

THE MINERAL INDUSTRY OF UZBEKISTAN

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Uzbekistan was the third most populous state created from the former Soviet Union (FSU) and the fourth largest in land area. Well endowed with mineral wealth, it was among the world's 10 largest producers of gold, a significant source of foreign currency earnings. Besides gold, Uzbekistan was a large producer of nonferrous metals and natural gas. The nonferrous metals industry included the mining of bismuth, copper, lead, molybdenum, tin, tungsten, and zinc, and the production of copper and zinc metals at the Chirchik metals plant. Uzbekistan produced mineral fuels, including coal, gas, oil, and uranium, and had one of the FSU's largest gas-processing facilities at Mubarek. Uzbekistan also produced significant quantities of industrial minerals, including feldspar and fluorspar, as well as a range of minerals for the construction industry.

Despite its significant mineral industry, Uzbekistan imported about 65% of its material and technical resources from Russia. Uzbekistan's imports from Russia included coal, oil, and ferrous and nonferrous metals.²

In 1994, Uzbekistan's gross domestic product decreased by 4% compared with 1993 and industrial output increased by 1%. These economic indicators were comparable to those of 1993 and were among the best reported economic indicators in the Commonwealth of Independent States (CIS).³

Compared with 1993, increases were reported in 1994 in the production of oil and natural gas, with coal production remaining at about its 1993 level of 3.8 million metric tons (Mmt). Crude oil production increased about 40% to 5.5 mt and natural gas production increasing about 5% to 47.2 billion cubic meters (m³).⁴ Other mineral commodities were not reported.

Uzbekistan was planning a major program to develop its mineral resources by attracting foreign investment. These particularly included gold deposits; Uzbekistan was the FSU's second leading producer, with an output of about 75 metric tons per year (mt/a), and reportedly had several thousands mt of exploitable gold reserves. The program also called for development of copper, lead and zinc, and tungsten deposits.⁵

Uzbekistan reportedly hoped to develop six explored gold deposits and three explored silver deposits. The country also has 33 rare-earth metals deposits and 32 nonferrous metals deposits, including the third largest copper reserve of the FSU. The country has seven explored tungsten deposits. A significant number of deposits had not been developed,

including those for feldspar, phosphorite, silver, and strontium.⁶

To facilitate investment, the Uzbek parliament passed in May 1994 a law "On Foreign Investments and Guarantees for Foreign Investments."⁷ In an effort to strengthen interregional trade and ties, Kazakhstan, Kyrgyzstan, and Uzbekistan formed the Central Asian Union to reduce tariffs in the region and to coordinate fiscal and monetary policies.⁸

Uzbekistan's mineral industry had generated considerable waste, which posed environmental problems. Reportedly, mining and metallurgical enterprises annually generated about 1.3 billion mt of waste out of a total annual generation of 2 billion mt of waste. Annually, about 50 to 60 Mmt of strippings and tailings from mining were dumped on an area of about 10,000 hectares. The coal mining operation at Angren annually mined a large quantity of byproduct kaolin, which was stored in heaps. Metallurgical plants in Uzbekistan annually emitted about 350,000 mt of waste metal. The large heaps of slag, tailings, mud, ash, and other waste from mining were covering potential agricultural land, and were a source of soil pollution and pollution of surface and subsurface waters, as well as generating atmospheric dust. Facilities and equipment to treat these wastes were generally lacking.⁹

In 1993, the Government maintained control of the majority of large enterprises in key sectors of the economy, including mining and metallurgy, but promoted privatization of retail services, light industry, and private housing. In 1994, the Government planned to begin privatizing larger state enterprises and the privatization program continued to stress the need for state support for privatized enterprises. For some enterprises, public joint stock companies reportedly were to be formed enabling the Government, the work force, and foreign partners to own shares.

Plans called for privatizing a number of major mining and metallurgical enterprises in 1995, including the Uzalamazzoloto and Kyzyl Kum Zoloto gold mining associations that incorporated most of the country's gold producers; the Uzmetallurgprom enterprise that controlled iron and steel production; the Almalyk integrated metallurgical plant that produced copper, gold, lead, molybdenum, silver, and tungsten; and the Uzbek hard and heat-resistant alloys plant in Chirchiq producing tungsten and molybdenum metals and alloys. The Uzbek government planned to retain up to a 26% ownership share in these

enterprises.¹⁰

Regarding mineral production, although Uzbekistan possesses fairly large coal reserves estimated to be more than 2 billion mt, it did not meet its coal needs from domestic production. Coal consumption in Uzbekistan was about 8.5 million metric tons per year (Mmt/a) while output in 1993 was only 4.7 Mmt. Almost all of the country's coal was mined from the Angren brown coal deposit. Coal was mined at Agren from both underground and open pit operations; its ash content was between 20% to 25%.

The remaining coal was mined underground in the Surkhondaryo¹¹ (Surkkhandar'inskaya) region of southern Uzbekistan, which contains the Baysunskoye deposit, the country's second largest. Coal from Baysunskoye, which has a 5% to 7% ash content and a 0.7% sulfur content, was considered superior to that from Angren. It was planned to further develop the Baysunskoye deposit, not only as a source of fuels, but also as a source of raw materials for chemical products.¹²

Uzbekistan was the FSU's third largest copper producer. Practically all reserves were in three porphyry deposits the Kalmakyrkoye, Sarychekinskoye, and Dalnee, with total reserves reportedly estimated at 1.4 Mmt of copper. The Almalyk mining and metallurgical enterprise exploited the Kalmakyrkoye and Sarychekinskoye deposits with an average reported grade of 0.42% copper. The copper beneficiation plant at Almalyk was designed to process 30 Mmt/a of ore. Almalyk produced blister and refined copper and was preparing to exploit the Dalnee deposit reportedly graded at 0.36% copper. Furthermore, in 1993, geologists reported exploring two major new copper deposits in the eastern part of the Tashkent region in central Uzbekistan.¹³

Despite falling copper production, Uzbekistan reportedly planned to increase copper production by 40% by 1999. The majority of this increase was to come from the Almalyk mining and beneficiation complex where the U.S. firm Flour Daniel Williams Brothers was supplying technology for mining oxide ores. Although Uzbekistan has substantial copper reserves, about 85% of copper production came from the Kalmakyr open pit at Almalyk; the remaining output coming from the Sary Cheku deposit at the Almalyk complex. In 1992, the only year for which a reported copper production number for Uzbekistan was available, copper production was 83,000 mt. Almalyk, the only copper producer, employed about 18,000 persons.¹⁴

The German firm Thyssen Handelsunion AG reportedly signed a contract to upgrade the Almalyk metallurgical plant.¹⁵

Gold output in Uzbekistan reportedly increased in 1994.¹⁶ Uzbekistan produced about 75 mt/a of gold, of which about 55 mt came from the Navoi mining and metallurgical complex that mined the Muruntau deposit. Muruntau was the single largest gold mine in the FSU. Uzbekistan also produced byproduct gold from copper, lead, and zinc mining at the Almalyk complex with byproduct gold output

reportedly about 10 mt/a.

Western investors were participating in gold development in Uzbekistan. Uzbekistan reportedly has an estimated 2,500 to 3,000 mt of gold reserves, 1,000 mt of which were declared "suitable for extraction."¹⁷

Gold production was to be significantly increased by employing leaching technology to low-grade ores stockpiled at Uzbekistan's major gold field, the Muruntau deposit. The U.S.-based Newmont Mining Corp. was engaged in the Zarafshan-Newmont joint venture in Uzbekistan to process the material in these piles. The European Bank for Reconstruction and Development (EBRD) announced that it intended to help finance the Newmont joint venture.¹⁸

Plans call reportedly for The Zarafshan-Newmont joint venture to begin processing the material at Muruntau by May 1995. The venture reportedly would have a 17-year life-span, during which 156 mt of gold would be extracted; annual output reportedly was to begin at 14 mt/a and decrease to 7 mt/a.

The United Kingdom's Lonrho PLC signed an agreement with Uzbekistan to develop two lode deposits using biological leaching. These two deposits combined would produce 15 mt/a of gold with reserves sufficient for 27 years of production. Operations were planned to begin in 1998.¹⁹

Plans called for renovating the Bekabad steel mill; work already had begun on renovation of the electric furnaces. Bekabad's rolled steel was consumed in Uzbekistan, in other countries comprising the Commonwealth of Independent States (CIS), and in Europe and Asia. Its reinforced steel had been exported to China, Israel, Japan, and the United Kingdom among other countries.²⁰

Uzbekistan was the third largest lead and zinc producer among the countries of the FSU, but reportedly accounted for less than 10% of CIS lead and zinc reserves. Reserves reportedly totaled 1.1 Mmt of lead and 750,000 mt of zinc. Practically all lead and zinc reserves are in the Uch-Kulak deposit in the Jizzakh(Dzhizak) region in central Uzbekistan and the Khandiza deposit in the Qashqadar'yo (Kashkandar'inskaya) region in southern Uzbekistan.

At the Dalnee section, one of two sections of the Uch-Kulak deposit that accounted for more than 80% of Uzbekistan's lead output and about 70% of its zinc output, the metal content of the ore reportedly ranges between 1.8% and 4.8% for lead and 2.3% and 3.5% for zinc. In the other section of Uch-Kulak, the metal content of the ore reportedly ranges from 1.6% to 3% for lead and from 1.2% to 2.3% for zinc. An open pit at the deposit had a design capacity to mine 1.1 Mmt/a of ore. Ore from both the Uch-Kulak and Khandiza deposits were sent to Almalyk for processing. Khandiza contained about 18% of the country's lead reserves and 29% of its zinc reserves, with an average metal content of 3.2% lead and 6.3% zinc.²¹

Uzbekistan reportedly has the fourth largest molybdenum reserves among the FSU countries, estimated at 20,000 mt. Molybdenum was mined as a byproduct from the

Koytashskoye tungsten deposit and from the Kalmakyrskoye and Sary-Chekinskoye copper deposits—the molybdenum graded at the deposits, respectively, at 0.022%, 0.004%, 0.005%, and 0.007%. These three deposits reportedly have a combined capacity to produce 900 mt/a of molybdenum and reserves were estimated to be adequate for 29, 22, and 5 years, respectively. Uzbekistan had the capacity to produce 5.4% of all CIS molybdenum output.²²

Uzbekistan had two tungsten mining and processing enterprises, the Ingichka and Koytash, with respective design capacities for mining and processing of 500,000 mt/a and 165,000 mt/a. Uzbekistan reportedly had produced 6% of the tungsten output of the FSU. The largest deposit is the Ingichkinskoye deposit, with 54% of the country's reserves with the average tungsten trioxide content of the ore 0.619%; the tungsten trioxide content of the ore is 0.55% at the Karatyubinskoye and 0.39% at the Yakhtonskoye deposits.²³

Uzbekistan achieved considerable success in lessening its dependence on imported oil; oil imports from Russia decreased from about 4.5 Mmt/a in the early 1990's to about 750,000 mt in 1994.²⁴ Construction of a major oil refinery was underway in the Bukhoro (Bukhara) region that was planned by the end of the decade to eliminate Uzbekistan's need to import petroleum products. One refinery was in operation in Farghona (Fergana), supplying about one-half of the country's need for petroleum products. Commissioning of the first stage of the new refinery was targeted for 1996.²⁵

Uzbekistan is bordered by Kazakhstan to the north, Turkmenistan to the south, and Kyrgyzstan and Tajikistan to the east. This landlocked country contains a portion of the Aral Sea, the world's fourth largest inland sea, which is in the process of drying up as a result of one of the world's worst environmental catastrophes. The drying up of the Aral Sea is causing serious economic and health problems. Agricultural lands and the population of portions of Uzbekistan are being affected by salts and contaminants blown from the dry sea bottom and also by climatic changes resulting in a hotter, dryer climate less favorable for agriculture. The Aral Sea is fed by two major rivers: the Amudarya, which flows through Uzbekistan, and the Syrdarya, which flows through Kazakhstan. A significant portion of the waters from both rivers was being diverted for irrigation, which was one of the main reasons for the drying up of the Aral Sea.

As of 1990, Uzbekistan had 3,460 kilometers (km) of

railroads, not including industrial lines, and 78,400 km of highways, of which 67,000 km was hard surfaced. The country also has an extensive gas pipeline network; natural gas provided about two-third of the country's energy.

Uzbekistan was in a more favorable position regarding its balance of trade than some other countries of the FSU because of its large gold output and reserves. Gold would contribute even more to Uzbekistan's economy if, as is expected, production increases to possibly double its current level. Still, many of Uzbekistan's other mineral industries were faced with problems similar to those of other FSU republics. Its nonferrous metals industries and industrial minerals industries were facing shrinking markets in the FSU as well as a breakdown in the former system that supplied parts and equipment as well as subsidies to these mineral industries. These industries were reassessing their ability to compete on world markets, in particular, their energy and transportation costs, in determining their viability.

¹Text prepared July 1995.

²Summary of World Broadcasts, British Broadcasting Corp. (Reading, England). p. A/3, June 11, 1993. Interfax News Agency, June 6, 1993.

³Interfax Business Report, Denver, Colorado, Feb. 7, 1995, p.4.

⁴Interfax Statistical Report, Denver, Colorado, Feb. 10-17, 1995 p. 26.

⁵Interfax Mining Report, Denver, Colorado. Sept. 17-24, 1993, p. 12.

⁶_____, 11-18, 1994, pp. 14-15.

⁷_____, May 13-20, 1994, p. 4.

⁸Radio Free Europe/Radio Liberty Research Report, News Briefs, Jan. 10-21, 1994, p. 10.

⁹Interfax Mining Report, Interfax-America, Denver, Colorado. Mar. 11-18, 1994, p. 16.

¹⁰Interfax Mining and Metals Report, Denver, Colorado, Feb. 17-24, 1995, p. 16.

¹¹New names and spellings for cities and regions in Uzbekistan will be used whenever possible based on the availability of information; the old name will be given in parenthesis the first time the new name is used in this report. The old names will appear on the map which is the latest U.S. Government base map of this series issued as of the date of the preparation of this report.

¹²Interfax Mining Report, Interfax-America, Denver, Colorado. Oct. 1-8, 1993, p. 6.

¹³_____, Sept. 10-17, 1993, p. 5.

¹⁴_____, Sept. 30-Oct. 7, 1994, p. 10.

¹⁵_____, Jan. 20-27, 1995, p. 9.

¹⁶Interfax Business Report, Denver, Colorado, Feb. 21, 1995, p. 3. Interfax Mining and Metals Report, Denver, Colorado, Jan. 13-20, 1995, p. 4.

¹⁷_____, Jan. 13-20, 1995, p. 4.

¹⁸American Mining Congress Journal. Washington, DC., Jan. 1, 1994, p. 24.

¹⁹_____, May 13-20, 1994, p. 5. Interfax Mining and Metals Report, Denver Colorado, Feb. 3-10, 1995, p. 10.

²⁰Summary of World Broadcasts, British Broadcasting Corp. (Reading, England), p. WD/6, May 27, 1994. Uzbek Radio Tashkent, May 22, 1994.

²¹Interfax Mining Report, Denver, Colorado, Sept. 17-24, 1993, p. 12.

²²_____, Oct. 1-8, 1993, p. 7.

²³Work cited in footnote 21.

²⁴Rabochaya Tribuna, Moscow, 18 Feb 95, p. 2. Sept. 17-24, 1993, p. 12.

²⁵Foreign Broadcast Information Service, U.S. Government. (Washington, DC). Jan. 14, 1994, p. WD/10, APN Uzbekistan News Agency, Tashkent, In Russian, Jan. 5, 1994, 1108 gm.

TABLE 1
 UZBEKISTAN: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994
Bismuth	15	10	10
Cement	6,000,000	5,300,000 2/	530,000
Coal	4,700,000	3,800,000 2/	3,800,000 2/
Copper:			
Mine output, Cu content	890,000	80,000	75,000
Metal	83,000	70,000	65,000
Blister	83,000	70,000	65,000
Refined	83,000	70,000	65,000
Feldspar	80,000	70,000	70,000
Fluor spar	100,000	90,000	90,000
Gold	70	70	75
Kaolin	7,000,000	6,000,000	6,000,000
Lead, mine output, Pb content	20,000	20,000	20,000
Molybdenum, Mine output, Mo content	700	650	650
Natural gas, billion cubic meters	40,000	45,000 2/	47,200 2/
Petroleum, crude	3,300,000	4,000,000 2/	5,500 2/
Steel, crude	630,000 2/	573,000 2/	352,000 2/
Tungsten, Mine output, W content	700	650	650
Zinc:			
Mine output, Zn content	50,000	45,000	45,000
Metal, smelter	55,000	50,000	50,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Estimates based on information available through July 7, 1995.

3/ Reported figure.

TABLE 2
UZBEKISTAN: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(Metric tons unless otherwise specified)

Commodity	Major operating facilities	Location	Annual capacity e/
Bismuth	Ustarasayskoye deposit	Chatkalo-Kuraminskiy Region	20.
Coal	Central Asian coal association (mining) Angren brown coal deposit Baysunskoye deposit	Angren Region Surkhondaryo Region	6,000,000 1,000,000
Copper			
Mine output, Cu content	Almalyk mining-metallurgical complex	Kalmakyrskoye, Sarychekinskoye deposits	100,000
Metal	Almalyk refinery	Olmaliq (Almalyk)*	130,000.
Feldspar	Karichasayskoye and other deposits	Deposits in Samarqand (Samarkand) and Tashkent (Tashkent) regions and Karakalpakstan (Karakalpaks kaya ASSR)	120,000.
Fluorspar	Agata-Chibargatinskoye, Naugiskenskoye deposits	East of Tashkent (Tashkent)	150,000
Gold	Muruntau deposit	Nawoiy (Navoi) Region	85.
Kaolin	Central Asian coal association	Angren deposit	8,000,000
Lead-Zinc			
Mine output, metal content	Almalyk mining and metallurgical complex	Uchkulachskoye deposit	40,000 (lead).
Do.	do.	do.	80,000 (zinc).
Zinc, metal	Almalyk refinery	Olmaliq (Almalyk)	120,000.
Molybdenum	Almalyk mining and metallurgical complex, Koytash tungsten-molybdenum mine	Kalmakyrskoye, Koytashskoye, Sarychekinskoye deposits	900
Natural gas liquids	Mubarek gas processing plant	Mubarek	1,200,000.
Petroleum and natural gas	More than 40 oil and gas deposits and more than 15 gas deposits under exploitation	Oil deposits in Farghona and Surkhondaryo regions, major gas deposits: Dzharkakskoye, Gazlinskoye, Mubarekskoye, and Shurtanskoye	50 billion cubic meters (natural gas).
Do.	do.	Oil deposits: Khaudagskoye, Uchkyzylskoye, Kokaytinskoye in Surkhondaryo region; Palvantashskoye, Yashiy Alamyshikskoye, Sharikhan-Khodzhiabadskoye in Farghona Region	5,000,000 (petroleum).
Steel, crude	Bekabad steel mill	Bekabad	1,100,000
Tin	Karnabskoye, Lapasskoye deposits	Karnab Region	NA.
Tungsten, mine output, W content	Koytashskoye, Ingichkinskoye Lyangarskoye, Karatyubinskoye Yakhtonskoye deposits	Ingichka, Koytash, Lyangar Regions	1,200
Tungsten, metal	Chirchik metals plant	Chirchiq (Chirchik)	NA.
Sulfur	Mubarek gas processing plant complex	Mubarek	2,000,000.
Uranium	Navoi mining complex	Nawoiy (Navoi) region	NA.

e/ Estimated. NA Not available.

1/ New names and spellings for locations will be used whenever available; old names will appear in parentheses.