



2017–2018 Minerals Yearbook

UZBEKISTAN

THE MINERAL INDUSTRY OF UZBEKISTAN

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

In 2017, Uzbekistan was the 6th-ranked producer of rhenium (0.9% of world production) and was among leading 10 gold producers in the world. In addition, Uzbekistan was one of the leading world producers of crude petroleum and natural gas, molybdenum, nitrogen, and uranium. Other valuable minerals produced included copper, gypsum, kaolin, silver, tungsten, and zinc. Many other mineral commodities had been identified but were not being mined. In the past several years, however, the country made significant efforts to increase its mineral production, including through expansion of copper and gold production facilities, construction of new phosphate and potash plants, and development of shale oil and gas condensate deposits (table 1; Safirova, 2016, 2017, 2019; U.S. Energy Information Administration, 2018; World Nuclear Association, 2018; Apodaca, 2019; George, 2019; Polyak, 2019a, b).

As of January 1, 2017, Uzbekistan had 1,931 known mineral deposits, 1,043 of which had been discovered since Uzbekistan became independent in 1991. The State Committee on Geology (Goscomgeology) issued a total of 1,014 exploration and mining licenses. As of December 2017, 29 deposits and 111 prospective areas were offered for exploration and potential development to foreign investors. These prospects included 12 deposits and 31 areas for precious metals (gold and silver), 18 areas for nonferrous metals (copper, lead, and zinc), and 14 deposits and 51 areas for rare-earth metals, rare metals, and uranium (Safirova, 2016, 2017, 2019; Goscomgeologiya, 2018).

Hydrocarbon exports, primarily natural gas, provided the primary source of hard currency earnings during the past decade. In recent years, reduced crude petroleum and natural gas production levels reduced the stability of the country's total exports revenue and, consequently, led to a decrease in imports. At the same time, economic growth increased domestic demand for hydrocarbons and reduced the amount of natural gas available for Uzbekistan to export. Between 2013 and 2017, Uzbekistan started efforts to reduce its domestic consumption of natural gas and maintain export levels (Safirova, 2016, 2017, 2019; U.S. Central Intelligence Agency, 2018).

Minerals in the National Economy

In 2017, Uzbekistan's real gross domestic product (GDP) increased by 5.3% compared with an increase of 7.8% in 2016; the nominal GDP was 249.1 trillion soums (\$51.72 billion).¹ During the year, the share of industrial production in the GDP was 57.8%. The share of mining and quarrying in the overall industrial production was 8.4% (9.4% in 2016), and that of manufacturing, 78.1% (80.3% in 2016). In 2017, the value of

¹Where necessary, values have been converted from Uzbek soums (UZS) to U.S. dollars (US\$) at an annual average exchange rate of UZ\$4,821=US\$1.00 for 2017 and UZ\$2,967=US\$1.00 for 2016, and from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR0.923=US\$1.00.

all industrial production increased by 7.0%. Compared with that of 2016, production in all manufacturing sectors increased by 6.4%, and production in mining and quarrying, by 12.9%. In 2017, Uzbekistan had more than 49,000 industrial enterprises, and 10,200 of them were created that year (State Committee of the Republic of Uzbekistan on Statistics, The, 2018a, b; U.S. Central Intelligence Agency, 2018).

Government Policies and Programs

In November 2017, the Government simplified the procedures for the export and import of goods and services. Beginning on December 1, 2017, entrepreneurs in Uzbekistan were able to export goods and services for hard currencies without upfront payment requirements and without having to obtain insurance against political and commercial risks. The new rules allowed exports to take place without requiring an export contract, simply a sales invoice. In addition, previously required import contract certification would no longer be required for transactions of less than \$100,000. The removal of administrative hurdles is likely to lead to an increase in international trade, especially for smaller transactions and for goods and services sold by entrepreneurs operating close to the country's borders (Kabar.kg, 2017).

In December 2017, the Government established new rules governing ferrous metal imports and exports. Starting in January 2018, rolled steel produced by AO Uzmetchkombinat would be sold exclusively through Uzbekistan's metal exchange, regardless of previous agreements' conditions. Exchange lots not sold within 1 month are to be put up for sale at the exchange again, and only if the second attempt is unsuccessful can the lot be sold directly to a specific customer. Metal scrap imported for rolled-steel production would not be assessed import tariffs until January 1, 2019. In 2018, copper cathodes, rolled copper, and secondary aluminum were also required to be sold exclusively through the metal exchange (Metalinfo.ru, 2017b; Metaltorg.ru, 2017b; Rambler.ru, 2017b).

Production

The Government did not report production of most mineral commodities for 2017 and therefore most production figures in table 1 are estimated. Production of cadmium increased by an estimated 57%; potash, by 22%; phosphate rock, gross weight, by an estimated 13%; kaolin, by an estimated 10%; zinc smelter products, by an estimated 9.4%; nitrogen, N content of ammonia, by 9.1%; and crude petroleum, by 6.9%. At the same time, lignite production decreased by 15% and sulfuric acid, by an estimated 5.6%. 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 2017, Uzbekistan had a positive trade balance of about \$946 million. The value of exports was reported to be \$13.95 billion, which was an increase of 15.0% compared with that of 2016. The main export mineral commodities were energy and petroleum products (14.2%), ferrous and nonferrous metals (6.6%), and chemicals (6.3%). An overall increase in exports of ferrous and nonferrous metals was owing to an increase of aluminum and aluminum product exports by 80.0%; zinc and zinc products, by 45.4%; and copper and copper products, by 34.7%. Uzbekistan's major export partners were China (which received 16.1% of Uzbekistan's exports), Russia (15.1%), Kazakhstan (7.6%), Turkey (6.3%), Afghanistan (4.4%), and Iran (1.9%) (State Committee of the Republic of Uzbekistan on Statistics, The, 2018c, d).

The value of Uzbekistan's imports increased to \$13.01 billion, or by 7.2% compared with that of 2016. The main mineral import commodities were chemicals (16.5%), ferrous and nonferrous metals (9.8%), and energy and petroleum products (5.7%). Uzbekistan's major import partners were China (which supplied 21.0% of Uzbekistan's imports), Russia (20.8%), the Republic of Korea (9.5%), Kazakhstan (7.7%), Turkey (5.2%), Germany (4.5%), Brazil (2.5%), India (2.2%), and Lithuania (2.0%) (State Committee of the Republic of Uzbekistan on Statistics, The, 2017c, d).

Commodity Review

Metals

Copper.—The only copper producer in Uzbekistan was the Almalyk mining and metallurgical complex (Almalyk GMK), which was located in Tashkent Province (Tashkent Viloyati). Two large copper porphyry deposits, the Kalmakyr and the Sary-Cheku deposits, were the complex's sources of copper. An additional copper deposit, Dal'neye, was being developed but was not yet producing. Kalmakyr and Sary-Cheku had an initial total resource estimate of 17 million metric tons (Mt) of contained copper, about 20% of which was depleted. As of the beginning of 2016, Kalmakyr's capacity was 31.5 million metric tons per year (Mt/yr) of ore. The mineral deposits of Tashkent Viloyati were highly complex and contained more than 170 types of minerals. In addition to copper, the Almalyk GMK mined and processed lead-zinc-barite ores from the Uch-Kulach deposit located in Jizzax Viloyati and the Khandiza polymetallic deposit located in Qashqadaryo Viloyati. The Almalyk GMK's facilities included eight mines, five mining and beneficiation plants, two metallurgical plants, a cement plant, a sulfuric acid plant, a mechanical plant, and a lime plant. The value of the annual output of the Almalyk GMK was estimated to be \$300 million (table 2; Safirova, 2016, 2017; Almalyk mining and metallurgical complex, 2018).

In February 2017, the Almalyk GMK commissioned a new automated furnace in the copper smelter. The construction of the furnace began in December 2015. At full capacity,

the furnace would produce 16,700 metric tons per year (t/yr) of copper cathodes. The total cost of the furnace was \$92 million. The project was financed by loans from the Fund for Reconstruction and Development of Uzbekistan (FRRU) (\$29 million), loans from commercial banks of Uzbekistan (\$34 million), and the Almalyk GMK's own funds (AGMK.uz, 2017; Gold.Iprime.ru, 2017).

In April 2017, the Almalyk GMK announced that it had begun its most ambitious investment project to date, the development of the Dal'neye copper-molybdenum deposit, also known as Eshlik I. The development would be conducted from 2017 to 2028 in two stages. The first stage (2017–21) would include construction of the Tsentral'nyi Mine, acquisition of equipment, and the development of energy, transportation, production, and auxiliary infrastructure. The second stage (2019–28) would involve construction of a production complex consisting of processing, smelting, and auxiliary production units with a total capacity of 23 Mt/yr of ore. The total cost of the project was estimated to be \$1.7 billion, and it was expected to be financed by FRRU, Uzbek commercial banks, and the Almalyk GMK's own funds (Gazeta.uz, 2017a; Podrobno.uz, 2017).

In August 2017, the Government approved the development program for the Eshlik II deposit, which was located in Tashkent Viloyati. The preliminary cost estimate was \$420 million, and the project would involve building an underground mine with a capacity to produce 2 Mt/yr of ore. According to Almalyk GMK data, the reserves of the deposit were 60 Mt of ore. The company expected to complete construction in 2021 and to reach design capacity in 2022 (Sputniknews.ru, 2018b).

Gold.—In 2017, Uzbekistan produced 89,900 kilograms (kg) of gold, which was an estimated 1.0% increase compared with that of 2016. The main gold producers in the country were two Government-owned mining and metallurgical complexes—the Almalyk GMK and the Navoi mining and metallurgical complex (Navoi GMK). The Muruntau deposit in the Central Qizilqum region had been mined by the Navoi GMK by open pit since 1969 and had relatively low extraction costs. The Navoi GMK was the leading producer of gold and the only uranium producer in Uzbekistan. The Navoi GMK's share of total gold production in Uzbekistan was about 80%; it had control of 13 gold deposits, most of which were either already being mined or were planned to be developed in the near future. Refinery production at the Navoi GMK was conducted at four plants located in Navoi (GMZ-1), Uchkuduk (GMZ-3), Zarafshan (GMZ-2), and Zarmitan (GMZ-4) (tables 1, 2; Mineral.ru, 2015; Safirova, 2016, 2017, 2019; Regnum.ru, 2017; Almalyk mining and metallurgical complex, 2018; George, 2019; Navoi Mining and Metallurgical Combinat, 2018).

In March 2017, the Navoi GMK began construction of the fifth hydrometallurgical plant. The plant would be able to process 5 Mt/yr of ore and would be based at the Auminza-Amantay gold deposits. The total cost of construction was estimated to be \$396 million, and the plant would create a total of 5,300 jobs. Overall, the Navoi GMK had a long-term plan to realize 27 projects between 2017 and 2026. The projects would create 31,000 jobs and cost \$3.1 billion. When all projects were completed, the Navoi GMK's capacity would increase by 30%. The projects included construction of a sixth hydrometallurgical

plant, expansion of the Zarafshan hydrometallurgical plant, development of the Pistali deposit in Central Qizilqum, expansion of the Muruntau Mine, and construction of a technogenic-waste-processing complex. The Navoi GMK hired three companies from Russia to assist the complex with some of the new projects worth a total of \$660 million. NPO RIVS was hired to develop certain technologies for the fifth hydrometallurgical plant and conduct testing for the plant. VNII Promtekhlogiya, in collaboration with Integra Group of the United States, would prepare a concept plan for the Muruntau Mine expansion. The concept plan involved deepening the mine to 1,000 meters (m) from 650 m. The third company was OAO Irkutskiy NII for Precious and Rare Metals and Diamond (Irgiredmet) and was hired to develop an optimal heap-leaching technology (Gazeta.uz, 2017b; Sputniknews.ru, 2017a, b; Uza.uz, 2017).

In June 2017, the Government announced a list of 12 gold deposits that could be developed with the participation of foreign investments. The deposits were of gold-quartz and gold-sulfide types of ores and were located in four regions—Navoiy Viloyati, Samarqand Viloyati, Toshkent Viloyati, and Karakalpakstan Autonomous Republic. The total resources of the deposits were estimated to be 14,500 kg of gold. The list was expected to be revised every 5 years as new geologic information becomes available (Lityo.com.ua, 2017; Rambler.ru, 2017a).

Iron Ore and Iron and Steel.—In April 2017, the Government and UGMK Holding of Russia signed a memorandum on an iron ore mining project at Tebinbulak deposit, which was located in the Karakalpakstan Autonomous Republic. The total investment was expected to be \$1.5 billion and to include an open pit mine with a capacity of 22 Mt/yr of ore, a mining and beneficiation plant to produce iron ore concentrate with a 65% Fe content, and a metallurgical plant capable of producing 1.5 Mt/yr of pig iron and 1 Mt/yr of steel. The Tebinbulak deposit was first discovered in 1937 but was not mined because of high development costs. The balance of reserves at the Tebinbulak deposit were 450 Mt of ore and the total resources of the deposit were estimated to be 3.5 billion metric tons (Gt) of mineralized material. In addition to iron, the ores contained chromium, manganese, vanadium, and zinc (RBC.ru, 2017; Stroyka.uz, 2017; Chernogayev, 2018; Sputniknews.ru, 2018e).

In June 2017, Uzbekistan announced the beginning of construction of a new metallurgical plant called the Tashkent Metallurgical Plant. The cost of construction was estimated to be 278.2 million euros (about \$301 million) and construction was expected to be completed within 24 months. The plant would produce cold-rolled steel, primarily for use in automobiles. The plant would have a capacity to produce 500,000 t/yr of rolled products and would create 1,000 jobs. The plant was expected to be commissioned in 2019 (Metalinfo.ru, 2017a, c, d).

Lead.—In June 2017, the Almalyk GMK began construction of a new lead smelter. The plant would have a designed capacity of 30,000 t/yr and would be completed in 2019 (1 year earlier than planned). Initially, construction was to begin in 2012, and the capacity was planned to be only 15,000 t/yr. As of 2017, the construction cost was estimated to be \$88.9 million. In 2010, the Almalyk GMK constructed a mining complex to process polymetallic ores from the Khandiza deposit with a capacity of

650,000 t/yr of ore. The copper and zinc concentrates from the mine were sent to the Almalyk GMK processing facilities, but the lead concentrate was stored. This lead concentrate from the Khandiza Mine would be processed at the new plant when the plant is commissioned (Metaltorg.ru, 2017a).

Mineral Fuels

Petroleum and Natural Gas.—Since 1992, Uzbekistan maintained state control over the country's hydrocarbon resources through Uzbekneftegaz, a state-owned company managing the oil and gas sectors. According to the State Committee of the Republic of Uzbekistan on Statistics (2018b), in 2017, the country produced 806,000 metric tons (t) (5.88 million barrels) of crude petroleum, which was a 6.9% increase compared with that of 2016, and 56.42 billion cubic meters of natural gas, which was a 0.6% increase compared with that of 2016. The total capacity of the three petroleum refineries was about 11.3 Mt/yr, but they were only 60% utilized. In 2018, Uzbekistan planned to import crude petroleum from Kazakhstan and Russia to use the capacity of its refineries (Katona, 2016; Sputniknews.ru, 2018a; State Committee of the Republic of Uzbekistan on Statistics, The, 2018b; U.S. Energy Information Administration, 2018).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

Minerals in the National Economy

In July 2018, the Government announced an increase in tax rates on nonferrous and precious metal mineral extraction. In particular, the tax on copper extraction increased to 30% from 8.1%; zinc, to 20% from 4.0%; gold, to 32% from 5%; and silver, to 32% from 8%. On average, for all nonferrous and precious metals, tax rates increased fivefold. As of 2018, the leading taxpayers in Uzbekistan were AO Uztransgaz (Uzbekistan's natural gas transportation company), the Navoi GMK, and the Almalyk GMK (Metaltorg.ru, 2018). In May 2018, the State Committee on Geology (Goscomgeology) and the Ministry of Energy and Natural Resources of Turkey signed an agreement for joint exploration in Uzbekistan. The work was planned for three prospective areas in two provinces: the Khurob gold prospective area located in the Northern Nuratau Mountains in Jizzax Viloyati; a second gold prospective area located in the Aydym-Jetymtau area in the Bukantau Mountains in Navoiy Viloyati; and a polymetallic deposit in the Syrytau ore field in the Turbay Mountains. According to preliminary estimates, Syrytau had resources of 740,000 t of tungsten, 24,000 t of molybdenum, and 75 t of gold. The total cost of exploration was expected to be \$5 million, and the project was expected to be completed in 3 years (Gazeta.uz, 2018b; Sputniknews.ru, 2018d).

Production

In 2018, production of kaolin increased by 33%; gypsum, by 16%; potash, by 8.3%; and natural gas, by 6.1%. At the same time, lignite production decreased by 31%; cadmium, by 20%; and crude petroleum, by 7.3%. These and other production data are in table 1.

Commodity Review

Metals

Gold.—In November 2018, the Navoi GMK announced a program for expansion of gold production at the Muruntau Mine, which was the primary gold mine of the company. The project would last through 2027 and cost \$733.9 million. The project would be financed from the Navoi GMK's own funds (\$445.9 million) and with a loan from the FRRU (\$288 million). The project would include the fifth expansion of the open pit mine and an increase in ore production to 47 Mt/yr, or by 30%, compared with production in 2017. As of 2018, the mine was 565 m deep and the depth was planned to be increased to between 900 and 950 m. Since 1967, more than 1.5 Gt of ore had been extracted at the Muruntau Mine (Gazeta.uz, 2018a; Sputniknews.ru, 2018c).

Iron and Steel.—In January 2018, the President approved construction of a new mining and metallurgical complex at Tebinbulak deposit. The new complex would have the capacity to produce 1 Mt/yr of steel and was expected to be completed by 2024. The blueprints of the complex that were approved in March 2017 showed that the complex would employ direct-reduced iron technology for the production of pig iron and raw steel. The state company Uzbekiston Temir Yullari was assigned the tasks of identifying financing sources for the complex and finalizing the blueprints by the end of 2018. The total cost of the complex was estimated to be \$1.5 billion, part of which would be financed through Chinese banks (Metalinfo.ru, 2018).

Tungsten.—In September 2018, Goscomgeology, IFG Capital Partners S.A. of Luxembourg, and the SUN Group of India signed an agreement to create a \$300 million tungsten cluster in Uzbekistan. IFG had obtained exclusive rights to conduct feasibility studies and subsequently produce tungsten in Uzbekistan. IFG planned to invest a total of \$300 million during the next 25 to 30 years and create 1,500 jobs in Uzbekistan. The tungsten deposits in the cluster included Gussay, Ingichka, Kara-Tyube, Koytash, Lyangar, and Sarykul. Earlier, in June, IFG began a feasibility study at the Yakhton deposit in Samarqand Viloyati that would also be a part of the tungsten cluster. According to preliminary data, the seven deposits contained a total of 130,000 t of tungsten trioxide and were likely to have relatively low unit extraction costs. IFC planned to build two mobile processing plants and to export all produced tungsten to the United States and countries of the European Union (IFG-capital.com, 2018; Uztag.info, 2018).

Mineral Fuels

Natural Gas.—In April 2018, Lukoil of Russia opened the second line of a new Kandym gas-processing plant at the Kandym gasfield in Bukhara Viloyati. Construction of the first line of the processing plant, with a capacity of 4.05 billion cubic meters per year of gas, was completed in November 2017. Lukoil and Uzbekneftegaz had been working on the Kandym project since 2004 under the Kandym-Khauzak-Shady-Kungrad production-sharing agreement. The Kandym group includes six gas condensate fields—Akkum, Kandym, Khodzhi, Kuvachi-Alat, Parsankul', and Western Khodzhi. Gas production at the

Khauzak section began in 2007. The total design capacity of the plant was 8.1 billion cubic meters per year of gas. The Kandym plant would be able to process sulfur-containing gas and produce 7.8 billion cubic meters per year of natural gas, 134,360 t/yr of stable gas condensate, and 212,900 t/yr of elemental sulfur. The total cost of the project was estimated to be about \$3 billion and the plant was expected to create 2,125 new jobs. To finance the project, Lukoil obtained a \$660 million loan with a 10-year maturity from ING Bank of the Netherlands, UniCredit Bank of Italy, and Deutsche Bank of Germany (Neftegaz.ru, 2018; Oilcapital.ru, 2018; RNS.online 2018).

Outlook

In the past several years, Uzbekistan has intensified its efforts to grow the country's industry, including manufacturing and, especially, automobile production, chemical production, construction products, and machine building. Increased industrial production and higher living standards in the country are expected to eventually increase the demand for energy goods. Facing competition for its hydrocarbon resources between domestic demand and export needs, Uzbekistan will likely seek to increase its production and export of hydrocarbons during the next decade by expanding pipelines and modernizing the country's production facilities and infrastructure. The Government is likely to continue to form partnerships with Asian and Russian firms to help achieve these objectives (Safirova, 2016, 2017, 2019).

Uzbekistan is likely to increase its production of copper, gold, iron and steel, lead, uranium, and zinc. In the past several years, Uzbekistan has made concerted efforts to modernize its Almalyk and Navoi GMKs and to ramp up their production. Barring unforeseen events in the world economy, Uzbekistan's production of metals and uranium is expected to increase in the next several years. The production of hydrocarbons and refined petroleum products, on the other hand, might require additional investments and its future dynamics are harder to predict.

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TABLE 1
UZBEKISTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2014	2015	2016	2017	2018
METALS					
Cadmium, refinery, primary	200 ^e	220 ^e	300 ^e	470	375
Copper:					
Mine, concentrates, Cu content ^e	99,500	101,000	100,000	100,000	100,000
Smelter, primary, blister	99,500 ^r	101,000 ^{r,e}	101,000 ^{r,e}	101,000 ^e	101,000 ^e
Refinery, metal, primary	99,500 ^r	101,000 ^{r,e}	101,000 ^{r,e}	101,000 ^e	101,000 ^e
Gold, mine, Au content	kilograms 88,000 ^{r,e}	88,000 ^{r,e}	89,000 ^{r,e}	89,900	92,716
Iron and steel, steel:					
Raw steel	751,400	643,000	654,000 ^r	657,000	680,000
Products, rolled	725,200	680,000	715,000 ^e	731,000	730,000 ^e
Molybdenum, mine, Mo content	450	450 ^e	205 ^r	203	200 ^e
Rhenium, Re content	kilograms 900 ^e	1,000 ^e	466	460	460 ^e
Silicon, metal ^e	5,000	5,000	3,000	3,000	3,000
Silver, mine, Ag content	kilograms 230,000 ^{r,e}	230,000 ^{r,e}	230,000 ^{r,e}	232,300	223,900
Tungsten, metal	83	80 ^e	129 ^r	--	--
Zinc:^e					
Mine, Zn content	25,000 ^r	25,000 ^r	30,000 ^r	30,000	30,000
Smelter, primary	66,000	73,000	85,000	93,000	90,000
INDUSTRIAL MINERALS					
Cement, hydraulic	thousand metric tons 7,350 ^e	7,900 ^e	8,222 ^r	8,497	8,600 ^e
Clay:					
Bentonite ^e	26,000	26,000	26,000	26,000	26,000
Kaolin	3,200,000 ^{r,e}	3,200,000 ^{r,e}	3,200,000 ^{r,e}	3,519,000	4,688,700
Graphite, crystalline flake ^e	100	100	100	100	100
Gypsum, mine	1,100,000 ^{r,e}	1,100,000 ^{r,e}	1,100,000 ^{r,e}	1,117,200	1,292,000
Nitrogen, ammonia, N content	1,000,000 ^r	1,100,000 ^r	1,100,000 ^r	1,200,000	1,200,000 ^e
Phosphate rock:^e					
Gross weight	800,000	800,000	800,000	900,000	900,000
P ₂ O ₅ content	136,000	136,000	136,000	150,000	150,000
Potash, K ₂ O content	110,000	158,000	138,000 ^r	168,000	182,000
Soda ash, synthetic ^e	90,000	90,000	90,000	90,000	90,000
Sulfur:^e					
Byproduct, S content:					
Metallurgy	131,000	125,000	130,000	130,000	130,000
Natural gas and petroleum	340,000	340,000	350,000	340,000	340,000
Compounds, sulfuric acid	900,000	900,000	900,000	850,000	850,000
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Bituminous ^e	20,000	20,000	20,000	20,000	20,000
Lignite	4,377,000	3,700,000	3,900,000	3,320,700	2,296,900
Natural gas, dry basis	million cubic meters 57,200	57,700	56,100	56,417	59,842
Petroleum:					
Crude ³	thousand 42-gallon barrels 10,000 ^e	6,300 ^e	5,500 ^r	5,880	5,450
Refinery ^e	do. 38,400	38,400	38,400	38,000	39,500
Uranium, mine, U content	3,401	3,450	3,450 ^e	3,500 ^e	3,331

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through November 18, 2019. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, aluminum, barite, cesium, caustic soda, feldspar, fluorspar, iodine, iron ore, lead, lithium, manganese, mined tungsten, rubidium, selenium, tellurium, and vermiculite may have been produced, but available information was inadequate to make reliable estimates of output.

³Includes gas condensate.

TABLE 2
UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^c
Cement	OAo Kyzylkumcement	Navoi City	3,500,000
Do.	OAo Akhangarancement	Akhangaran City, Sirdaryo Viloyati ²	1,740,000
Do.	OAo Bekabadcement	Bekabad City, Toshkent Viloyati	1,250,000
Do.	OAo Kuvasaycement	Kuvasay City, Farg'ona Viloyati	1,080,000
Do.	Jizzax Cement Plant (Almalyk GMK) ³	Jizzax Viloyati	1,000,000 ⁴
Cesium, lithium, rubidium	Shava-Say deposit	NA	NA
Clay:			
Bentonite	Arab-Dasht and Khaudag deposits	NA	NA
Kaolin	Angren deposit	Angren region	NA
Coal:			
Bituminous	OAo Shargun'kumir and OAo Erostigaz	Baysun and Shargun deposits, Surxondaryo Viloyati	NA
Lignite	OAo Uzbekugol and OAo Apartak	Angren deposit, Toshkent Viloyati	4,500,000
Copper:			
Mine output, Cu content	Almalyk mining and metallurgical complex (Almalyk GMK)	Dal'neye, Kalmakyr, and Sary-Cheku deposits, Toshkent Viloyati	100,000
Concentrate	Almalyk polymetallic beneficiation plant	Qashqadaryo Viloyati	NA
Metal	Almalyk integrated smelter and refinery	Olmalik	130,000
Feldspar	Karichasayskoye and other deposits	Deposits in Samarqand Viloyati, Toshkent Viloyati, and Qoraqalpog'iston Respublikasi	120,000 ⁵
Fertilizers (nitrogen, phosphate, potash)	Ammophos production association	Olmalik	NA
Do.	Azot production association	Farg'ona area	NA
Do.	Elektrokhimprom production association	Chirchiq	NA
Do.	Kokand superphosphate plant	Qo'qon	NA
Do.	Naviazot production association	Navoiy Viloyati	NA
Do.	Samarqand chemicals plant	Samarqand Viloyati	NA
Fluorspar	Agata-Chibargata, Aurakhmat, Kengutan, Kyzylbaur, Naugarzan, and Nugisken deposits	East of Toshkent Viloyati	150,000
Do.	Syrpatash deposit	Namangan Viloyati	NA
Gold	kilograms Various facilities and deposits, which include: Almalyk mining and metallurgical complex (Almalyk GMK) Navoi mining and metallurgical complex (Navoi GMK) Adzhi-Bugutty, Amantaytau, Balpantau, Bulutkan, Donguz-Tau, Muruntau, and Taurbay deposits Kochbulak and Kyzyl-Al'ma-Say deposits Navoi, Uchkuduk, Zarmitan, and Zarafshan gold refineries	Of which: Dalneye, Kalmakyr, and Sary-Cheku deposits Muruntau deposit and 12 others Central Qizilqum region Toshkent Viloyati	100,000 ⁵
Graphite	Tadzhi-Kazgan deposit	Navoiy Viloyati	NA
Iron ore	Syurenata deposit	Toshkent Viloyati	NA
Lead, mine output, Pb content	Almalyk mining and metallurgical complex (Almalyk GMK)	Uch-Kulach deposit in Jizzax Viloyati, Khandiza deposit in Qashqadaryo Viloyati	40,000
Lime	do.	Toshkent Viloyati	NA
Manganese	Dautashkoye deposit	Qashqadaryo Viloyati	40,000
Molybdenum:			
Mine output, Mo content	Almalyk mining and metallurgical complex (Almalyk GMK)	Kalmakyr and Sary-Cheku deposits, Toshkent Viloyati	900
Metal	Uzbek refractory and hard metals plant	City of Chirchiq	NA

See footnotes at end of table.

TABLE 2—Continued
UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018¹

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity ^e	
Natural gas	million cubic meters	Gazli, Kandym, Khauzak, Kokdumalak, Pamuk, and Shurtan-Say deposits (major)	Amu-Dar'ya Basin; Muborak region	70,000 ⁵
Do.		Itera/Lukoil (Russia), Uzbekneftegaz JSC	Kan-Dam field	NA
Natural gas condensate		Trinity Energy	Ustyurt Platosi region	NA
Natural gas liquids		Shurtan gas-chemical complex	Shurtan-Say deposit, Qashqadaryo Viloyati	137,000
Natural gas processing	million cubic meters	Mubarek gas processing plant	Muborak region	40,000
Petroleum:				
Crude		Kokdumalak and Mingbulak deposits (major)	Qashqadaryo and Namangan Viloyati	NA ³
Refinery products		Fergana oil refinery	Farg'ona area	8,800,000
Do.		Bukhara oil refinery	Buxoro area	2,500,000
Do.		Alty-Aryk oil refinery	Alty-Aryk area	NA
Phosphate rock		Kyzyl Kum complex	Dzheroy-Sardarin Moroccan type; Karaktay, Severnyy, and Dzhetyntau deposits	NA
Potash		Dekhkanabad potash fertilizer plant	Tubeqatan Mine, Qashqadaryo Viloyati	200,000
Rhenium		Almalyk mining and metallurgical complex (Almalyk GMK)	Toshkent Viloyati	NA
Selenium		do.	do.	NA
Silver		do.	do.	NA
Do.		Kosmanachi, Okzhetpes, and Vysokovoltnoye deposits	Namangan Viloyati	NA
Steel:				
Raw		AO Uzmetkombinat	Bekobod region	1,100,000
Rolled		do	do	NA
Sulfur		Almalyk mining and metallurgical complex (Almalyk GMK)	Sulfuric acid plant, Toshkent Viloyati	NA
Do.		Mubarek gas processing plant complex	Muborak region	2,000,000
Tellurium		Almalyk mining and metallurgical complex (Almalyk GMK)	Toshkent Viloyati	NA
Tungsten:				
Mine output, W content		Deposits: Koytash deposit Ingichka and Lyangar deposits Sautbay wolframite deposit Ugat deposit	Locations: Northeastern Uzbekistan Zirabulak Mountains Qizilqum region Northern Uzbekistan	1,200 ⁵
Metal		Uzbek refractory and hard metals complex (UzKTZhM)	Chirchiq, Toshkent Viloyati	NA
Uranium, U content		Navoi mining and metallurgical complex (Navoi GMK)	Navoiy (GMZ-1), Uchkuduk (GMZ-3) Zarafshan (GMZ-2), Zarmitan (GMZ-4)	3,000
Vermiculite	cubic meters	Tebin-Bulak deposit	NA	25,000
Zinc:				
Mine output, Zn content		Almalyk mining and metallurgical complex (Almalyk GMK)	Khandiza deposit, Qashqadaryo Viloyati and Uch-Kulach deposit, Jizzax Viloyati	NA
Concentrate, Zn content		Almalyk polymetallic beneficiation plant	Qashqadaryo Viloyati	60,000
Metal		do.	do.	80,000

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

¹Many 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.

²Viloyati is a term for province in Uzbekistan.

³GMK stands for mining and metallurgical complex.

⁴Capacity does not include white cement.

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