

2023 Minerals Yearbook

TURKMENISTAN [ADVANCE RELEASE]

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World rankings for mineral production, shares of world production, and reserves presented in this chapter are derived from the referenced sources. Production data in this chapter may differ from data in other sources because of differences in the date of reporting.

THE MINERAL INDUSTRY OF TURKMENISTAN

By Karine M. Renaud

In 2023, Turkmenistan's most economically important mineral products were iodine, natural gas, petroleum, and sulfur. Excluding United States production, Turkmenistan ranked third in the world in iodine production in 2023. The country was the world's 12th-ranked producer of natural gas and accounted for 1.9% of world output. Turkmenistan was the second-ranked producer of natural gas among members of the Commonwealth of Independent States (CIS). The country was the world's 38th-ranked producer (and 4th-ranked producer among CIS members) of crude petroleum (table 1; Apodaca, 2024; Energy Institute, 2024, p. 21, 37; Schnebele, 2024).

Turkmenistan's real gross domestic product (GDP) increased by 2.0% in 2023 compared with an increase of 5.3% (revised) in 2022 owing to a decrease in commodity prices and restrictive monetary policy. In 2023, China was the main destination for natural gas exports from Turkmenistan with 30.5 billion cubic meters; Russia, 4.7 billion cubic meters; other CIS members, 3.9 billion cubic meters; and Kazakhstan, 0.4 billion cubic meters. Hydrocarbons accounted for more than 90% of total exports. The output of the industrial sector increased by 4.3% in 2023 owing to an increase in construction, building materials, hydrocarbon and chemical processing, and manufacturing. Turkmenistan's foreign direct investment inflows amounted to \$1.4 billion in 2023 compared with \$936 million in 2022 (United Nations Conference on Trade and Development, 2023, p. 198; Asian Development Bank, 2024, p. 87; Energy Institute, 2024, p. 45; International Monetary Fund, 2024).

Turkmenistan is one of a founding member of the CIS, which was formed in 1991. In 2022, members of the World Trade Organization (WTO) agreed to initiate talks on the accession of Turkmenistan to the organization. In 2021, Turkmenistan officially applied to join the WTO. In November 2021, the country joined as an observer to the Organization of Turkic States (OTS) at the OTS Summit in Turkey (World Trade Organization, 2022; Commonwealth of Independent States, 2024; Organization of Turkic States, 2024).

The use and protection of the mineral resources of Turkmenistan is regulated by the Law on Subsoil 2014 (formerly the Law on Subsoil 1992), which was amended and implemented on December 23, 2014 (as amended by the Law of Turkmenistan on January 5, 2018, No. 685-V). According to the law, the subsoil and its resources throughout Turkmenistan, including the Caspian Sea sector, are the property of the state and cannot be purchased or sold. The objectives of the amended Law on Subsoil 2014 include the following: (1) protection of the interest of Turkmenistan and its citizens, rights of subsoil users, and mineral resources; and (2) establishment of legal guarantees and creation of favorable conditions for the economic growth of the country and for investors. The law also states that the companies that use subsoil areas should conduct complete and complex geologic exploration, efficiently use mineral resources, pay

fees for the use of subsoil resources, and follow environmental requirements to prevent contamination of the subsoil. The law also includes a section on the government cadastre of technogenic mineral formations (waste from mining and processing of minerals), which states that all technogenic mineral formations should be certified and registered (type of technogenic materials, storage conditions, quality, and quantity) for further use and protection of the environment. This section is maintained by the Geological Fund of Turkmenistan. All activities related to crude petroleum are controlled by the Hydrocarbon Resources Law of 2012. If a signed international agreement includes rules that differ from the Hydrocarbon Resource Law, then the rules of the international agreement would be applied (U.S. Department of State, 2013; Food and Agriculture Organization of the United Nations, 2014, p. 1, 6–7, 16–20; AzerNews, 2015; Ministry of Adalat of Turkmenistan, 2021).

In addition, according to the Law on Subsoil 2014, the use and protection of mineral resources is overseen by the Cabinet of Ministers of Turkmenistan, Federal agencies, and local authorities. The Cabinet of Ministers also includes the State Commission on Mineral Resources. Exploration licenses are valid for 6 years and can be extended for 2 years, mining licenses are valid for 20 years and can be extended for 5 years, and exploration and mining (combined) licenses are valid for 25 years. The licenses that have no expiration date include those of construction and exploitation of underground structures for waste, crude oil, and natural gas storage (Food and Agriculture Organization of the United Nations, 2014, p. 7–17; AzerNews, 2015).

Detailed production data and other information regarding mineral production for most mineral commodities in Turkmenistan, except natural gas and crude petroleum, have not been available for a number of years. Production estimates in table 1 are based on past levels of production and occasional published data reported by the mass media. In 2023, production of cement increased by 29%; iodine, by an estimated 21%; crude petroleum (including condensate), by 13%; and natural gas, by 10%. Data on mineral production are in table 1.

Turkmenistan's total trade value, including exports and imports, decreased by 3.7% to \$21.1 billion in 2023 from \$21.9 billion (revised) in 2022. Total exports were valued at \$13.3 billion, and total imports were valued at \$7.8 billion. In 2023, Turkmenistan's main export partners were China (which received 65.4% of Turkmenistan's exports by value), Turkey (11.3%), the countries of the European Union (8.9%), Azerbaijan (4.7%), and Uzbekistan (3.8%). The country's main import partners were Turkey (which supplied 29.7% of Turkmenistan's imports), China (28.8%), the countries of the European Union (21.5%), Japan (5.2%), and Uzbekistan (3.4%) (European Commission, 2024, p. 8; International Monetary Fund, 2024).

In 2023, imports by Turkmenistan from the United States were valued at about \$56.16 million compared with \$48.99 million in 2022; these imports included \$8.6 million in other chemicals; \$7.1 million in inorganic chemicals; \$1.3 million in drilling and oil equipment; \$599,113 in excavating machinery; \$270,532 in iron and steel products; \$246,800 in petroleum products; \$95,696 in finished metal shapes; and \$25,397 in organic chemicals (U.S. Census Bureau, 2024).

Commodity Review

Industrial Minerals

Cement.—In 2023, production of cement increased to 2.7 million metric tons (Mt) from 2.1 Mt (estimated and revised) in 2022. As of 2023, there were four operating cement plants in Turkmenistan—Baherden, Jebel (clinker), Kelete, and Lebap. Three of these cement plants—Baherden, Jebel (clinker), and Lebap—were operated by TurkmenCement Production Association (TurkmenCement). The Baherden and Jebel cement plants (which were in Balkan Velayat and Ahal Velayat, respectively) each had a production capacity of 1.0 million metric tons per year (Mt/yr) of cement. The Kelete cement plant, located in Ahal Velayat, was operated by JSC Kelyatinskiy Cement and had a production capacity of 670,000 metric tons per year (t/yr) (tables 1, 2; Business Turkmenistan, 2023a).

In 2023, TurkmenCement completed an upgrade to the Lebap cement plant located in Koytendag, Lebap Velayat. The upgrade included installation of a 1,050,000-t/yr kiln line supplied by thyssenkrupp Industrial Solutions AG of Germany. As a result, the Lebap cement plant had a production capacity of 2.0 Mt/yr of cement (Global Cement, 2023).

Iodine.—In 2023, iodine was extracted from natural iodine-containing brines and from petroleum waste. The production of iodine increased to an estimated 770 metric tons (t) in 2023 from 639 t (revised) in 2022. Three iodine plants were operating in Balkan Velayat: the Bereket plant, which was operated by Himiya Senagat Economic Society, and the Khazar chemical plant and the Balkanabat plant, which were operated by Government-owned SI Turkmenhimiya Holding. In 2023, the country also began producing iodine from oil waste left over from crude petroleum production at the Goturdepe Oilfield. According to the National Program for Socio-Economic Development for 2019–2025, the production of iodine in Balkan Velayat was expected to increase to 1,030 t/yr by 2025. In 2023, Turkmenistan exported 519 t of iodine compared with 608 t (revised) in 2022, which was a decrease of 15% from 2022. Turkmenistan exported iodine to the United Kingdom (which received 39% of the iodine by tonnage), China (29%), India (14%), Turkey (8%), and the Netherlands (5%) (tables 1, 2; Business Turkmenistan, 2023b, c; News Central Asia, 2023; Zen Innovations AG, 2024).

Potash.—In 2019, SI Turkmenhimiya Holding filed a \$911 million claim against JSC Belgorkhimprom of Belarus for its failure to produce the expected 720,000 t of potash in the first 8 months of 2018 at the Garlyk potash ore and mining complex. Only 24,000 t was produced during that period, despite the plant's designed production capacity of 1.4 Mt/yr. A hearing with the Arbitration Institute at Stockholm

Chamber of Commerce of Sweden was expected to be held in February 2022, but no details on the hearing's outcome were available in 2023 (tables 1, 2; Eurasianet, 2018; Charter97, 2019; AFN, 2022; Turkmenhimiya State Concern, 2024).

Mineral Fuels

Natural Gas.—In 2023, Turkmenistan produced 86.5 billion cubic meters of natural gas, which was an increase of 10.5% compared with that in 2022. In 2023, the Governments of Pakistan and Turkmenistan signed an agreement to work jointly on construction of the Pakistan portion of Turkmenistan-Afghanistan-Pakistan-India (TAPI) natural gas pipeline. In 2022, representatives from the newly established Government of Afghanistan and the Presidents of Pakistan and Turkmenistan agreed to restart the construction of the Afghanistan portion of the TAPI natural gas pipeline; however, security concerns remained as a challenge for realization of this part of the project. The 1,814-kilometer-long pipeline was expected to transport a total of 90 million cubic meters per day from the Galkyhysh field, of which 14 million cubic meters per day was expected to be transported to Afghanistan and 38 million cubic meters per day each to Pakistan and India.

In June 2022, the Governments of Turkmenistan and China resumed discussions on the construction of a fourth Central Asia–China natural gas pipeline through Turkmenistan, Uzbekistan, Tajikistan, and China. However, the construction was delayed because of a price dispute between the participating countries (table 1; Enerdata, 2020; United Nations Conference on Trade and Development, 2021, p. 91; Bhutta, 2022; Big Asia, 2022; Interfax, 2022; Embassy Life, 2023; Offshore Technology, 2023; Kun.uz, 2024).

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TABLE 1
TURKMENISTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2019	2020	2021	2022	2023	
METALS						
Iron and steel, products, rolled	NA	NA	160,000	100,000 ^r	100,000	
INDUSTRIAL MINERALS						
Cement, hydraulic	2,400,000 ^e	1,900,000 ^e	2,000,000 ^{r, e}	2,100,000 ^{r, e}	2,700,000	
Clay, bentonite:						
Powder ^e	500	500	510	500 ^r	500	
Other, unspecified	10,000	10,000 ^e	10,200 ^e	10,000 ^{r, e}	10,000 ^e	
Gypsum ^e	110,000	116,000	122,000	120,000	120,000	
Iodine	600 ^e	700 ^e	746	639 ^r	770 ^e	
Lime ^e	24,000	25,000	26,000	27,000	28,000	
Nitrogen, N content:						
Ammonia	600,000 ^e	660,000	468,923	600,000 ^e	556,500	
Urea	451,000 ^e	766,500	989,111	1,130,000 ^e	1,032,000	
Potash, K ₂ O content	35,000	20,000 ^e	20,000 ^e	-- ^{r, e}	-- ^e	
Salt	105,000 ^e	94,644	96,000	97,000 ^{r, e}	98,000 ^e	
Sodium, compounds, sodium sulfate ^e	86,000	91,000	91,000	112,000	113,000	
Sulfur, S content	660,000 ^e	700,000 ^e	700,000 ^e	862,000	870,000 ^e	
MINERAL FUELS AND RELATED MATERIALS						
Natural gas	million cubic meters	63,200	66,000	79,300	78,300 ^r	86,500
Petroleum:						
Crude, including condensate	thousand 42-gallon barrels	88,900	76,650	84,700 ^r	85,400 ^r	96,250
Refinery	do.	42,700	41,300	42,000 ^r	43,400 ^r	46,000 ^e

^eEstimated. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through June 26, 2024. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, barite, bench gravel, bromine, coal, dolomite, epsomite, kaolin, limestone, and sulfuric acid may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
TURKMENISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location names	Annual capacity ^e
Bromine	metric tons	SI Turkmenhimiya Holding (Government, 100%)	Bereket plant, Bereket, Balkan Velayat	340
Do.	do.	do.	Balkanabat plant, Balkan Velayat	240
Cement		JSC Kelyatinskiy Cement	Kelete cement plant, 75 kilometers west of Ashgabat, Ahal Velayat	670
Do.		TurkmenCement Production Association (Government, 100%)	Lebap cement plant, Koytendag, Turkmenabat region, Lebap Velayat	2,000
Do.		do.	Baherden cement plant, Ahal Velayat	1,000
Cement, clinker		do.	Jebel cement plant, Jebel, Nebidtag region, Balkan Velayat	1,000
Clay, bentonite	metric tons	Leader Format LLC	Oglanly Mine, Oglanly region, Balkan Velayat	240
Do.		Yashlyk Co.	Ak Buday region, Ahal Velayat	NA
Gypsum		IA Turkmenmineral	Tagorin deposits, Mukry, Lebap Velayat	NA
Do.		Krasnovodsk Aylagy (anhydride) deposit	9 kilometers east of Turkmenbashy	NA
Do.		Wastes from Gaurdak sulfur deposit	Gora Gaurdak mine, Lebap Velayat	NA
Iodine	metric tons	Himiya Senagat Economic Society	Bereket plant, Bereket, Balkan Velayat	350
Do.	do.	SI Turkmenhimiya Holding (Government, 100%)	Khazar chemical plant, Cheleken Peninsula, Balkan Velayat	230
Do.	do.	do.	Balkanabat plant, Balkan Velayat	355
Limestone		Bakhcha deposit	5 kilometers south of Kolyata railway station, Balkan Velayat	NA
Do.		Gyaurs deposit	3 kilometers south of Gyaurs railway station, Balkan Velayat	NA
Do.		NA	2 kilometers from Ayribobo mountain, Lebap Velayat	NA
Do.		Shadam deposit	3 kilometers west of Turkmenbashy Balkan Velayat	NA
Do.		Umgal deposit	North shore of Soimonova Bay	NA
Limestone for cement		Gaurdak deposit	Quarries 4 kilometers northeast of Gaurdak	NA
Natural gas	million cubic meters	China National Petroleum Corp. (CNPC)	Amu Darya basin, onshore	5,000
Do.	do.	Dauletabad; Dovieta-Denmez (Donmez); Gygrylinskoye; Ioltan (South Yolotan-Osman); North and South Naipskiye; Shatlyk; and Yashlar gasfields (SI Turkmengaz)	Onshore fields in eastern and southwestern parts of the country and offshore in the Caspian Sea Murgab basin; Dashoguzskiy	90,000
Do.	do.	Eni Turkmenistan Ltd. (Government of Italy, 32.4%; Eni S.p.A., 5.35%; Vanguard Group Inc., 2.26%; and others, 60%)	Burun project, Nebitdag Block, onshore	60
Nitrogen, N content:				
Ammonia		SI Turkmenhimiya Holdings (Government, 100%)	Ammonia plant at Mary City, Mary Velayat	660
Urea		do.	Garabogazcarbamid plant, Balkan Velayat	890
Petroleum:				
Crude	thousand 42-gallon barrels	Barsa-Gelmesskoye; Burunskoye, Cheleken; Gograndagskoye; Ioltan (South Yolotan-Osman); Kamyshldzhinskoye; Korturtepinskoye; Kum Dag; Kuydzhiyskoye; Okaremskoye; and Yashlar oilfields	Centered in Caspian plain in west Turkmenistan and in offshore oilfields to the west of the Cheleken Peninsula in the Caspian Sea	81,000
Do.	do.	Dragon (Turkmenistan) Ltd. (Dragon Oil Plc, 100%)	Cheleken basin, eastern section of Caspian Sea, offshore	35,000
Do.	do.	Eni S.p.A. (Government of Italy, 32.4%; Eni S.p.A., 5.35%; Vanguard Group Inc., 2.26%; and others, 60%)	Nebitdag Block, Balkan Velayat, onshore	3,000

See footnotes at the end of the table.

TABLE 2—Continued
TURKMENISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2023¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location names	Annual capacity ^c
Petroleum:—Continued				
Refined	thousand 42-gallon barrels	Turkmenbashi Complex of Oil Refineries (TCOR) (Government, 100%)	Refineries in Lebap and Balkan Velayats	78,000
Potash		SI Turkmenhimiya Holding (Government, 100%)	Garlyk potash ore and mining complex, southeast of Turkmenistan ²	24
Salt:				
Iodized salt		Guwlyduz Enterprise	Guwlyduz salt factory in Balkan Velayat	60
Rock salt		Gaurdak deposit	8 kilometers from Gaurdak, Lebap Velayat	15
Do.		Karikan deposit	60 kilometers northwest of Kelifa City	NA
Do.		Khodja-i-Kon deposit	23 kilometers northwest of Garlyk	NA
Do.		Kugi-Tang deposit	44 kilometers north of Garlyk	2
Do.		Lyalim-Kan deposit	43 kilometers north of Garlyk	NA
Do.		Torangly deposit	20 kilometers southwest of Uzun-Su, Balkan Velayat	NA
Do.		Uzun-Kuduk deposit	22 kilometers north of Garlyk	2
Salt brine		Baba-Khodja deposit	23 kilometers southwest of Neftedag, Balkan Velayat	NA
Do.		Kurdolayn deposit	45 kilometers north of Gasan-Kuli Gulf	NA
Do.		Kuuli deposit	40 kilometers north of Turkmenbashy	NA
Do.		Malla-Kara deposit	Along the Uzboi channel	NA
Do.		Sandyk deposit	Southern part of Mikhailov Gulf	NA
Do.		Sazykly deposit	On the shore of Balkhan Gulf	NA
Do.		Sultan-Sanjar deposit	Left shore of Amu-Darya River	NA
Do.		Teke-Nemkzar deposit	Er-Oylan area, Badkhyz region	NA
Sodium sulfate		Ak-Gez and Torangy deposits	Deposits at Uzun-Su Station	NA
Do.	metric tons	Karabogazsulfate Association	Bekdash, Kyzyl-Kup, and Umachal deposits, Kara-Bogaz-Gol Lagoon (off the Caspian Sea)	100
Do.	do.	SI Turkmenhimiya Holding (Government, 100%)	Garabogazcarbamid plant, Balkan Velayat	400
Do.		NA	Deposit near mountains in Ashgabat	NA
Steel products, rolled		Turkmen Iron and Steel Plant (Government, 100%)	Plant near Ashgabat	160
Sulfur, S content		Kurkutly deposit	70 kilometers northeast of Turkmenbashy mountains	NA
Do.		Kyrk-Djul'ba deposit	Central Karakum	NA
Do.		Turgai-Dak deposit	15 kilometers north of Bala-Ishem, Balkan Velayat	NA
Do.		State Concern Turkmengaz (Government, 100%)	Three plants, Galkynysh, Mary Velayat	600
Sulfuric acid		SI Turkmenhimiya Holding (Government, 100%)	Plant in Turkmenabat, Lebap Velayat	500

Do., do. Ditto. NA Not available.

^cEstimated; estimated data are rounded to no more than three significant digits.

¹Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and locations.

²The plant was not producing potash since 2022.