



# 2015 Minerals Yearbook

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**UZBEKISTAN [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF UZBEKISTAN

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Uzbekistan has substantial natural resources, which include more than 1,700 known mineral deposits. The two minerals produced in the country in significant amounts were gold and uranium. In addition, Uzbekistan was one of the leading world producers of molybdenum, nitrogen, petroleum and natural gas, rhenium, and sulfur. Other valuable minerals produced included copper, gypsum, kaolin, silver, tungsten, and zinc. Many other mineral commodities (such as iron ore and lithium) had been identified but were not being mined. In the past several years, however, the country had 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 (Safirova, 2016; BP p.l.c., 2016; Apodaca, 2017a, b; George, 2017; Naesmi.uz, 2017; Polyak, 2017a, b).

Exports of hydrocarbons, primarily natural gas, had provided the primary source of hard currency earnings in the past decade. In recent years, reduced output levels of petroleum and natural gas had reduced export revenue and, as a result, had started to affect the stability of the country's imports. At the same time, economic growth steadily increased domestic demand for hydrocarbons and reduced Uzbekistan's export potential. Between 2013 and 2015, Uzbekistan made efforts to reduce domestic consumption and preserve exports. Despite the recent efforts to ramp up domestic coal production, this measure alone is unlikely to improve the country's energy balance significantly (U.S. Central Intelligence Agency, 2017).

## Minerals in the National Economy

In 2015, Uzbekistan's real gross domestic product (GDP) increased by 8.0% compared with 8.1% in 2014; the nominal GDP was \$60.9 billion. The value of exports was reported to be to \$12.87 billion, which was a decrease of 5.0% compared with that of 2014. The main mineral export commodities were ferrous and nonferrous metals, gold, mineral fertilizers, and petroleum and natural gas. The value of imports (revised) decreased to \$12.42 billion, or by 11.2% compared with that of 2014. The main mineral import commodities were chemicals and ferrous and nonferrous metals. In 2015, Uzbekistan had a positive trade balance of about \$450 million and the total international trade value (the sum of the country's exports and imports) was \$25.29 billion. Uzbekistan's major trade partners were China (which contributed 19.9% of Uzbekistan's total trade value), Russia (17.5%), Kazakhstan (12.0%), the Republic of Korea (6.8%), Turkey (4.7%), and Germany (2.1%) (Torgovoe Predstavitel'stvo Rossiyskoy Federatsii v Respublike Uzbekistan, g. Tashkent, 2016, p. 7, 105; U.S. Central Intelligence Agency, 2017).

In 2015, the share of industrial production in the GDP was 53.5%. The main industries (by percentage of the value of production by all industries combined) were the energy sector (20.8%), food processing (18.2%), textile manufacturing (16.7%),

machine building and metal processing (16.4%), nonferrous mining and metallurgy (8.3%), chemical and petrochemical production (5.1%), construction material manufacturing (5.0%), and ferrous metallurgy (2.3%). In 2015, the value of all industrial production increased by 8.0%. The value of the construction materials manufacturing sector increased by 14.1% compared with its value in 2014; the ferrous metallurgy sector, by 11.1%; chemical and petrochemical sector, by 7.5%; electric power sector, by 5.3%; fuel sector, by 4.8%; and nonferrous mining and metallurgy sector, by 3.1%. The value of the machine-building and metal processing sector decreased by 3.0% (Torgovoe Predstavitel'stvo Rossiyskoy Federatsii v Respublike Uzbekistan, g. Tashkent, 2016, p. 7–9, 13, 47).

In 2015, total investment in Uzbekistan's economy amounted to \$15.8 billion, which was a 9.5% increase compared with that of 2014. About \$3.3 billion, or 21% of all investment, was foreign investment. Foreign direct investment (FDI) amounted to 73% of the total foreign investment. In 2015, the share of foreign investment in the fuel sector decreased to 59.1% from 59.9% in 2014 and the share of foreign investment in the chemical and petrochemical sector increased to 1.4% from 0.8% (Torgovoe Predstavitel'stvo Rossiyskoy Federatsii v Respublike Uzbekistan, g. Tashkent, 2016, p. 168–169, 182, 246).

## Production

In 2015, production of kaolin increased by 370%; potash, by and estimated 44%; zinc metal, by 13%; and cement, by 12%. On the other hand, production of lignite coal decreased by 15.5%; bentonite, by 3.9%; and tungsten, by 3.6%. These and other mineral commodity production data are in table 1.

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

## Commodity Review

### Metals

**Copper.**—The only producer of copper in Uzbekistan was the Almalyk mining and metallurgical complex (Almalyk GMK), which was located in Toshkent Province (Toshkent 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 on reserve. Kalmakyr and Sary-Cheku had initial total resources of 17 million metric tons (Mt) of copper, about 20% of which had been depleted. The mineral deposits of Toshkent Viloyati are highly complex and contain 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 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 (Safirova, 2016; Almalyk Mining-Metallurgical Complex, 2017).

In 2015, the Almalyk GMK produced an estimated 100,000 metric tons (t) of refined copper and an estimated 101,000 t of copper in concentrate. The company was involved in several investment projects, including expansion, modernization, and construction of new production units. In December, the company began modernization of its copper smelter. The project involved construction of a new automated copper furnace with an immersion lance with the capacity to produce 17,000 metric tons per year (t/yr) of copper. The project was expected to be completed by the fall of 2016. The total cost was \$92 million, of which the Fund for Reconstruction and Development of Uzbekistan (FRRU) would provide \$29 million and loans from Uzbekistan's commercial banks would provide \$34 million; the rest would come from the Almalyk GMK's own funds (table 1; MinerJob.ru, 2015b).

In November 2015, the Almalyk GMK began expansion of the resource base at the Kalmakyr deposit. The expansion, which was expected to be completed in 2017, would enable processing of an additional 4 million metric tons per year (Mt/yr) of ore and, in the short run, would increase copper production by between 3% and 4%. The total revised cost of the project was \$75.2 million, of which \$28 million would come from the FRRU and the rest would be provided as loans from Uzbekistan's commercial banks. As of the beginning of 2015, the Kalmakyr Mine's design capacity was 31.5 Mt. The previous expansion of Kalmakyr had been completed in 2012 at a cost of \$122.2 million (MinerJob.ru, 2015a, 2016).

In 2015, the Almalyk GMK was proceeding with modernization of its processing complex. Total investments in the modernization project amounted to \$118 million, of which \$80 million was from the FRRU, \$32 million was a loan from the Ipoteka-Bank, and \$6 million came from the Almalyk GMK's own funds. The key project was construction of a new complex to prepare ore for processing; the complex would have the capacity to treat 7 Mt/yr of ore. The new complex would increase the capacity of the whole ore-processing plant by 20%, to 37 Mt/yr. The project was scheduled to be completed in the beginning of 2016 (Mineral.ru, 2015d).

**Gold.**—The main gold producers of 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 main producer of gold and the only producer of uranium 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. 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) (Mineral.ru, 2015g; Safirova, 2016;

Almalyk Mining-Metallurgical Complex, 2017; Navoi Mining and Metallurgical Combinat, 2017).

In 2015, the Navoi GMK completed projects whose combined cost was \$158 million. The projects included expansion of the tailings storage facility at Zarafshan, construction of a new tailings storage complex at Uchkuduk, and modernization of the heap-leaching production complex at Muruntau. The latter project would prolong the life of the heap-leaching production facilities through at least 2025. Between 2015 and 2022, the Navoi GMK planned to build three more mines at total cost of \$332.7 million. Those mines would guarantee stable operations at the Navoi GMK for 40 more years (Mineral.ru, 2015f-h).

In January 2015, the Almalyk GMK completed construction of the Kairagach Mine, which was located in Toshkent Viloyati. The total production capacity of the new mine would be 80,000 t/yr of ore, and mine construction would cost a total of \$30.6 million. Construction had been financed by Uzbek banks, which loaned a total of \$13.2 million; the FRRU, which provided \$6.7 million in loans; and the Almalyk GMK's own funds. The completion of the Samarchuk Mine, which had been scheduled for 2015, was postponed to 2018, but the expected cost and the design capacity remained unchanged. The mine was to be constructed at a section of Kyzyl-Alma deposit in Toshkent Viloyati. The new mine was expected to have an annual capacity of 100,000 t/yr of ore. Construction of the Samarchuk Mine would cost \$66.3 million and was to be financed by the FRRU (\$14.2 million), Uzbek banks (\$25.1 million), and the Almalyk GMK's own funds (Mineral.ru, 2015b, e).

In December 2015, the United Nation Commission on International Trade Law (UNCITRAL)'s international arbitration tribunal ruled against Oxus Gold PLC of the United Kingdom in the company's claim against the Government of Uzbekistan. The claim was related to the loss of the Amantaytau Goldfields and Khandiza mining assets dating back to a dispute in 2011. In January 2011, the Government of Uzbekistan decided to liquidate the Amantaytau Goldfields joint venture, in which Oxus Gold had a 50% share, because of slow progress in mine development and low gold production. Earlier, in 2006, the Government took over and gave the Khandiza polymetallic deposit to the Almalyk GMK. The total amount of the Oxus Gold's claim was \$400 million, but the court awarded the company only \$10.3 million for breach of fair and equitable treatment standards outlined in the clause on investment protection between the United Kingdom and Uzbekistan. It was not clear if Oxus Gold planned to appeal the court decision (Mineral.ru, 2015a; Unsted, 2015).

**Ferrous alloys.**—In late 2015, AO Uzbek Metallurgical Complex (Uzmetkombinat), which was located in Bekabad, Toshkent Viloyati, signed an agreement with Aeepl Dreamingees of India to provide technologies for ferromanganese and ferrosilicon production and to build a ferroalloys plant. Uzmetkombinat had announced earlier that it planned to invest \$64.8 million from its own funds in ferroalloys production from 2015 through 2018. The new plant would be located by the Kokpatas deposit in Central Qizilqum. According to the plan, the plant would begin producing ferrosilicon in 2017 and ferromanganese in 2018, with annual production

capacities of 15,000 t/yr and 10,000 t/yr, respectively. Until the plant opens, Uzmetkombinat would continue to purchase the ferrosilicon and ferromanganese required for its production from Russia and Ukraine (MinerJob.ru, 2015c; Kabarlar.org, 2016; Sputnik Uzbekistan, 2016a; Ukrudprom.com, 2016).

Uzmetkombinat's ferrosilicon plant would have a 25-megavolt-ampere furnace and would cost \$20 million to construct. To produce ferrosilicon, Uzmetkombinat planned to mine quartzite at the Severo-Vostochnyi deposit, which is located in the Uchkuduk region in Navoiy Viloyati. The company planned to produce 50,000 t/yr of ore; total reserves of the deposit were estimated to be about 2 Mt. The new plant would reduce the cost of metallurgical products at all plants in Uzbekistan. It was expected that, when full capacity of the plant is reached, Uzbekistan would be able to export about 5,000 t/yr of ferrosilicon and receive as revenue about \$9 million. As of 2015, Uzmetkombinat imported more than 7,000 t of ferrosilicon at a cost of about \$12 million. Other large consumers of ferrosilicon in Uzbekistan were the Almalyk GMK, the Navoi GMK, AO Uzbekistan Temir Yullari, and the SP Tashkent pipe plant (Easttime.ru, 2015; Kabarlar.org, 2016; Sputnik Uzbekistan, 2016a; Ukrudprom.com, 2016).

Earlier, in 2010, Uzmetkombinat planned to build its own ferroalloys plant near the Dautash manganese deposit, which is located in Qashqadaryo Viloyati. At that time, Uzmetkombinat planned to invest \$40 million of its own money and to complete the project within 4 years. Later, however, the project was canceled (Infogeo.ru, 2010).

### **Industrial Minerals**

**Cement.**—In 2015, Uzbekistan increased cement production by 12.2% compared with that of 2014, to 8.25 Mt. At the end of 2015, the country had a total of seven cement plants; the four leading plants were OAO Kyzylkumcement (which had the capacity to produce 3.1 Mt/yr of cement), OAO Akhangarancement (1.77 t/yr), OAO Kuvasaycement (1 Mt/yr), and OAO Bekabacement (820,000 t/yr) (tables 1, 2; Raduzhnaya, 2015; Azizov, 2016).

In 2014, the Government adopted a program for structural modifications, modernization, and diversification of production for the period of 2015–19. According to the program, production of cement would increase, on average, by 3.5% per year, and total production of cement in the country would reach 8.9 Mt/yr. The leading cement plant in Uzbekistan, Kyzylkumcement, would invest \$30.7 million of its own funds in new equipment, and Bekabacement would invest \$5.5 million in modernization of its mill (Raduzhnaya, 2015; Reviews.uz, 2015; Azizov, 2016).

In March 2014, the Almalyk GMK opened a new cement plant in the Zafarabad region of Jizzax Viloyati. The new plant had the capacity to produce 760,000 t/yr of regular portland cement and another 350,000 t/yr of white portland cement. In 2015 and 2016, the Almalyk GMK was planning to expand the capacity of the plant in Zafarabad to 1 Mt/yr from 760,000 t/yr at a total cost of \$35.8 million, of which \$9 million would be from Almalyk's own funds, \$14 million would be provided by the FRRU, and the rest would be loans from Uzbek commercial banks. The company also planned to build another cement plant in the Sherabad region of Surxondaryo Viloyati by 2019.

The plant would have a capacity to produce 1.5 Mt/yr. The preliminary cost estimate for the project was \$225 million, of which \$24.4 million would come from the Almalyk GMK's own funds, \$90 million would be provided by the FRRU, and the rest would come as loans from Uzbek commercial banks (Raduzhnaya, 2015; Reviews.uz, 2015; Azizov, 2016).

**Nitrogen.**—In July 2015, AO Navoiyazot signed a contract with Mitsubishi Heavy Industries and Mitsubishi Corp., both of Japan, to design and build a chemical plant for production of ammonia and urea. The new plant was expected to be built as an "EPCC" project; that is, all stages of the project—engineering, procurement, construction, and commissioning—were to be completed by the Mitsubishi partners. According to the signed contract, the complex would have the capacity to produce 660,000 t/yr of ammonia and 577,500 t/yr of urea. The project would be financed by loans from the FRRU and, possibly, the Japanese Bank for International Development (JBIC) and from Navoiyazot's own funds. In July 2015, the President of Uzbekistan signed a decree granting preferences to companies and organizations involved in construction of ammonia and urea production facilities at Navoiyazot, as well as a set of Government guarantees to help construct the industrial complex on time. When the new industrial complex is built, Navoiyazot would be able to retire obsolete equipment, increase energy efficiency, export more than \$100 million worth of ammonia, and create 473 new jobs (Uzdaily.uz, 2015).

### **Mineral Fuels and Related Materials**

**Coal.**—In 2015, Uzbekistan produced an estimated 3.72 Mt of coal, which was a 15.4% decrease compared with production in 2014. As of 2015, most production took place at three coal mines—the Angren, the Baysun, and the Shargun Mines. According to the State Committee on Geology (Goscomgeo), Uzbekistan had 1.9 billion metric tons (Gt) of coal resources, of which 1.85 Gt was lignite and 45 Mt was bituminous coal. The Angren deposit contained lignite, whereas the Baysun and the Shargun deposits contained bituminous coal. Additionally, the forecast resources amounted to 5.7 Gt of coal. In 2015, OAO Uzbekugol' (Uzbekugol') was in the process of completing exploration work at the Vuadil deposit located in Fergana Viloyati, 24 kilometers from the city of Fergana. According to previous estimates, the deposit's resources exceed 117 Mt. The resources, however, were located in deep layers, and the deposit would likely require underground mining. During the period of historically low coal prices, the development of the deposit was likely to be postponed (table 1; Mineral.ru, 2015c; Sputnik Uzbekistan, 2015; Ismayeva, 2016).

About 85% of Uzbekistan's coal consumption was for electricity generation. As of 2015, to satisfy domestic demand, the country needed to produce and (or) import about 4.5 Mt/yr of coal. In 2015, the share of coal in electricity production was 4.2%. Over time, Uzbekistan planned to increase the coal share to 20%, which would save about 2.5 billion cubic meters per year of natural gas. According to the Government program for development of the coal industry, Uzbekistan planned to increase coal production to 8.34 Mt/yr by 2020 and to 15 Mt/yr by 2030. To be able to achieve this goal, OAO Uzbekugol' would build the Apartak coal mine and modernize

the Shargun'kumir Mine in the 2016–17 timeframe. Then, in the 2018–19 timeframe, Uzbekugol planned to build the Severnaya Mine with a design capacity of 5 Mt/yr of lignite. After 2020, Uzbekugol also planned to construct the Nish-Bash Mine, which would have the capacity to produce 3 Mt/yr of lignite. Also, the long-term Government program included building plants for lignite briquet production that could increase the efficiency of storing coal with high ash content (Ismayeva, 2016).

**Uranium.**—In 2015, Uzbekistan produced an estimated 3,450 t of uranium, which was a 1.4% increase compared with the output in 2014. NGMK was the only producer and exporter of uranium in the country. As of 2015, uranium production in Uzbekistan included eight mines, three mining and processing plants, and a metallurgical plant located in the city of Navoiy (GMZ–1). The Navoi GMK had an export contract with India for 2,000 t of uranium to be delivered between 2014 and 2018 (table 1; Infoshos.ru, 2014; Reviews.uz, 2014; Ria.ru, 2015).

Since 2013, Japan Oil, Gas and Metals National Corp. (JOGMEC) of Japan had a 5-year exploration license for the Juzkuduk and the Tamdikuduk-Tulyantash prospective areas. JOGMEC was expected to invest about \$10 million in exploration and had an exclusive right for direct negotiations with the Government about potential development. The company was expected to complete exploration activities by the end of 2016 (Sputnik Uzbekistan, 2016b).

NGMK had completed construction of three uranium mines—the Alendy, the Aulbeck, and the Northern Kanimekh Mines—at the end of 2013 at a total cost of \$70 million. Production at these mines was expected to reach design capacity in 2015. NGMK expected to increase uranium production to 4,000 t/yr by 2016. According to the Goscomgeo, explored uranium resources in Uzbekistan amounted to 185,800 t, including 138,800 t contained in sandstone-type deposits and 47,000 t contained in black shale-type deposits. As of 2015, the black shale-type deposits were not being developed, and the Government was looking for investors for development of those deposits (Stanradar.com, 2014; Safirova, 2016).

## Outlook

In the past several years, Uzbekistan has intensified its efforts to grow the country's industry, including manufacturing and, especially, production of automobiles, chemicals, and construction products and machine building. In 2015, the share of the country's GDP produced by industrial enterprises was 53.5%. Increased industrial production and higher living standards in the country are expected eventually to increase the demand for energy goods. Facing competition for its hydrocarbon resources, Uzbekistan will likely seek to increase its production and export of hydrocarbons during the next decade by expanding the pipeline network and modernizing the country's production facilities and infrastructure. The Government is also likely to continue to form partnerships with firms in Asia and Russia to help achieve this objective.

Uzbekistan is likely to increase its production of copper, coal, gold, and uranium. 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 the future dynamics affecting production of these mineral commodities are more difficult to predict.

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TABLE 1  
UZBEKISTAN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2011	2012	2013	2014	2015
<b>METALS</b>					
<b>Copper:</b>					
Mine output, Cu content	91,500	95,600	98,000	99,500	101,000 <sup>e</sup>
<b>Metal:</b>					
Blister <sup>c</sup>	92,000	93,000	96,000	97,000	98,000
Refined	91,500	95,600	98,000	99,000 <sup>e</sup>	100,000 <sup>e</sup>
Gold <sup>c</sup> kilograms	91,000	93,000	98,000	100,000	100,000
Molybdenum, mine output, Mo content	557	522	490	450	450 <sup>e</sup>
Rhenium <sup>c</sup> kilograms	1,200	1,200	900	900	900
Silver, mine output do.	60,000	60,000	61,000	61,000 <sup>e</sup>	61,000 <sup>e</sup>
<b>Steel:</b>					
Crude	733,400	736,300	746,200	751,400 <sup>r</sup>	750,000 <sup>e</sup>
Rolled	709,900	710,500	718,000	725,200 <sup>r</sup>	725,000 <sup>e</sup>
Tungsten, metal	48	131	98	83	80 <sup>e</sup>
Zinc, metal, smelter, primary	54,900	61,100	61,500 <sup>e</sup>	62,000 <sup>e</sup>	70,000 <sup>e</sup>
<b>INDUSTRIAL MINERALS</b>					
Cement	6,698,000	6,800,000	6,990,000	7,350,000 <sup>e</sup>	8,250,000 <sup>e</sup>
<b>Clay:</b>					
Bentonite <sup>c</sup>	25,000	25,000	26,000	26,000	25,000
Kaolin	300,000 <sup>e</sup>	300,000 <sup>e</sup>	70,286	64,605	303,600
Gypsum <sup>c</sup>	48,000	50,000	50,000	40,000 <sup>r</sup>	42,000
Nitrogen, N content of ammonia	1,294,300	1,300,000 <sup>e</sup>	1,350,000 <sup>e</sup>	1,200,000 <sup>e</sup>	1,200,000 <sup>e</sup>
<b>Phosphate rock:<sup>c</sup></b>					
Gross weight	800,000	800,000	850,000	800,000	800,000
P <sub>2</sub> O <sub>5</sub> content	187,000	187,000	198,000	187,000	187,000
Potash, K <sub>2</sub> O equivalent	110,000	111,700	84,600	110,000 <sup>e</sup>	158,000 <sup>e</sup>
<b>Sulfur:<sup>c</sup></b>					
<b>Byproduct:</b>					
Metallurgy	170,000	170,000	175,000	170,000	165,000
Natural gas and petroleum	350,000	370,000	380,000	370,000	370,000
Total	520,000	540,000	555,000	540,000	535,000
Sulfuric acid	950,000	900,000	900,000	900,000	900,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
<b>Coal:</b>					
Bituminous	244,000	19,800	20,100	20,000 <sup>e</sup>	20,000 <sup>e</sup>
Lignite	3,600,000	3,730,200	4,069,900	4,377,000	3,700,000 <sup>e</sup>
Total	3,844,000	3,750,000	4,090,000	4,397,000 <sup>e</sup>	3,720,000 <sup>e</sup>
Natural gas, dry million cubic meters	63,036	62,911	55,200	57,200 <sup>r,e</sup>	57,700
<b>Petroleum:</b>					
<b>Crude:<sup>e,3</sup></b>					
In gravimetric units	3,600,000	3,165,000	2,900,000 <sup>e</sup>	3,100,000 <sup>e</sup>	3,000,000 <sup>e</sup>
In volumetric units 42-gallon barrels	26,200,000	23,000,000	21,200,000 <sup>e</sup>	22,600,000 <sup>e</sup>	21,900,000 <sup>e</sup>
<b>Petroleum refinery products:</b>					
In gravimetric units	5,000,000	5,000,000	4,800,000	4,800,000 <sup>e</sup>	4,800,000 <sup>e</sup>
In volumetric units 42-gallon barrels	40,200,000	40,200,000	38,400,000	38,400,000 <sup>e</sup>	38,400,000 <sup>e</sup>
<b>Uranium:</b>					
U content	3,000	3,000	3,315	3,401	3,450 <sup>e</sup>
U <sub>3</sub> O <sub>8</sub> content	3,540	3,540	3,880	3,979	4,040 <sup>e</sup>

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. do. Ditto. <sup>r</sup>Revised.

<sup>1</sup>Table includes data available through March 1, 2017.

<sup>2</sup>In addition to the commodities listed, Uzbekistan is thought to produce a number of other mineral commodities, including aluminum, cesium, cadmium, caustic soda, feldspar, fluorspar, graphite, iodine, iron ore, lead, lime, lithium, manganese, rubidium, selenium, tellurium, and vermiculite, but available information was inadequate to make reliable estimates of production.

<sup>3</sup>Includes gas condensate.

TABLE 2  
 UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2015<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Cement	OAo Kyzylkumcement	Navoi City	3,100,000
Do.	OAo Akhangarancement	Sirdaryo Viloyati	1,770,000
Do.	OAo Kuvasaycement	Farg'ona Viloyati	1,000,000
Do.	OAo Bekabacement	Toshkent Viloyati	820,000
Do.	Jizzak Cement Plant [Almalyk mining and metallurgical complex (Almalyk GMK)]	Jizzax Viloyati	760,000
Cesium, lithium, rubidium	Shava-Say deposit	NA	NA
Clays:			
Bentonite	Arab-Dasht and Khaudag deposits	NA	NA
Kaolin	Angren deposit	Angren region	NA
Coal:			
Lignite	OAo Uzbekugol and OAo Apartak	Angren deposit, Toshkent Viloyati	4,500,000
Bituminous	OAo Shargun'kumir and OAo Erostigaz	Baysun and Shargun deposits, Surxondaryo Viloyati	NA
Copper:			
Mine output, Cu content	Almalyk mining and metallurgical complex (Almalyk GMK)	Dal'neye, Kalmakyr, and Sary-Cheku deposits	100,000
Concentrate	Almalyk polymetallic beneficiation plant	Qashqadaryo Viloyati	NA
Metal	Almalyk refinery	Olmalik	130,000
Feldspar	Karichasayskoye and other deposits	Deposits in Samarqand Viloyati, Toshkent Viloyati, and Qoraqalpog'iston Respublikasi	120,000 <sup>2</sup>
Fertilizers			
Do.	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.	Navoiyazot production association	Navoiy Viloyati	NA
Do.	Samarkand 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: Adzhi-Bugutty, Amantaytau, Balpantau, Bulutkan, Donguz-Tau, Muruntau, and Taubay deposits Navoi mining and metallurgical complex (Navoi GMK) (Uzbekistan State Committee for Geology and Mineral Resources) Navoi, Uchkuduk, Zarmitan, and Zarafshan gold refineries Kochbulak and Kyzyl-Al'ma-Say deposits Almalyk mining and metallurgical complex (Almalyk GMK)	Of which: Central Qizilqum region Muruntau deposit and 12 others Toshkent Viloyati Dal'neye, Kalmakyr, and Sary-Cheku deposits	98,000 <sup>2</sup>
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	40,000
Lime	Almalyk mining and metallurgical complex (Almalyk GMK)	Toshkent Viloyati	NA
Manganese	Dautashskoye 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	Chirchiq	NA

See footnotes at end of table.

TABLE 2—Continued  
UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2015<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>	
Natural gas	million cubic meters	Gazli, Kandym, Khauzak, Kokdumalak, Pamuk, and Shurtan-Say deposits (major)	Amu-Dar'ya Basin; Muborak region	70,000 <sup>2</sup>
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	9,000,000 <sup>2</sup>	
Refinery products	Fergana oil refinery	Farg'ona area	8,800,000	
Do.	Bukhara oil refinery	Buxoro area	2,500,000	
Phosphate rock	Kyzyl Kum complex	Dzheroy-Sardarin Moroccan type; Karaktay, Severnyy, and Dzhetyntau deposits	NA	
Polyethylene	Shurtan gas-chemical complex	Shurtan-Say deposit, Qashqadaryo Viloyati	125,000	
Potash	Dekhkanabad potash fertilizer plant	Tubegetan 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, crude	Bekabad steel mill	Bekobod region	1,100,000	
Sulfur	Almalyk mining and metallurgical complex (Almalyk GMK)	Dalneye, Kalmakyr, and Sary-Cheku deposits	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 Ugat deposit	Locations: Northeastern Uzbekistan Zirabulak Mountains Northern Uzbekistan	1,200 <sup>2</sup>	
Mine output, WO <sub>3</sub> content (0.49%)	Sautbay wolframite deposit	Qizilqum region	NA	
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)	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	Almalyk polymetallic beneficiation plant	Qashqadaryo Viloyati	60,000	
Metal	do.	do.	80,000	

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

<sup>1</sup>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.

<sup>2</sup>Capacity estimates are totals for all enterprises that produce that commodity.