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The Mineral Industry of Mongolia

By Meralis Plaza-Toledo

Mongolia, a country located in northeast Asia, is bordered on the north by Russia and on the south by China. Historically, Mongolia's economy relied on herding and agriculture, but in recent times, it has become increasingly reliant on the mining sector. In 2015, Mongolia accounted for 3% of the world's fluorspar production. In addition, the country has extensive deposits of coal, copper, gold, petroleum, and uranium. As of 2015, the Government was actively taking action to increase foreign direct investment (FDI) to stabilize the economy (Mungunzul and Chang, 2016, p. 1; McRae, 2017; World Bank, The, 2017).

Minerals in the National Economy

In 2015, the mineral industry in Mongolia contributed approximately 20% to the country's gross domestic product (GDP). The mining sector accounted for 78.8% of total exports, of which coal, copper concentrate, iron ore and concentrate, and crude petroleum constituted about 74% of total exports and 85% of mineral commodity exports. Preliminary estimates indicated a 2.3% increase in the GDP in 2015 compared with an increase of 7.8% in 2014—a slowdown that was owing to the global drop in commodity prices and the decline in FDI and coal exports. The contribution of the mining sector to the GDP increased by 13% compared with a 16.5% increase in 2014. In 2015, employment in the mining and quarrying sector decreased to 22,973 from 25,263 in 2014. The decrease in employment was related to the decrease in production and exploration activities in the country (International Monetary Fund, 2015, p. 5; World Bank, The, 2015, p. 112; 2016, p. 192; Mineral Resources Authority, 2016, p. 6, 9, 27).

Government Policies and Programs

The Mineral Resources Authority of Mongolia (MRA) is a Government agency that oversees the mineral sector. The MRA assists in the formulation and development of policies and supporting information and in creating an environment favorable to implementing policy guidelines and increasing investment in the mining sector (Mineral Resources Authority, 2016, p. 5).

In 2014, the Government proposed amendments to several existing mineral laws to increase foreign investment and stimulate the economy. The main purpose of Mongolia's Mining Law is to regulate prospecting for, exploration for, and mining of minerals within the country. This law is applicable to exploration and mining of all types of mineral resources except water, natural gas, and petroleum, which are regulated by the Law of Mongolia on Petroleum of 1994. In 2015, the Parliament of Mongolia amended Mongolia's Mining Law to provide that the state's share in mineral deposits of strategic importance (not specified) could be replaced by a royalty payment. In addition, license holders receiving the state's share must pay a royalty based on a percentage approved by the Government (Ashid Advocates LLP, 2015, p. 1).

Production

In 2015, production of molybdenum (mine output) increased by 28%; gold (mine output), by 27%; copper, by 25%; and crude petroleum, by 18%. Production of fluorspar decreased by 38%, and that of crude steel, by 32%, owing to lower demand (table 1; Industrials Minerals, 2015; National Statistical Office of Mongolia, 2016).

Structure of the Mineral Industry

Table 2 lists Mongolia's major mineral industry facilities. Most of the producing mining companies in Mongolia were owned by the state or by joint ventures between international companies and the Government of Mongolia, although a few companies were wholly owned by foreign investors.

Mineral Trade

In 2015, trade between Mongolia and Russia decreased by 31.8%, and that between Mongolia and China, by 22.7%. The mining sector contributed 78.8% of Mongolia's total exports. Mongolia's exports in 2015 were valued at $4.66 billion, which was a decrease of 27% compared with that of 2014. Imports were valued at $3.79 billion in 2015, which was a decrease of 19%. The decrease in exports was the result of the decrease in commodity prices (National Statistical Office of Mongolia, 2016; Mineral Resources Authority, 2016, p. 22).

As of 2015, Mongolia's main mineral export commodities were copper and other nonferrous metals, coal, fluorspar, and crude petroleum. About 1.4 million metric tons (Mt) of copper concentrate (gross weight), which was valued at about $2.2 billion, was exported in 2015 compared with about 1.3 Mt valued at $2.5 billion in 2014. Other notable exports in 2015 included 280,000 metric tons (t) of fluorspar ores and concentrates valued at $65 million compared with 313,900 t valued at $71.5 million in 2014, and 8 million barrels (Mbbl) of crude petroleum valued at $387 million compared with 6.8 Mbbl valued at $635 million in 2014 (Mineral Resources Authority, 2016, p. 20; Office of the United States Trade Representative, 2017).

Commodity Review

Metals

Copper and Gold.—The Oyu Tolgoi porphyry copper-gold-molybdenum deposits are located in the South Gobi Desert and represent the largest high-grade group of Paleozoic porphyry deposits currently known in the world. In Mongolia, gold is mined from hard-rock and placer deposits. In 2015, there were 115 hard-rock deposits and 672 placer deposits (Mineral Resources Authority, 2016, p. 36–39; Porter, 2016).

Oyu Tolgoi LLC (Oyu Tolgoi) and Erdenet Mining Corp. were two large-scale copper mining operators in Mongolia. Oyu Tolgoi was jointly owned by Turquoise Hill Resources Ltd. of Canada, which held 66% of the shares, and Erdenes Oyu Tolgoi LLC on behalf of the Government of Mongolia, which held the remaining 34%. Turquoise Hill Resources, of which Rio Tinto plc owned 50.74%, managed the Oyu Tolgoi Mine on behalf of all shareholders. In 2015, Oyu Tolgoi was an open pit operation with a concentrator and support infrastructure capable of processing 100,000 metric tons per day of ore.

In 2015, Oyu Tolgoi shareholders signed an underground mine development and financing plan, which provided a framework to start the development of one of the Oyu Tolgoi development projects, the Hugo Dummett North underground deposit. In December 2015, Oyu Tolgoi signed a project finance agreement with international banks and other local financial institutions to fund the construction of the underground mine at Hugo Dummett North. The Oyu Tolgoi Mine was expected to produce an average of 560,000 metric tons per year (t/yr) of copper between 2025 and 2030. The probable ore reserves at the Hugo Dummett North deposit were 464 Mt grading 1.66% copper. The Oyu Tolgoi Mine, when fully operational, was expected to be one of the top five copper-gold projects in the world and to operate for at least 40 years (Oyu Tolgoi LLC, 2015b, p. 8-1; Mineral Resources Authority, 2016, p. 32, 41; Rio Tinto plc, 2016, p. 160, 218).

In 2015, the Oyu Tolgoi Mine produced 202,000 t of copper compared with 148,400 t in 2014, 20,323 kilograms (kg) of gold compared with 18,311 kg in 2014, and 38,039 kg of silver compared with 27,775 kg in 2014. In 2015, proved ore reserves of the Oyu Tolgoi Mine were 353 Mt grading 0.54% copper (Oyu Tolgoi LLC, 2015a; Rio Tinto plc, 2016, p. 34, 215, 218).

The Tsagaan Suvarga copper deposit in South Gobi Province had resources of 250 Mt of sulfide containing 1.6 Mt of copper and 66,000 t of molybdenum. The expected production capacity of the Tsagaan Suvarga project was 14.6 million metric tons per year of ore, which could yield about 310,000 t/yr of copper and 4,000 t/yr of molybdenum. Exploration work started in 2001, and, in 2015, the project was in the development stage. The exploration site was owned by the Mongolian company Mongolyn Alt (MAK) Group (Mineral Resources Authority, 2016, p. 43).

Mineral Fuels and Related Materials

Coal.—Mongolia had approximately 160 coal deposits and 276 occurrences in 15 basins. In 2015, Mongolia produced 24.1 Mt of coal. The main coal commodity used in Mongolia is lignite coal, which is used for heating and power generation; coking coal (for steelmaking) and noncoking bituminous coal were exported (Mineral Resources Authority, 2016, p. 49–50; National Statistical Office of Mongolia, 2016).

China was the main export destination for Mongolia's coal exports. In 2015, the slowdown of the Chinese economy and the resulting decrease in steel production along with the decrease in the prices for coking coal resulted in a decrease in coal exports to China. In 2015, Mongolia's coal exports to China totaled 14.4 Mt, which was a decrease of 34.5% compared with the total in 2014 (National Statistical Office of Mongolia, 2015, 2016; Mineral Resources Authority, 2016, p. 53).

Mongolian Mining Corp. (Mongolian Mining), South Gobi Resources Ltd., and the MAK Group were the major producers and exporters of coal in Mongolia. Mongolian Mining, which was the leading producer and exporter of coking coal in Mongolia, owned and operated the Ukhaa Khudag and the Baruun Naran open pit coking coal mines, both of which are located in South Gobi Province. As of 2015, the Ukhaa Khudag Mine had 226 Mt of coal reserves (171 Mt proved and 55 Mt probable) and the Baruun Naran Mine had 165 Mt of coal reserves (141 Mt proved and 24 Mt probable) (Dolgorsuren, 2015, p. 1; Mongolian Mining Corp., 2016, p. 2, 27, 29).

Petroleum and Natural Gas.—Mongolia has several sedimentary basins, most of which had been sparsely explored. As of 2015, more than 90% of the petroleum production in Mongolia came from the Tamsag basin located in eastern Mongolia. Mongolia's petroleum sedimentary basins are divided into 31 exploration blocks. As of 2015, Mongolia finalized production-sharing contracts on 23 of the 31 petroleum blocks (3 of these 23 blocks were in production); of the remaining 8 blocks, 6 were under Government review, 1 was in the bidding process, and 1 had ceased operations. In 2015, Mongolia produced 8.7 Mbbl of crude petroleum compared with 7.4 Mbbl in 2014, representing an 18% increase (National Statistical Office of Mongolia, 2016; Petro Matad Ltd., 2017).

In 2015, PetroChina Company Ltd. and China Petroleum & Chemical Corp. (Sinopec) were producing and exporting petroleum to China from three petroleum blocks containing 2.4 billion barrels of proved petroleum reserves. Petro Matad Ltd. was a company focused on petroleum exploration, development, and production in Mongolia. The company had more than 5.6 million fully licensed hectares, and it was the sole holder of three production-sharing contracts with the Government of Mongolia. In 2015, Petro Matad signed a farm-out agreement with BG Group of the United Kingdom in which BG Group acquired a 78% interest in several of Petro Matad's petroleum blocks. Wolf Petroleum Ltd. of Australia was a petroleum exploration company that owned more than 7 million hectares of land in Mongolia, including 100% of one production block and 100% of two exploration blocks (London Stock Exchange, 2015; Petroleum Authority of Mongolia, 2017; Wolf Petroleum Ltd., 2017a, b).

Uranium.—Uranium exploration in Mongolia was initiated in the 1940s under a bilateral agreement between Mongolia and the Soviet Union. In 2009, the Government-owned company MonAtom LLC was created to perform survey and exploration of uranium and other radioactive minerals in Mongolia (International Atomic Energy Agency, 2015).

In 2015, Denison Mines Ltd. of Canada sold its 85% interest in the Gurvan Saihan joint venture (GSJV) in Mongolia to Uranium Industry A.S. of the Czech Republic. GSJV was created in 1994 to explore and develop sediment-hosted uranium deposits, and it held four licenses in four deposits covering about 167,000 hectares. The Hairhan deposit, which was the most advanced of the GSJV projects, has reported indicated uranium resources of 12.2 Mt of uranium (the deposit has a grade of 0.07% U_3O_8) and inferred resources of 5.5 Mt of contained

uranium (the deposit has a grade of 0.05% U_3O_8). As of 2015, the Hairhan deposit was pending final Government determination on issuance of a mining license (Denison Mines, 2012, p. 1, 3; International Atomic Energy Agency, 2015; Johnstone, 2015).

AREVA Mines LLC was a joint venture of AREVA Mongol LLC (66%) and MonAtom LLC (34%) that was established to conduct uranium-mining activities in Mongolia. COGEGOBI LLC was AREVA Mongol's exploration subsidiary; it held 19 exploration licenses and an exploration area that covered more than 6,000 square kilometers in the sedimentary basin of Dornogovi and Suhbataar Provinces in southeastern Mongolia. In February 2015, the MRA approved AREVA Mongol's feasibility study for the Zuuvch Ovoo and Dulaan Uul projects and, in June, AREVA Mongol received an operating license. After receiving the necessary permits, AREVA Mines planned to conduct mine development, including detailed technical and economic studies of the deposits and an in situ recovery pilot test on the Zuuvch Ovoo deposit. According to AREVA Mines, once the technical and economic conditions of the project are assessed, the mining and export of uranium could be initiated. The Zuuvch Ovoo deposit was estimated to have 54,640 t of uranium resources, and the Dulaan Uul deposit was estimated to have 6,260 t of uranium resources (AREVA Mongol LLC, 2015a; 2015b, p. 3; 2017).

Outlook

Mongolia has abundant mineral resources, which include copper, gold, coal, petroleum, and other resources. The country's abundant mineral resources have attracted large amounts of FDI into the mining sector—a sector that accounts for 20% of the GDP and more than 70% of exports. Continued development of the mining sector is expected to have a number of important macroeconomic implications for the country, such as lowering the public debt ratio from 92% of the GDP to 80%. The Oyu Tolgoi copper and gold mine is expected to boost the economy of Mongolia by producing more than 195,000 t of copper concentrates in 2016. In its 2015 staff report, the International Monetary Fund indicated that when the second phase of the Oyu Tolgoi Mine comes into production within 5 years, Mongolia will likely be able to start running large fiscal surpluses and accumulating savings for future generations (International Monetary Fund, 2015, p. 31; Mineral Resources Authority, 2016, p. 41).

References Cited

AREVA Mongol LLC, 2015a, Forward looking energy newsletter: AREVA Mongol LLC, 4 p. (Accessed February 5, 2017, at http://mongolia.areva.com/mongolie/liblocal/docs/news/AREVA%20Mongol%20newsletter%20n05%20veng.pdf.)

AREVA Mongol LLC, 2015b, An important milestone in mine project development is reached: AREVA Mongol LLC press release, April 10. (Accessed February 5, 2017, at http://mongolia.areva.com/EN/mongolie-677/ennews2015an-important-milestone-in-mine-project-development-is-reached.html.)

AREVA Mongol LLC, 2017, AREVA in Mongolia: AREVA Mongol LLC. (Accessed February 5, 2017, at http://mongolia.areva.com/EN/mongolie-93/enabout-usareva-in-mongoliaareva-in-mongolia-homepage.html.)

Ashid Advocates LLP, 2015, The amendments of 2013, 2014 and 2015 to the law of Mongolia on Minerals (2016): Ashid Advocates LLP, 3 p. (Accessed February 5, 2017, at http://www.ashidadvocates.mn/files/publications/Minerals%20law%20%20final%20pdf2.pdf.)

Denison Mines, 2012, Gurvan Saihan factsheet: Denison Mines, 4 p. (Accessed February 5, 2017, at http://www.denisonmines.com/i/pdf/factsheets/gurvansaihan-factsheet.pdf.)

Dolgorsuren, Dorj, 2015, Mongolian coking coal export dynamics—Opportunities and challenges, February 11–13: Honolulu, HI, International Conference on Perspectives on the Development of Energy and Mineral Resources, 22 p. (Accessed February 5, 2017, at http://socialsciences.hawaii.edu/conference/demr2015/_papers/dolgorsuren-dorj.pdf.)

Industrial Minerals, 2015, Mongolia secures higher prices for fluorspar in 2015: Industrial Minerals, March. (Accessed February 5, 2017, at http://www.indmin.com/Article/3437955/Fluorspar-LatestNews/Mongolia-secures-higher-prices-for-fluorspar-in-2015.html.)

International Atomic Energy Agency, 2015, Uranium exploration, mining and cooperation with local communities in Mongolia: International Atomic Energy Agency, 31 p. (Accessed February 5, 2017, at https://www.iaea.org/OurWork/ST/NE/NEFW/Technical-Areas/NFC/documents/uranium/TM-Public-Uranium-2015/Presentations/16_Tserendorj_Mongolia.pdf.)

International Monetary Fund, 2015, Mongolia—2015 Article IV consultation—Staff report; press release; and statement by the Executive Director for Mongolia: Washington, DC, IMF Country Report no. 15/109, 89 p. (Accessed February 5, 2017, at http://www.imf.org/external/pubs/ft/scr/2015/cr15109.pdf.)

Johnstone, C., 2015, Uranium industry set to become major player in Mongolia, Czech Republic: Radio Praha, October 8. (Accessed February 5, 2017, at http://www.radio.cz/en/section/business/uranium-industry-set-to-become-major-player-in-mongolia?from_TNM_site=Uranium.)

London Stock Exchange, 2015, Petro Matad Limited—Final results—Replacement: London Stock Exchange. (Accessed February 5, 2017, at http://www.londonstockexchange.com/exchange/news/market-news/market-news-detail/MATD/12405904.html.)

McRae, M.E., 2017, Fluorspar: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 62–63.

Mineral Resources Authority, 2016, Annual bulletin of mining and geology, Mongolia 2016: Mineral Resources Authority Web page, 60 p. (Accessed February 5, 2017, at http://www.bgr.bund.de/EN/Themen/Zusammenarbeit/TechnZusammenarb/Downloads/mongolei_MRAM_AnnualBulletin2016.pdf?__blob=publicationFile&v=2Mongolia's Gross Domestic.)

Mongolian Mining Corp., 2016, Annual report 2015: Mongolian Mining Corp., 214 p. (Accessed February 5, 2017, at http://www.mmc.mn/upload/2016-04-25_ANNUAL%20REPORT%202015%20eng.pdf.)

Mungunzul, E., and Chang, T., 2016, Foreign direct investment in the Mongolian mining sector: International Journal of U- and E-Service, Science and Technology, v. 9, no. 3, 10 p. (Accessed February 5, 2017, at http://www.sersc.org/journals/IJUNESST/vol9_no3/24.pdf.)

National Statistical Office of Mongolia, 2015, Monthly bulletin of statistics—December 2014: Ulaanbaatar, Mongolia, National Statistical Office of Mongolia, 139 p.

National Statistical Office of Mongolia, 2016, Monthly bulletin of statistics—December 2015: Ulaanbaatar, Mongolia, National Statistical Office of Mongolia, 139 p.

Office of the United States Trade Representative, 2017, China, Mongolia and Taiwan: Office of the United States Trade Representative. (Accessed May 5, 2017, at https://ustr.gov/countries-regions/china-mongolia-taiwan/mongolia.)

Oyu Tolgoi LLC, 2015a, Year in review 2015: Oyu Tolgoi LLC., p. 28. (Accessed February 5, 2017, at http://ot.mn/media/ot/content/reports/OT_Year_in_Review_2015_EN_FINAL.pdf.)

Oyu Tolgoi LLC, 2015b, The story of Oyu Tolgoi: Oyu Tolgoi LLC. (Accessed February 5, 2017, at http://ot.mn/the-story-of-oyutolgoi-en/.)

Petroleum Authority of Mongolia, 2017, Information transparency: Petroleum Authority of Mongolia. (Accessed February 5, 2017, at http://english.pam.gov.mn/page/Information-transparency--2683.shtml?sel=2651.)

Petro Matad Ltd., 2017, Oil in Mongolia: Petro Matad Ltd. (Accessed February 5, 2017, at http://www.petromatadgroup.com/mongolia/oil-in-mongolia/.)

Porter, T.M., 2016, The geology, structure and mineralisation of the Oyu Tolgoi porphyry copper-gold-molybdenum deposits, Mongolia—A review: Geoscience Frontiers, v. 7, issue 3, May, 33 p. (Accessed February 5, 2017, at http://www.sciencedirect.com/science/article/pii/S1674987115000924.)

Rio Tinto plc, 2016, Rio Tinto annual report 2015: Rio Tinto plc, 248 p. (Accessed February 5, 2017, at http://www.riotinto.com/documents/RT_Annual_Report_2015.pdf.)

Wolf Petroleum Ltd., 2017a, Company profile: Wolf Petroleum Ltd. (Accessed February 5, 2017, at http://www.wolfpetroleum.net/company-profile#.)

Wolf Petroleum Ltd., 2017b, Oil in Mongolia: Wolf Petroleum Ltd. (Accessed February 5, 2017, at http://wolfpetroleum.net/farmin.)
World Bank, The, 2015, The World Bank East Asia and Pacific economic update October 2015—Staying the course: Washington, DC, The World Bank, 164 p. (Accessed February 5, 2017, at https://openknowledge.worldbank.org/bitstream/handle/10986/22710/EAPEconomicUpdateOct2015Fin.pdf?sequence=3&isAllowed=y.)
World Bank, The, 2016, World Bank East Asia and Pacific economic update, April 2016—Growing challenges: Washington, DC, The World Bank, 248 p. (Accessed February 5, 2017, at https://openknowledge.worldbank.org/bitstream/handle/10986/24015/9781464809064.pdf.)
World Bank, The, 2017, Overview: Washington, DC, The World Bank. (Accessed February 5, 2017, at http://www.worldbank.org/en/country/mongolia/overview.)

TABLE 1
MONGOLIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2011	2012	2013	2014	2015
Cement, hydraulic	thousand metric tons	426	349	259	411	410
Coal, unspecified	do.	30,940	28,561	29,164	24,415	24,148
Copper:						
Mine output, Cu content		121,590	121,660	186,655	249,200	311,745
Metal, refined		2,390	2,282	2,344	2,132	2,600 e
Fluorspar:						
Acid grade	thousand metric tons	116	157	76	128	81 e
Submetallurgical and other grade	do.	232	484	150	247	150 e
Total	do.	348	641	226	375	231
Gold, mine output, Au content[3]	kilograms	5,703	5,995	8,904	11,504	14,556
Iron ore:						
Gross weight	thousand metric tons	5,678	7,561	6,736	6,389	6,173
Fe content	do.	3,400	4,537	4,042	3,833	3,500 e
Lime, hydrated and quicklime	do.	45	68	57	58	52
Molybdenum, mine output, Mo content		1,960	1,904	1,819	2,000	2,557
Petroleum, crude	thousand 42-gallon barrels	2,549	3,636	5,129	7,405	8,769
Salt, mine output		2,183	2,461	2,179	1,852	1,500 e
Silver, mine output, Ag content	kilograms	28,254	27,982	42,931	57,300 e	71,800 e
Steel, crude		60,000	68,100	56,000	64,400	43,700
Stone, crushed	thousand metric tons	94	233	230	240	141
Tungsten, mine output, W content		20	66	--	--	--
Zinc, mine output, Zn content		52,300	59,500	52,050	46,600	44,000

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

[1]Table includes data available through February 7, 2017.

[2]In addition to the commodities listed, crude construction materials (such as gypsum), sand and gravel, and varieties of stone (such as limestone), were produced, but available information was inadequate to make reliable estimates of output.

[3]Gold contained in copper concentrate is not included in the production statistics of the Mineral Resources Authority; therefore, copper concentrate exported by Oyu Tolgoi LLC was much more than the production reported in table 1.

TABLE 2
MONGOLIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities[1]	Annual capacity[e]
Calcium oxide	Qinhua MAK Naryn Sukhait LLC (Mongolia-China joint venture)	316 km from Ulaanbaatar at the Olon Ovoot station of the Trans Mongolian Railway	50
Cement	Khutul Cement and Lime JSC	Darhan, Darhan-Uul Province	1,000
Coal	Baganuur Joint Stock Co. (Government, 51%, and public, 49%)	Baganuur Mine, Tov Province	3,000
Do.	Government, 95%, and public, 10%	Shivee Ovoo Mine, Dornogovi and Govisumber Provinces, 20 km from Choir City	2,000

See footnotes at end of table.

TABLE 2—Continued
MONGOLIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities[1]	Annual capacity[e]
Coal—Continued		South Gobi Resources Ltd. (Turquoise Hill Resources Ltd., 58%, and China Investment Corp. 13.5%)	Ovoot Tolgoi Mine, Omnogovi (South Gobi) Province	4,600
Do.		do.	Tsagaan Tolgoi, Dornogovi Province, 95 km north of the China border	3,000
Do.		Mongolian Mining Corp., 100%	Ukhaa Khudag Mine, Omnogovi (South Gobi) Province, 61 km east of Dalanzadgad	8,600
Do.		Mongolyn Alt (MAK) Group, 100%	Naryn Sukhait Mines, Gurvantes Soum, Omnogovi (South Gobi) Province	3,000
Do.		Terra Energy LLC (Guilford Coal Ltd., 100%)	Baruun Noyon Uul (BNU) coking coal mine, Omnogovi (South Gobi) Province, 80 km east of Naryn Sukhait Mines	1,000 [2]
Do.		Mongolian Mining Corp., 100%	Baruun Naran Mine, Omnogovi (South Gobi) Province, 61 km east of Dalanzadgad	3,000
Copper:				
Concentrate, Cu content		Samsung Corp., 51%, and Erdenet Mining Corp. (Mongolia-Russia joint venture), 49%	Erdenet Ovoo open pit mine and processing plant, Bulgan Province, 180 km west of Darkhan City	140
Do.		Turquoise Hill Resources Ltd., 66%, and Government, 34%	Oyu Tolgoi Mine, Omnogovi (South Gobi) Province, 80 km north of the China border	150
Do.		Mongolyn Alt (MAK) Group, 100%	Tsagaan Suvarga Mine, Omnogovi (South Gobi) Province, 560 km southeast of Ulaanbaatar	70
Cathodes		Erdenet Mining Corp. (Mongolia-Russia joint venture), 51%, and Strand Holdings Ltd., 49%	Erdmin solvent extraction-electrowinning plant, 180 km west of Darkhan City	3
Fluorspar		Mongolrostsvetmet LLC	Bor-Undur Mine and processing plant, Hentiy Province, 310 km southeast of Ulaanbaatar; 2 underground and 3 open pit mines	450 [3]
Do.		do.	Urgen Mine, Dornogovi Province, 535 km from Ulaanbaatar	100 [3]
Gold:				
Ore, gross weight		Zinjin Mining Group Co. Ltd., 70%	Nari Tolgoi Mine, Jierigron Sumu, Tov Province	90 [3]
Do.		North Asia Resources Holdings Ltd.	Khar Yamaat placer mine, 180 km north of Ulaanbaatar	NA
Do.		Mongolian Resource Corp. Ltd., 90%	Blue Eyes Mine, Bornuur Soum, Tov Province	36 [3]
Do.	thousand cubic meters	Mongolrostsvetmet LLC	Zaamar placer gold operation, Tov Province, 240 km southwest of Ulaanbaatar	300 [3]
Do.	do.	do.	Zeregtsee placer mine, 240 km southwest of Ulaanbaatar	500 [3]
Concentrate, Au content	kilograms	Turquoise Hll Resources Ltd., 66%, and Government, 34%	Oyu Tolgoi Mine, Omnogovi (South Gobi) Province, 80 km north of the China border	19,000
Iron, concentrate, Fe content		Lung Ming Mining Co. Ltd., 66.7%, and China Investment Corp., 33.3%	Eruu Gol Mine	2,500
Lead		Shandong Xianglong Co Ltd.	Tsav Mine, Dornod Province Ulaanbaatar	117 [3]
Limestone		Mongolyn Alt (MAK) Group, 100%	14 km from the Olon Ovoot station of the Trans Mongolian Railway	NA
Molybdenum	metric tons	Erdenet Mining Corp. (Mongolia-Russia joint venture)	Erdenet Ovoo open pit mine and processing plant, Bulgan Province, 180 km east of Darkhan City	3,000
Do.		Turquoise Hill Resources Ltd., 66%, and Government, 34%	Omnogovi (South Gobi) Province, 80 km north of the China border	NA

See footnotes at end of table.

TABLE 2—Continued
MONGOLIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities[1]	Annual capacity[e]
Petroleum, crude		PetroChina Company Ltd., Daching Tamsag-Mongolia (PetroChina)	Tamsag basin	NA
Do.		Sinopec	Southeast Gobi basin	NA
Silver	kilograms	Turquoise Hill Resources Ltd., 66%, and Government, 34%	Oyu Tolgoi Mine, Omnogovi (South Gobi) Province, 80 km north of the China border	30,000
Steel		Darkham metallurgy plant	Darkham, Darhan-Uul Province	100
Tungsten	metric tons	Samsung Corp., 51%, and Erdenet Mining Corp. (Mongolia-Russia joint venture), 49%	Erdenet Ovoo open pit mine and processing plant, Bulgan Province, 180 km west of Darkhan City	140
Zinc:				
Mine output, Zn content		Tsairt Minerals Co. Ltd. (China-Mongolia joint venture)	Tumurtiin-Ovoo Zinc Mine, Sukhbaatar Sum, Suhbaatar Province	70
Do.		China Nonferrous Metals Group, 51%, and Government, 49%	Tumurtiin Ovoo Mine, Sukhe Bator, 180 km southwest of Choibalsan	34
Mine output, gross weight		Shandong Xianglong Co. Ltd.	Tsav Mine, Dornod Province Ulaanbaatar	117 [3]

[e]Estimated. Do., do. Ditto. NA Not available.
[1]Abbreviations used for units of measure in this table include the following: km—kilometer.
[2]Resumed operations in August 2014.
[3]Mill capacity.