas phosphorite deposits, were under consideration (Mineral.ru, 2013b; MinerJob.ru, 2013c, d).

Mineral Fuels and Related Materials

Uranium.—In 2013, Kazakhstan produced 22,500 t of uranium and remained the world's leading producer of uranium, accounting for about 38% of world uranium mine output. Compared with 2012, annual production increased by 7.7%. Kazakhstan has no nuclear powerplants, and all mined uranium was exported. Except for the exports from the Sepnogorskiy mining and chemical complex (SGKhK), Kazakhstan exported 23,400 t of uranium in concentrate (MinerJob.ru, 2014b).

According to Kazakhstan's strategic plan for the development of nuclear energy for 2012–16 that was published in April 2013, Kazakhstan would increase uranium production to 24,000 t in 2014, 24,800 t in 2015, and 25,600 t in 2016. According to the International Atomic Energy Agency (IAEA), world resources of uranium were about 3.5 Mt, of which about 96% was concentrated in 11 countries. Kazakhstan's share in "discovered reserve" was about 19%, or 802,000 t of uranium (Mineral.ru, 2013d).

AO NAK Kazatomprom produced 12,600 t of uranium, including production through its shares in joint ventures; the total corresponded to 21% of world uranium production. 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 nuclear industry. Kazatomprom was also working on the development of renewable energy technologies in Kazakhstan. As of 2013, the company employed 25,000 workers (Newskaz.ru, 2014).

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 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. In particular, if the Government is successful in implementing its new program on geologic exploration, the country has the potential to become a stronger leader in mineral production.

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TABLE 1
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2009	2010	2011	2012	2013
METALS						
Aluminum:						
Alumina		1,608,000	1,639,000	1,670,000	1,760,412 r	1,840,159
Bauxite, gross weight		5,130,000	5,310,200	5,495,200	5,170,200	5,192,000
Metal, primary		127,000	226,000	249,000	250,269 r	250,159
Antimony, Sb content of concentrate		597	785	800	865	870 e
Beryllium		NA	NA	NA	2,526	2,500 e
Bismuth:e						
Mine output, Bi content		-- [3]	--	-- [3]	--	NA
Metal, refined		90	150	150	150	150
Cadmium, metal[e]		1,300	1,400	1,300	1,200	1,200
Chromite, marketable ore		3,544,000	3,200,000	3,800,000	3,590,000	3,700,000
Copper:						
Mine output, Cu content of concentrate		406,100	380,600	405,300	419,200	440,300
Metal:						
Smelter, undifferentiated		332,854	318,637	302,975	302,576 r	269,687
Refined, primary		312,767	323,368	338,524	373,259 r	354,726
Gallium	kilograms	18,702	18,702	18,703	15,711	15,500 e
Gold:						
Mine output, Au content	do.	22,839	30,272	36,846	39,903	42,552
Metal, refined	do.	10,279	13,456	16,672	21,133	23,220
Iron and steel:						
Iron ore, marketable:						
Gross weight		22,281,300	24,016,200 r	24,736,100 r	25,888,500 r	25,228,200
Fe content[e]		12,700,000	13,700,000 r	14,100,000	14,800,000 r	14,400,000
Metal:						
Pig iron		2,996,000	2,984,000	3,141,100 r	2,707,000	2,634,451
Ferroalloys:						
Ferrochromium		1,173,286	1,311,302	1,289,917	1,305,343	1,336,532
Ferrosilicochromium		60,829	159,765	143,296	164,853	165,195
Ferrosilicon		33,100	4,813	1,683	494	472
Silicomanganese		200,374	224,627	232,039	251,530	203,986
Other		1,205	1,283	1,754	1,845	746
Total		1,468,794	1,701,790	1,668,689	1,724,065	1,706,931
Steel:						
Crude		3,324,300	3,338,000	3,699,300	3,775,836 r	3,477,000
Finished, rolled		2,990,167	2,899,800	3,107,900	2,402,300	2,047,000
Lead:						
Concentrate, Pb content		33,600	35,400	38,800	38,100	40,100
Refined, primary and secondary		80,994	103,110	111,249	88,099	91,072
Magnesium, metal, primary[e]		21,000	21,000	21,000	21,000	20,000
Manganese:						
Ore:						
Gross weight		2,457,400	3,044,700	2,963,000	2,975,000 r	2,850,500
Mn content[e]		520,000	610,000	590,000	595,000	594,000
Concentrate:						
Gross weight		982,400	1,094,400	1,096,300	1,070,500	1,121,000
Mn content[e]		360,000	390,000	390,000	390,000	404,000
Nickel, Ni content of laterite ore[e]		500	500	500	450	--
Niobium, metal		NA	NA	NA	43	44 e
Rhenium[e]	kilograms	3,000	3,000	3,000	3,000	NA
Silicon, metal[e]		--	1,500	8,000	10,000	10,000

See footnotes at end of table.

TABLE 1—Continued
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2009	2010	2011	2012	2013
METALS—Continued						
Silver:						
Mine output, Ag content	kilograms	618,141	552,060	650,649	963,182	963,829
Refined	do.	613,544	548,990	646,685	958,495	958,258
Tantalum, metal		NA	NA	NA	213	215 e
Titanium:						
Ilmenite and leucoxene[e]		25,000	25,000	25,000	25,000	20,000
Sponge		16,800	14,500	20,700	21,000 e	12,000 e
Zinc:						
Concentrate, Zn content		398,400	405,300	376,700	369,700	361,500
Smelter, primary and secondary		327,873	318,858	319,847	319,900	320,150
INDUSTRIAL MINERALS						
Asbestos, all grades		230,000	214,100	223,100	241,200	243,400
Barite:						
Ore and concentrate		306,000	358,000	466,200	590,100	563,700
Marketable[e]		170,000	200,000	200,000	230,000	220,000
Boron[e]	thousand metric tons	30	30	30	30	NA
Cement		5,694,100	6,686,300	7,642,100	7,050,000 r	6,200,000
Fluorspar[e]		65,000	65,000	65,000	100,000 r	108,000 3
Gypsum[e]		700,000	700,000	700,000	1,029,400 r, 3	997,000
Lime		798,180	886,572 r	959,827 r	908,188 r	869,167
Phosphate rock, beneficiated:						
Gross weight		1,225,000	1,600,000 e	1,600,000 e	1,600,000 e	1,600,000
P_2O_5 content[e]		280,000	350,000	350,000	350,000	350,000
Rare-earth elements, rare-earth oxide content		--	--	--	50 e	50 e
Salt		222,942	276,131	364,222	463,960	531,429
Sulfur, byproduct:[e]						
Metallurgy		300,000	300,000	300,000	300,000	300,000
Natural gas and petroleum		2,200,000	2,400,000	2,400,000	2,150,500 r, 3	2,443,300 3
Total		2,500,000	2,700,000	2,700,000	2,450,500 r, 3	2,743,300 3
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand metric tons	91,042	99,285	103,015	112,780 r	112,884
Lignite	do.	5,084	7,283	8,368	7,748	6,690
Total	do.	96,126	106,568	111,383	120,528 r	119,574
Coke		2,552,000	2,526,800	2,663,300	2,569,300	2,379,100
Natural gas:						
Nonassociated gas	thousand cubic meters	18,132,000	17,595,000	19,305,000	20,308,800	20,419,000
Associated gas	do.	17,809,000	19,811,000	20,199,000	19,820,100	21,985,800
Total	do.	35,941,000	37,406,000	39,504,000	40,128,900	42,404,800
Petroleum:						
Crude oil and gas condensate[4]	42-gallon barrels	556,000,000	578,000,000	582,000,000	576,200,000	594,589,000
Refinery products[5]	do.	92,900,000	101,600,000	106,200,000	108,400,000	113,600,000
Uranium:						
U content		14,020	17,803	19,451	20,900	22,500
U_3O_8 content		16,534	20,995	22,939	24,648	26,300

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. NA Not available. -- Zero.
[1]Table includes data available through February 26, 2015.
[2]In addition to the commodities listed, Kazakhstan may also have produced a number of other mineral products, including cesium, cobalt, germanium, indium, molybdenum, scandium, selenium, tellurium, and vanadium, but available information is inadequate to make reliable estimates of output.
[3]Reported figure.
[4]Figures were converted to barrels from metric tons, which were reported as follows: 2009—76,482,600; 2010—79,684,800; 2011—80,060,900; 2012—79,224,500; and 2013—81,786,700.
[5]Figures were converted to barrels from thousand metric tons, which were reported as follows: 2009—11,717; 2010—12,794; 2011—13,393; 2012—13,668; and 2013—14,328.

TABLE 2

KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013[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 Yuzhpolimetall	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 Yuzhpolimetall)	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 containing about 50% Cr_2O_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:		
	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.	Irtyshsky Mine	do.	5,750
Do.	Nikolayevsky Mine	do.	25,700
Do.	Orlovsky Mine	do.	86,200
Do.	Yubileyno-Snegirikhinsky Mine	do.	14,200
Do.	Zhezkazgan 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 2013[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.	Grekhovsky 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:		
	Orlovsky concentrator	do.	70,000
Do.	Belousovsky concentrator	East Kazakhstan Province	13,000
Do.	Irtyshsky concentrator	do.	6,000
Do.	Nikolayevsky concentrator	do.	30,000
Do.	Zhezkazgan Region:		
	Satpayev concentrator	do.	30,000
Do.	Zhezkazgan No. 1 concentrator	do.	88,800
Do.	Zhezkazgan 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.	Zhezkazgan Region:		
	Zhezkazgan smelter	do.	250,000
Do.	Zhezkazgan 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 2013[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 Zyryanovsk	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	Zyryanovsk, East Kazakhstan Province	NA
Do.	TOO ShalkiyaZinc Ltd.	Kentau concentrating plant, South Kazakhstan Province	NA
Do.	TOO Nova Zinc (JSC Chelyabinsk Zinc Plant)	Akzhal	4,000
Metal	Chimkent metallurgical plant (JSC Yuzhpolimetall)	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:	Locations:	NA
	Kazmarganets {Kazchrome JSC [Eurasian Natural Resources Corp. plc (ENRC)]}	Tur and East Kamys Mines, Karagandy Province	
	Zhairemsky GOK[3] JSC [Eurasian Natural Resources Corp. plc (ENRC)]	Perstenevsky, Ushkatyn III, Zhomart and Zapadny Zhomart Mines near Zhairem	
	Atasurda mining and processing complex (TOO Orken)	Atasu	
	TOO Arman 100	170 kilometers east of Zhezkazgahan, Karagandy Province	
	Temirtau electrometallurgical complex	Temirtau, Karagandy Province	
Minor metals (indium, selenium, tellurium, thallium)	Belogorskiy rare-metals plant	Asubulak, East Kazakhstan Province	NA [4]
Do.	Chimkent metallurgical plant (JSC Yuzhpolimetall)	Shymkent	NA [4]
Do.	Ust-Kamenogorsk metallurgical complex [Kazzinc JSC (Glencore International plc, 69.61%)]	Oskemen (also known as Ust-Kamenogorsk)	NA
Natural gas million cubic meters	Companies:	Locations:	NA
	Tengizchevroil (Chevron Corp., 50%; KazMunaiGas JSC, 20%; ExxonMobil Kazakhstan Inc., 25%; LukArco B.V., 5%)	Tengiz and Korolev fields	
	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%)	Karachaganak field	
	Additional production at smaller fields	NA	

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013[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%)	Tengiz and Korolev fields	NA
		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%)	Karachaganak field	
		CNPC AktobeMunaiGas (China National Petroleum Corp., 85.42%)	Aktobe Province	
		PetroKazakhstan Inc. (China National Petroleum Corp., 67%, and KazMunaiGas JSC, 33%)	South Turgai basin	
		Mangistaumunaigaz JSC	Mangistau Province	
		Ozenmunaigas (KazMunaiGas JSC)	do.	
		Embamunaigas (KazMunaiGas JSC)	Western Kazakhstan	
		JV Kazgermunai LLP (KazMunaiGas JSC)	Kyzylorda Province	
		JSC Karazhanbasmunai (CITIC Group and KazMunaiGas JSC)	Mangistau Province	
		North Buzachi oilfield	do.	
		Additional producers	NA	
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%)	Shmykent	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)	Zhezkazgan, 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:	Locations:	1,000 [5]
		Chimkent metallurgical plant (JSC Yuzhpolimetall)	Shymkent	
		Ust-Kamenogorsk metallurgical complex [Kazzinc JSC]	Oskemen (also known as Ust-Kamenogorsk)	
		Balkhash refinery (Kazakhmys plc)	Karagandy Province	
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 2013[1, 2]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
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	
	Baiken-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 Kyzlorda Province and Semizbai Mine, on the border of North Kazakhstan and Akmola 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, Olrarski Region, South Kazakhstan Province	

See footnotes at end of table.

TABLE 2—Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013[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.	Irtyshsky 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.	Irtyshsky 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

[e]Estimated; estimated data are rounded to no more than three significant digits. Do., do., Ditto. NA Not available.
[1]Table includes data available through February 26, 2015.
[2]Many 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.
[3]GOK is the abbreviation for gorno-obogatitelnyi kombinat, which translates as "mining and beneficiation complex."
[4]It is unknown which, if any, rare metals are still being produced at this facility.
[5]Capacity estimates are totals for all enterprises that produce that commodity.