



# 2020–2021 Minerals Yearbook

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**UZBEKISTAN [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF UZBEKISTAN

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**Note: In this chapter, information for 2020 is followed by information for 2021.**

In 2020, Uzbekistan was the 3d-ranked producer of kaolin (12.7% of world production); the 4th-ranked producer of rhenium (8.3%); the 8th-ranked producer of gold (3.3%) and vermiculite (0.5%, tied with India); and 11th-ranked producer of cadmium (excluding the United States; 1.7%, tied with Norway). 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, phosphate rock, silver, 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. For more information, see previous editions of the U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Europe and Central Eurasia at <https://www.usgs.gov/centers/national-minerals-information-center/europe-and-central-eurasia> (table 1; U.S. Energy Information Administration, 2021; Apodaca, 2022; Callaghan, 2022; Jasinski, 2022; Polyak, 2022a, b; Sheaffer, 2022; Simmons, 2022a, b; World Nuclear Association, 2022).

Since 2017, Uzbekistan has spent 3.5 trillion soums (about \$390 million) on exploration for mineral resources. In 2020, as a result of geologic exploration, basalt resources increased by 270,000 metric tons (t); coal, by 15,000 t; copper, 200,000 t; gold, 51 t; lead, 29,200 t; quartz sand, 389,500 t; silver, 345 t; tungsten, 8,200 t; uranium, 3,000 t; and zinc, 26,700 t. Also, forecast resources of copper increased by 485,000 t; gold, by 155 t; hydrocarbons, 55 million metric tons (Mt); lead, 43,000 t; nickel and cobalt, 12,000 t; rare metals, 4,700 t; silver 158.3 t; tungsten, 6,600 t; uranium, 11,300 t; and zinc, 70,500 t (Uzdaily.uz, 2021b).

The country's mineral exploration program planned for 2021 was to include geologic exploration on 350 projects and was projected to result in an increase of evaluated resources (combined A, B, and C reserves in the Soviet-style system of resources and reserves) for 16 minerals and forecast resources (combined P-reserves in the Soviet-style systems of resources and reserves) for 10 minerals. The minerals of interest included copper, gold, hydrocarbons, lead, rare earth metals, rare metals, silver, tungsten, uranium, and zinc. The Government planned to invest about 1.33 trillion soums (about \$127 million)<sup>1</sup> in the national mineral exploration program, of which \$106 million would be spent specifically on geologic exploration and the rest would be spent on equipment and supplies (Uzdaily.uz, 2021b).

<sup>1</sup>Where necessary, values have been converted from Uzbek soums (UZS) to U.S. dollars (US\$) at the annual average exchange rates of UZS10,470=US\$1.00 for 2020 and UZS10,639=US\$1.00 for 2021.

## Minerals in the National Economy

In 2020, Uzbekistan's real gross domestic product (GDP) increased by 2.0% compared with a 6% increase in 2019; the nominal GDP was 605.5 trillion soums (\$57.83 billion). During the year, the share of industrial production in the GDP was 24.8%. The share of mining and quarrying in the overall industrial production was 14.7% (23.0% in 2019), and that of manufacturing, 77.2% (69.6% in 2019). In 2020, total nominal industrial production was about \$35.2 billion, which was a 0.9% increase compared with that in 2019. Of the total, manufacturing production increased by 7.9%, whereas mining and quarrying production decreased by 22.0% (U.S. Central Intelligence Agency, 2022; Statistics Agency under the President of the Republic of Uzbekistan, 2023b, c).

## Government Policies and Programs

In July 2020, the Government of Uzbekistan issued new rules on obtaining exploration and mining licenses for different types of mineral deposits. The most important new addition was a set of rules governing auctions as one of the ways to apply for and obtain an exploration or mining license. A trading platform for conducting auctions (E-IJRO AUKSION) was set up to facilitate online auctions of mineral resources. E-IJRO AUKSION is an information system providing opportunities for entry, storage, and processing of information related to mineral resources and access to such information for potential auction participants. In 2020, the State Committee on Geology and Mineral Resources (Goscomgeology; the Government agency responsible for overseeing the mining sector) was able to initiate a new auction for a set of mineral resources, and interested business organizations could apply for the right of subsoil use and to participate in an auction. Some types of mineral resources—for example, those considered strategic or those considered to contain natural or cultural artefacts—were excluded from distribution through auctions (Lex.uz, 2023).

## Production

In 2020, production of most mineral commodities has either increased or remained stable. Production of rhenium increased by 63%; bismuth, by 56%; bentonite, by 50%; gypsum, by 46%; limestone, by 45%; raw steel, by 41%; feldspar, by 33%; mined manganese, by 21%; coal lignite, by 18%; sulfur, byproduct of metallurgy, by 15%; cement, by 14%; and cadmium, mined molybdenum, and rolled steel (estimated), by 11% each. On the other hand, sand production decreased by 23%; nitrogen, N content of ammonia, by 18% (estimated); gravel and natural gas, by 16% each; potash, by 12%; and lime, by 11%. There was no bituminous coal production in 2020 compared with 228,900 t produced in 2019. These and other mineral production data are in table 1.

## Structure of the Mineral Industry

In 2020, the Government decided to split the state enterprise Navoi mining and metallurgical complex (Navoi GMK) into the following three independent enterprises: AO Navoi GMK; state enterprise Navoiuran; and state organization Fund of Navoi GMK. AO Navoi GMK was to become a stock company, which would allow the company to attract private investment by issuing bonds. Navoiuran would develop uranium deposits, produce uranium and rare earths, and safely dispose of waste and radioactive materials. The Fund of Navoi GMK would be responsible for the socio-cultural aspects of production by both enterprises, such as residential buildings, medical services, education facilities, and facilities for sporting and cultural events. The Navoi GMK was preparing an initial public offering (IPO) that was planned for 2023. The company indicated that it expected to sell between 10% and 15% of the total company stock. The official starting date for the three enterprises was set at January 1, 2022. Table 2 is a list of major mineral industry facilities (Spot.uz, 2022).

## Mineral Trade

In 2020, Uzbekistan had a negative trade balance of about \$6.05 billion. The value of exports was reported to be \$15.10 billion, which was a decrease of 13.5% from that of 2019. The main mineral commodity exports were gold (which accounted for 38.4% of all export revenue), nonferrous metals (6.1%), chemicals and articles made of them (5.8%), energy and petroleum products (4.4%), and ferrous metals (2.1%). The revenue from sales of petroleum and mineral fuels decreased sharply to \$659 million, or by 73.9%. The overall decrease in exports of nonferrous metals was owing to a decrease in exports of zinc and zinc products to \$149 million, or by 26.3%, which was offset partially by an increase in exports of copper and copper products to \$729 million, or by 3.0%.

Uzbekistan's major export partners were China (which received 12.8% of Uzbekistan's exports), Russia (9.8%), Turkey (6.7%), Kazakhstan (6.0%), Afghanistan (5.1%), Kyrgyzstan (5.0%), and Tajikistan (2.7%) (Statistics Agency under the President of the Republic of Uzbekistan, 2023a).

The value of Uzbekistan's imports decreased to \$21.15 billion, or by 12.9% compared with of the value in 2019. The main mineral import commodities were chemicals and articles made of them (which accounted for 16.2% of all imports revenue), ferrous metals (6.8%), energy and petroleum products (5.2%), and nonferrous metals (1.3%). Uzbekistan's major import partners were China (which supplied 21.3% of Uzbekistan's imports), Russia (19.7%), Kazakhstan and the Republic of Korea (9.9% each), Turkey (5.1%), Germany (3.6%), Czechia (2.4%), Lithuania (2.2%), and India (2.0%) (Statistics Agency under the President of the Republic of Uzbekistan, 2023a).

## Commodity Review

### Metals

**Copper.**—In 2020, Uzbekistan increased production of copper in concentrate to 142,800 t. The only copper producer 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 in 2020. As of 2020, about 85% of copper mined in Uzbekistan came from the Kalmakyr deposit, which was commissioned more than 100 years ago, and was expected to remain in operation for a period of about another 100 years. The mineral deposits of Toshkent 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 facilities included eight mines, five mining and beneficiation plants, two metallurgical plants, two cement plants, a sulfuric acid plant, a mechanical plant, and a lime plant. In 2020, the Almalyk GMK was the second-ranked taxpayer in Uzbekistan, accounting for 13% of the Government's tax revenue (tables 1, 2; Khursanov, 2022; Almalyk Mining and Metallurgical Complex, 2023).

In 2020, the Almalyk GMK continued the development of the Dal'neye copper-molybdenum deposit, also known as Yoshlik. Originally, the Almalyk GMK announced that it had begun its most ambitious investment project to date in April 2017, and this project, Yoshlik I, was expected to increase copper production to 290,000 t, and gold production, to 1.05 million troy ounces [about 32,700 kilograms (kg)] at a total cost of about \$3.6 billion. The company planned to commission the Yoshlik I project in about 3 years and to invest about \$1.2 billion in it annually. However, it appeared that the regular revenue stream of the Almalyk GMK from the operations would cover only about 35% to 40% of the required investment. The Government expressed a willingness to contribute about \$1 million, and the rest would be financed through loans. The Yoshlik deposit would be mined using an open pit method. The bulk of investment in the Yoshlik I project would be directed to development of the Yoshlik deposit, construction of an underground Samarchuk Mine, and construction of a new ore processing plant (Podrobno.uz, 2021a; Uzdaily.uz, 2021a; Khursanov, 2022; Kislitsyna, 2022).

By 2028, the Almalyk GMK planned to increase production to 400,000 metric tons per year (t/yr) of copper, 50,000 kilograms per year (kg/yr) of gold, and 270,000 kg/yr of silver from the 109,900 t, 14,640 t, and 98,900 kg produced in 2017. To accomplish this goal, the Almalyk GMK was in the process of constructing a new ore processing plant (called plant #3), the cost of which was estimated to be \$2 billion. The new plant would be located in a 196-hectare (about 484-acre) area. It would have the capacity to process 60 million metric tons per year (Mt/yr) of ore and to produce 160,000 t/yr of copper. The plant was expected to be commissioned by January 2024. In addition, a 4-kilometer-long conveyor belt to transport the ore to the new plant would be constructed. Two more beneficiation plants were scheduled be constructed after 2024 (Podrobno.uz, 2021a; Erzikov, 2022).

In 2019, the Almalyk GMK had begun a program of reevaluating resources and reserves in compliance with the Joint Ore Reserves Committee (JORC) Code and continued this effort through 2020. As a part of this program, the company

drilled 475 new holes and conducted more than 114,000 new analyses in accordance with international standards. By 2030, the Almalyk GMK planned to merge the Kalmakyr and the Yoshlik deposits into one producing mine, to be called Oliy Ziyo. According to the preliminary estimates, the Oliy Ziyo Mine would have total reserves of 19,000 Mt of ore (Podrobno.uz, 2021a; Kislitsyna, 2022).

**Gold.**—In 2020, Uzbekistan produced 104,600 kg of gold, which was a 3.7% increase compared with production in 2019. The main gold producers in the country were the 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 also 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. Overall, the Navoi GMK had a long-term plan to complete 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 of about 80,000 kg/yr of gold would increase by 30%. The projects included development of the Pistali deposit in Central Qizilqum, expansion of the Muruntau Mine, and construction of a technogenic-waste-processing complex (tables 1, 2; Navoi Mining and Metallurgical Combinat, 2022; Vnedra.ru, 2022).

Gold 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). In addition, GMZ-7 was commissioned in 2020 and specialized in processing of ore from technogenic deposits. The GMZ-7 plant had the capacity to process 15 Mt/yr of ore. The GMZ-5 plant was expected to be commissioned in 2021; this plant would have the capacity to process 5 Mt/yr of ore and would be based at the Auminza-Amantau gold deposits. The total cost of construction was estimated to be \$396 million, and the GMZ-5 plant was expected to create a total of 5,300 jobs. Two more projects—construction of a sixth GMZ and expansion of GMZ-2—were planned to be completed by 2026 (table 2; Navoi Mining and Metallurgical Combinat, 2022; Vnedra.ru, 2022).

**Iron Ore and Iron and Steel.**—In 2020, construction of a new mining and metallurgical complex at the Tebinbulak iron deposit, which is located in the Karakalpakstan Autonomous Republic, continued. The total investment was expected to be \$1.5 billion and would include an open pit mine with the capacity to produce 33 Mt/yr of ore, a mining and beneficiation plant to produce iron ore concentrate with 65% Fe content, and a metallurgical plant with the capacity to produce 1.5 Mt/yr of pig iron and 1.0 Mt/yr of steel. The Tebinbulak deposit was first discovered in 1937 but was not mined because of the high development costs. The JORC-compliant reserves of the Tebinbulak deposit were about 1 billion metric tons (Gt) of ore, and the total resources of the deposit were estimated to be 3.0 Gt of mineralized material. In addition to iron, the

ores contain chromium, manganese, vanadium, and zinc. The President had approved construction of the new complex at the Tebinbulak deposit in January 2018. The complex was expected to be completed by 2024 and to create 3,000 new jobs. Once completed, about 35% of the output from the complex was to be exported (RBC.ru, 2017; Stroyka.uz, 2017; Chernogayev, 2018; Metalinfo.ru, 2018; Sputniknews.ru, 2018, 2020; Gazeta.uz, 2019; Uzdaily.uz, 2020).

The metallurgical plant at Tebinbulak would have the capacity produce 800,000 t/yr of rebar, 100,000 t/yr of steel wire, and 100,000 t/yr of corner-shaped, channel-shaped, and other steel products. The blueprints of the plant that were approved in April 2017 showed that the plant would employ the direct-reduced iron technology for production of pig iron and raw steel. The state company AO Uzbekiston Temir Yullari was tasked with identifying financing sources for the new facility. The plant was expected to reach the break-even point (that is, the point at which total revenue and total costs are equal) within 8 years (Metalinfo.ru, 2018; Uzdaily.uz, 2019; Xs.uz, 2019; Sputniknews.ru, 2020).

In December 2020, Uzbekistan commissioned a new metallurgical plant called the Tashkent Metallurgical Plant (TMZ). The cost of construction amounted to \$420 million. The plant produced cold-rolled steel, primarily for use in automobiles and for the production of household appliances. At full capacity, the TMZ would produce 750,000 t/yr of rolled products and would create 5,000 jobs, including 672 jobs specifically at the plant. In 2019, Uzbekistan imported 483,000 t of rolled steel, of which China exported about 50% and Russia, 35%; the commissioning of the TMZ would likely eventually eliminate the need to import \$400 million worth of rolled steel per year (Metalinfo.ru, 2017a–c; Levchuk, 2020).

### *Industrial Minerals*

**Cement.**—In 2020, Uzbekistan produced about 12.54 Mt of cement, which was a 14.1% increase compared with production in 2019. During the same period, clinker production was about 10.03 Mt, which was an 8.9% increase compared with that of 2019. Cement consumption in 2020 was 14.52 Mt; cement exports amounted to 530,300 t; and cement imports totaled 2.2 Mt (table 1; JCement.ru, 2021).

The leading cement producer in Uzbekistan was OAO Kyzylkumcement, which in 2020 produced 3.69 Mt of cement, which was a 1.5% increase compared with production in 2019. The company also produced 2.91 Mt of clinker, which was a 1.5% decrease compared with that of 2019. At the end of 2020, Uzbekistan had 6 leading cement producers, which together produced 95% of all cement in Uzbekistan, and another 27 small cement companies. In addition to OAO Kyzylkumcement, the other leading producers were OAO Akhangarancement (which produced about 2.2 Mt/yr), OAO Bekabadcement (about 1.3 Mt/yr), OAO Kuvasaycement (about 1.1 Mt/yr), Jizzak Cement Plant (1.0 Mt/yr), and Sherabad Cement Plant (1.5 Mt/yr). The Jizzak and Sherabad cement plants were both subsidiaries of the Almalyk GMK (tables 1, 2; JCement.ru, 2021).

## Mineral Fuels

**Uranium.**—In 2020, Uzbekistan produced 3,500 t of uranium, which was unchanged from that of 2019. The sole producer of uranium in Uzbekistan was the Navoi GMK, which was in the process of structural reorganization. The resources of the Navoi GMK were estimated to be 139,200 t. Since 1994, all uranium in Uzbekistan was produced using in situ leaching, which was more cost effective and environmentally friendly than traditional mining. As of 2019 (the latest year for which the data were available), the production cost of uranium in Uzbekistan was about \$62.5 per kilogram, whereas the average sales price of uranium in 2019 was \$65.7 per kilogram. The leading cost components in uranium production in Uzbekistan were the cost of electricity and the cost of chemicals used during the process of leaching (Nuz.uz, 2020; Spot.uz, 2020).

As of 2020, uranium production in Uzbekistan was carried out at the Northern and Southern mine complexes and the Mine Complex #5. Processing of the uranium concentrate took place at the GMZ-1, and final production was in the form of triuranium octoxide (U<sub>3</sub>O<sub>8</sub>). Several measures to decrease the cost of uranium production were the oxidation of uranium with the air oxygen and technical oxygen prior to leaching using a weak acidic solution. Despite the 153% increase in production between 2012 and 2020 and an increase in total usage of sulfuric acid by 113%, use of sulfuric acid per kilogram of uranium production decreased by 11.5% owing mostly to new technologies and improvements in extraction methods. Another way to decrease the unit cost of uranium production in Uzbekistan has been extraction of uranium byproducts, such as rhenium and rare earth elements. Specifically, production facilities for rhenium extraction were in operation at such deposits as Shimoliy Bukinay, Shimoliy Konimekh, and Sugrali, but rare earth elements were not extracted (Nuz.uz, 2020; Spot.uz, 2020).

Since 2001, the Navoi GMK had a goal of increasing reserves of uranium by about 3,000 t/yr. As of 2020, evaluated and forecast resources were concentrated in the sandstones of the Central Kyzylkum area. Current reserves were sufficient to provide a basis for several decades of stable production. In 2015, two new processing plants were built at the Shimoliy Konimekh and Sugrali mines. Experimental work on in situ leaching was being carried out at the Jingeldi deposit. At the Mailisay mine, an expansion of production was planned to include construction and commissioning of local sorption plants #7 and #8, which was planned to take place during the period from 2021 to 2024 (Nuz.uz, 2020; Spot.uz, 2020).

Uranium produced in Uzbekistan was not used domestically and was fully exported. Prior to 2007, Nukem Inc. of the United States had exclusive rights for acquisition of Uzbekistan's uranium. Since 2007, Itochu Corp. of Japan and, since 2008, China General Nuclear Power Group (CGNPC) of China were added to the list of recipients of uranium exports. As of 2020, the major trade partners of Uzbekistan for uranium sales were Itochu Corp. and Marubeni Corp. of Japan and Nukem Inc. Also, Uzbekistan was supplying uranium to many uranium processing companies, such as Orano (formerly Areva NC) of France, Cameco Corp. of Canada, China Nuclear Energy Industry Corp. (CNEIC) of China, and ConverDyn of the United States. Recently, Uzbekistan signed agreements with

Korea Hydro and Nuclear Power (KHNP) to begin shipments in 2020 and with the Department of Atomic Energy of India to begin shipments in 2023 (Nuz.uz, 2020; Spot.uz, 2020).

## MINERAL INDUSTRY HIGHLIGHTS IN 2021

In 2021, Uzbekistan was the 3d-ranked producer of kaolin (10.1% of world production), the 4th-ranked producer of rhenium (8.2%) and tellurium (7.9%), the 9th-ranked producer of gold (3.2%) and indium (0.1%), the 10th-ranked producer of molybdenum (0.6%) and vermiculite (0.4%), the 15th-ranked producer of cadmium (excluding United States production; 1.2%), and the 16th-ranked producer of gypsum (1.4%). In addition, Uzbekistan was one of the leading world producers of crude petroleum and natural gas, nitrogen, phosphate rock, and uranium (U.S. Energy Information Administration, 2021; World Nuclear Association, 2022; Apodaca, 2023; Callaghan, 2023; Crangle, 2023; Flanagan, 2023; Jasinski, 2023; Polyak, 2023a, b; Sheaffer, 2023; Simmons, 2023a, b; Tolcin, 2023).

In 2021, Uzbekistan's GDP increased by 7.4% compared with an increase of 2.0% in 2020; the nominal GDP was 738.4 trillion soums (\$69.41 billion). During the year, the share of industrial production in the GDP was 25.3%. The share of mining and quarrying in overall industrial production was 15.3% (14.7% in 2020), and that of manufacturing, 77.3% (77.2% in 2020). In 2021, the value added of all industrial production at constant prices increased by 8.8%. Compared with that of 2020, production in all manufacturing sectors increased by 8.3%, and in the mining and quarrying sector, by 10.8% (U.S. Central Intelligence Agency, 2022; Statistics Agency under the President of the Republic of Uzbekistan, 2023b, c).

In 2021, Uzbekistan had a negative trade balance of about \$8.84 billion. The value of exports was reported to be \$16.66 billion, which was an increase of 10.3% compared with that of 2020. The main export mineral commodities were gold, which accounted for 24.7% of all export revenue; nonferrous metals (8.8%); chemicals and articles made of them (7.4%); energy and petroleum products (5.4%) and ferrous metals (1.1%). The revenue from sales of petroleum and mineral fuels increased by 38.8% to \$914 million. An increase in exports of nonferrous metals was owing to an increase in exports of copper and copper products, by 60.6% to \$1.17 billion (Statistics Agency under the President of the Republic of Uzbekistan, 2023a).

## Production

In 2021, production of vermiculite increased by 88%; kaolin, by 53%; nitrogen, N content of ammonia, by an estimated 33%; zinc (smelter), by 23%; indium, by 15%; cement and potash, by 13% each; sand, by 12%; and coal lignite, gravel, and rolled steel (estimated), by 10%. Bituminous coal production increased to 300,300 t from zero in 2020. At the same time, mined manganese production decreased by 89%; bismuth, by 87%; tellurium, by 73%; and limestone, by 10% (table 1).

## Commodity Review

### Metals

**Copper.**—In June 2021, the President announced the creation in Uzbekistan of a new technological “copper cluster,” which will focus on production of high value added metallic copper and copper products. In the previous 5 years, refined copper production in Uzbekistan increased by 50% to 148,500 t; however, about 60% of copper was exported as raw material. In 2020, the total revenue from copper exports amounted to \$2.5 billion. If the country could increase copper production to about 400,000 t in the next 5 years, the total revenue (including proceeds from the metal processing and related industries) would be between \$7 billion and \$8 billion. The President issued an order to form a group of specialists to study experience of other countries with creating and operating copper clusters and to develop a detailed plan for the cluster creation for the period from 2022 to 2026. The goal of the copper cluster was to increase the share of processed copper to 80% from 40% in 2020 (Podrobno.uz, 2021b; Review.uz, 2021; Uzdaily.uz, 2021a).

One of the challenges of Uzbekistan’s copper industry was the relatively high cost of production. In 2021, the average cost of copper production in the country ranged between \$3,800 and \$4,200 per metric ton compared with an average cost globally of between \$3,200 and \$3,500 per metric ton. As of 2021, most of copper produced in Uzbekistan was exported, and between 60% and 70% of the copper was exported to Turkey. Other countries receiving Uzbekistan’s copper exports were China and the countries of the Commonwealth of Independent States (CIS) and Eastern Europe. The Almalyk GMK was also developing partner relations with Australia, Indonesia, Poland, Qatar, and the United Arab Emirates (Kamalov, 2021; Regnum, 2021).

**Gold.**—In October 2021, four new lots for mineral production we added to the E-Auksion site, and the auction was to be held at the end of October. The lots were located in Navoiy Viloyati and were suitable for artisanal gold production. The largest of the lots were 5 hectares in size and had a starting price was about \$4,400. Three other lots were between 2 and 4 hectares in area and had starting prices of between \$1,800 and \$3,600. To participate in the auction, interested parties had to fill out an application and submit a deposit of 5% of the starting price. The auction winners would receive a mining license for 3 years. The lots had a configuration that would make industrial gold production prohibitively expensive and therefore the lots were offered for artisanal production (Spot.uz, 2021).

### Industrial Minerals

**Cement.**—In 2021, cement production increased by 1.66 Mt compared with that in 2020 to a 5-year high of 14.2 Mt. However, domestic demand was also increasing, and the Government decided to zero out the import tariff on cement for a period of 6 months—from April 1 to October 1, 2021—to avoid a potential shortage of cement on the domestic market. Prior to this measure, the import tariff rate was set at 30%. The import tariff was effective only for the importers who did not file an origination certificate. The cement companies from Kazakhstan as a rule filed the certificate and were not subject to the tariff.

The importers from Kyrgyzstan, Tajikistan, and Turkmenistan, however, did not file the certificate and paid the tariff. The main driver of cement demand in Uzbekistan was residential construction, and total domestic demand was expected to be in the range of 17 to 18 Mt for 2021. Between 2021 and 2023, Uzbekistan was expected to commission several new cement plants, for a total capacity of 8 Mt; if these plants begin operations, as expected, then the Government’s policy regarding import incentives might be revisited (Turdimov, 2021).

### 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, production of 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 firms from Asia and Russia to help achieve these objectives.

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 the future dynamics of the hydrocarbon sector are harder to predict.

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

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>		2017	2018	2019	2020	2021
<b>METALS</b>						
Bismuth, mine, Bi content	kilograms	22,000	15,300	17,000	26,500	3,350
Cadmium, refinery, primary		470	375	207 <sup>r</sup>	229	225
<b>Copper:</b>						
Mine, concentrates, Cu content		140,100	141,200	137,300 <sup>r</sup>	142,800	146,900
Smelter, primary		110,000 <sup>r</sup>	120,000 <sup>r</sup>	145,000	145,000	150,000
Refinery, metal, primary		109,900 <sup>r</sup>	117,400 <sup>r</sup>	147,250	147,700	148,500
Gold, mine, Au content	kilograms	89,900	92,716	100,900 <sup>r</sup>	104,600	103,600
Indium, refinery, primary, In content	do.	1,100	800	1,000	1,030	1,180
<b>Iron and steel, steel:</b>						
Raw steel		654,000 <sup>r</sup>	646,000	666,000 <sup>r</sup>	939,000	885,000 <sup>e</sup>
Products, rolled		731,000	800,000 <sup>r,e</sup>	900,000 <sup>r,e</sup>	1,000,000 <sup>e</sup>	1,100,000 <sup>e</sup>
Lead, mine, Pb content		26,000 <sup>r</sup>	21,300 <sup>r</sup>	19,100 <sup>r</sup>	18,400	18,630
Manganese, mine, Mn content		--	--	1,700	2,050	220
Molybdenum, mine, Mo content		1,458 <sup>r</sup>	1,494 <sup>r</sup>	1,502 <sup>r</sup>	1,670	1,670
Rhenium, Re content	kilograms	5,300 <sup>r</sup>	5,400 <sup>r</sup>	3,000 <sup>r</sup>	4,900	4,900
Selenium, Se content	do.	2,900	1,900	2,300	2,300 <sup>e</sup>	2,300 <sup>e</sup>
Silicon, metal <sup>c</sup>		3,000	--	--	--	--
Silver, mine, Ag content	kilograms	220,000 <sup>r</sup>	224,000 <sup>r</sup>	219,200 <sup>r</sup>	237,600	238,100
Tellurium, refinery, Te content	do.	48,400	47,500	48,000 <sup>e</sup>	48,000 <sup>e</sup>	12,750
<b>Zinc:</b>						
Mine, Zn content		47,200 <sup>r</sup>	38,400 <sup>r</sup>	35,400 <sup>r</sup>	37,200	35,990
Smelter, primary		70,000 <sup>r,e</sup>	70,000 <sup>r,e</sup>	67,845 <sup>r</sup>	72,993	90,000

See footnotes at end of table.



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

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>		2017	2018	2019	2020	2021
<b>INDUSTRIAL MINERALS</b>						
Cement, hydraulic	thousand metric tons	8,930	9,200	10,990	12,540	14,200
Clay:						
Bentonite		40,000 <sup>r,e</sup>	40,000 <sup>r,e</sup>	32,588 <sup>r</sup>	48,739	50,000 <sup>e</sup>
Kaolin		3,519,000	4,688,700	5,903,800 <sup>r</sup>	5,577,700	8,518,200
Feldspar, mine	thousand metric tons	50 <sup>e</sup>	50 <sup>e</sup>	48	64	64 <sup>e</sup>
Gypsum, mine		1,117,200	1,292,000	1,481,600 <sup>r</sup>	2,156,700	1,987,100
Lime	thousand metric tons	300 <sup>e</sup>	300 <sup>e</sup>	319	285	300 <sup>e</sup>
Nitrogen, ammonia, N content		1,100,000	1,100,000	1,100,000	900,000 <sup>e</sup>	1,200,000 <sup>e</sup>
Phosphate rock: <sup>e</sup>						
Gross weight		900,000	900,000	900,000	900,000	900,000
P <sub>2</sub> O <sub>5</sub> content		150,000	150,000	150,000	150,000	150,000
Potash, K <sub>2</sub> O content		189,500	215,900	241,900 <sup>r</sup>	213,700	241,600
Soda ash, synthetic		140,000 <sup>r,e</sup>	155,000 <sup>r,e</sup>	170,000 <sup>r,e</sup>	185,300	180,000 <sup>e</sup>
Stone, sand, and gravel, construction:						
Sand and gravel, unspecified:						
Gravel	thousand metric tons	3,500 <sup>e</sup>	3,500 <sup>e</sup>	3,797	3,177	3,500 <sup>e</sup>
Sand	do.	5,000 <sup>e</sup>	5,000 <sup>e</sup>	5,800	4,454	5,000 <sup>e</sup>
Stone, size and shape unspecified, limestone	do.	1,000 <sup>e</sup>	1,000	918	1,335	1,200 <sup>e</sup>
Sulfur:						
Byproduct, S content: <sup>e</sup>						
Metallurgy		130,000	130,000	130,000	150,000	150,000
Natural gas and petroleum		340,000	340,000	330,000	320,000	320,000
Compounds, sulfuric acid		1,500,000 <sup>r</sup>	1,500,000 <sup>r</sup>	1,565,500 <sup>r</sup>	1,579,800	1,600,000 <sup>e</sup>
Vermiculite		1,534	2,756	1,800 <sup>r</sup>	1,700	3,200
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Coal:						
Bituminous		123,500	283,100	228,900 <sup>r</sup>	--	300,300
Lignite		3,343,700	2,316,900	3,089,400 <sup>r</sup>	3,647,000	4,004,300
Natural gas, dry basis	million cubic meters	56,417	60,400	59,460	49,739	53,802
Petroleum:						
Crude <sup>3</sup>	thousand 42-gallon barrels	5,880	5,450	5,110	5,360	5,520
Refinery <sup>e</sup>	do.	38,000	39,500	40,000	42,000	40,000
Uranium, mine, U content		3,577	3,331	3,500	3,500	3,500

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through January 18, 2023. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>In addition to the commodities listed, aluminum, cesium, caustic soda, ferroalloys, fluorspar, graphite, iodine, iron ore, lithium, and rubidium may have been produced, but available information was inadequate to make reliable estimates of output.

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

TABLE 2  
UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2021<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>e</sup>
Cement	OAo Kyzylkumcement	Navoiy City	3,800,000
Do.	OAo Akhangarancement (Eurocement Group)	Akhangaran City, Sirdaryo Viloyati	2,200,000
Do.	Sherabad Cement Plant (Almalyk GMK)	Surxondaryo Viloyati	1,500,000
Do.	OAo Bekabadcement	Bekabad City, Toshkent Viloyati	1,250,000
Do.	OOO Surkhantsementinvest Plant	Surkhandar'o Viloyati	1,100,000
Do.	OAo Kuvasaycement	Kuvasay City, Farg'ona Viloyati	1,080,000
Do.	Jizzak Cement Plant (Almalyk GMK)	Jizzax Viloyati	1,000,000 <sup>2</sup>
Cesium, lithium, rubidium	Shava-Say deposit	NA	NA
Clay:			
Bentonite	Arab-Dasht and Khaudag deposits	NA	NA
Kaolin	Angren deposit	Toshkent Viloyati	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) (Government, 100%)	Dal'neye (Yoshlik), Kalmakyr, and Sary-Cheku Mines, Toshkent Viloyati	150,000
Concentrate	Almalyk polymetallic beneficiation plant (Almalyk GMK)	Qashqadaryo Viloyati	NA
Metal	Almalyk integrated smelter and refinery (Almalyk GMK)	Olmaliq City	130,000
Feldspar	Karichasayskoye and other deposits	Deposits in Samarqand Viloyati, Toshkent Viloyati, and Qoraqalpog'iston Respublikasi	120,000 <sup>3</sup>
Fertilizers (nitrogen, phosphate, potash)	Ammophos production association	Olmaliq City	NA
Do.	Azot production association	Farg'ona area	NA
Do.	Elektrokhimprom production association	Chirchiq City	NA
Do.	Kokand superphosphate plant	Qo'qon City	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			
Mine, Au content	kilograms	Various facilities and deposits, which include: Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Of which: 20,000
Do.	do.	Navoi mining and metallurgical complex (Navoi GMK) (Government, 100%)	80,000
Refined		Navoi (GMZ-1) Uchkuduk (GMZ-3), Zarafshan (GMZ-2), Zarmitan (GMZ-4), GMZ-5, and GMZ-7 gold refineries	Navoiy Viloyati NA
Graphite		Tadzhik-Kazgan deposit	Navoiy Viloyati NA
Iron ore		Syurenata deposit	Toshkent Viloyati NA
Lead, mine output, Pb content		Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Khandiza deposit in Qashqadaryo Viloyati, Uch-Kulach deposit in Jizzax Viloyati 40,000
Lime		do.	Plant in Toshkent Viloyati NA
Manganese		Dautashskoye deposit	Qashqadaryo Viloyati 40,000

See footnotes at end of table.

TABLE 2—Continued  
 UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2021<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>	
<b>Molybdenum:</b>				
Mine output, Mo content	Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Kalmakyr and Sary-Cheku Mines, Toshkent Viloyati	500	
Metal	Uzbek refractory and hard metals plant (UzKTZhM) (Almalyk GMK) (Government, 100%)	Chirchiq City	NA	
Natural gas	million cubic meters	Gazli, Kandym, Khauzak, Kokdumalak, Pamuk, and Shurtan-Say deposits (major)	Amu-Dar'ya Basin; Muborak region	70,000 <sup>3</sup>
Do.	Itera/PAO Lukoil (Russia), OAO Uzbekneftegaz	Kandym field	NA	
Natural gas condensate	Trinity Energy group	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 complex	Muborak region	40,000
<b>Petroleum:</b>				
Crude	Kokdumalak and Mingbulak deposits (major)	Qashqadaryo and Namangan Viloyati	NA <sup>3</sup>	
Refinery products	Fergana oil refinery	Farg'ona area	8,800,000	
Do.	Bukhara oil refinery	Bukhara 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 Dzhetymtau deposits	NA	
Potash	Dekhkanabad potash fertilizer plant	Tubeqatan Mine, Qashqadaryo Viloyati	200,000	
Rhenium	Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Toshkent Viloyati	NA	
Selenium	do.	do.	NA	
Silver	do.	do.	NA	
Do.	Kosmanachi, Okzhetpes, and Vysokovoltnoye deposits	Namangan Viloyati	NA	
<b>Steel:</b>				
Raw	AO Uzmetkombinat	Bekobod region	1,100,000	
Rolled	do	do	NA	
Do.	Tashkent Metallurgical Plant (TMZ)	Tashkent	750,000	
Sulfur	Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Sulfuric acid plant, Toshkent Viloyati	NA	
Do.	Mubarek gas processing plant complex	Muborak region	400,000	
Tellurium	Almalyk mining and metallurgical complex (Almalyk GMK) (Government, 100%)	Toshkent Viloyati	NA	
Uranium, U content	Navoi mining and metallurgical complex (Navoi GMK) (Government, 100%)	Navoi (GMZ-1), Uchkuduk (GMZ-3 Zarafshan (GMZ-2), Zarmitan (GMZ-4)	3,600	
Vermiculite	cubic meters	Tebinbulak deposit	Karakalpakstan Republic	25,000
<b>Zinc:</b>				
Mine output, Zn content	Almalyk mining and metallurgical complex (Almalyk GMK)	Khandiza Mine, Qashqadaryo Viloyati and Uch-Kulach Mine, Jizzax Viloyati	NA	
Concentrate, Zn content	Almalyk polymetallic beneficiation plant (Almalyk GMK)	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 includes both gray and white cement.

<sup>3</sup>Capacity estimates are totals for all enterprises that produce that commodity.