

THE MINERAL INDUSTRY OF TURKMENISTAN

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Turkmenistan, occupying an area of 488,100 square kilometers (an area slightly larger than the State of California), is the fourth largest country in land mass to form from the former Soviet Union (FSU). The territory of Turkmenistan is divided into five administrative velayats (regions)—the Akhalekyi, Balkansky, Dashkhovuaky, Lebapsky, and Maryisky. Although Turkmenistan is large in area, the Kara Kum desert covers 90% of the country. The country's 4.5 million inhabitants make it the fourth smallest, in terms of population, of the countries of the FSU.

Turkmenistan has substantial energy resources, including natural gas and oil. It had ranked among the world's leading gas producers and had been the second largest natural gas producer in the FSU after Russia. By 1977, however, Turkmenistan had fallen to fourth place in natural gas production in the FSU following Russia, Uzbekistan, and Ukraine as the country's gas production had fallen by about 80% compared with that of 1991. The country also has a wide variety of industrial mineral resources, including bromine, iodine, potash, salt, sodium sulfate, and sulfur. Following is a list of the major industrial mineral producing enterprises.

List of Industrial Mineral Enterprises

A. Enterprises Subordinate to the Turkmenistan Ministry of Energy and Industry

1. The Industrial Association Turkmenmineral

The industrial association Turkmenmineral is located in the city of Gowurdak in the Lebep velayat. The enterprise was established in 1934. The Gourdak sulfur enterprise was formed on the basis of the Gowurdak sulfur deposit. It employed about 5,000 persons.

Turkmenmineral had the following production capacity:

Lumpy sulfur—300 thousand metric tons (t)
Ground sulfur—40,000 t
Gypsum—300,000 t
Wall stone—25,000 t
Construction material—130,000 t
Salt—25,000 t
Limestone—10,000 t
Limestone flour—10,000 tons

2. Maryazot Association

The association is located 12 kilometers (km) from Mary. It comprised the Turkmen plant of nitrogenous fertilizers and the

Turkmen carbamide plant. The number of personnel was 2,400. The enterprise used natural gas from the Shatlyk deposit.

The Maryazot Association had the following production capacities:

Ammonium nitrate—450,000 t
Ammonia—400,000 t
Nitric acid—360,000 t
Carbonic acid: liquid—3,000 t; solid—1,500 t
Carbamide—400,000 t
Defoliant—12,000 t

3. Nebitdag plant

The plant is located in the Vyshka settlement, 26 km southwest from the city Nebitdag in the Balkan velayat; the plant was commissioned in 1969. The number of personnel employed was 335. Nebitdag utilized raw materials from the Monjoukley deposit.

The Nebitdag plant's production capacities included:

Iodine—255 t
Ferrous bromine—3,200 t

4. Cheleken Chemical Plant

The plant is located 2 km north of the city of Cheleken in the Balkan velayat.

The Cheleken plant's production capacities included:

Iodine—335 t
Ferrous bromine—6,400 t
Iodine potassium—60 t
Iodate potassium—45 t
Iodineform—60 t
Sodium hypochloride—100 t

5. Gouvlyoudyz complex

The complex is located in the Gouvly-Mayak settlement in the Turkmenbashi etrap of the Balkan velayat. The complex was established in 1965, on the basis of a mine in operation since 1895. The complex employed 470 people. The Kououlyu deposit provided the raw material. The complex had the capacity to produce 680,000 metric tons per year (t/yr) of coarse salt and

160,000 t/yr of common salt.

6. Karabogazsulfate Association

The Association, established in 1929, is located in the Bekdash settlement of the Balkan velayat. It employed 2,013 personnel. The association used the buried intercrystalline brines of the Karabogazsulfate bay as raw material.

Karabogazsulfate's production capacities included:

Sodium sulfate—400,000 t
Bischofite—100,000 t
Epsomite—35,000 t
Glauber's salt—10,000 t
Common salt—20,000 t

B. Enterprise Subordinate to the Ministry of the Construction Materials Industry

1. Byuzmein cement plant

The plant, established in 1950, is located in the city of Byuzmein in the Akhal velayat and employed 787 personnel. The cement plant used local raw materials, such as pebbles and loamy soils of the Byuzmein deposit and argyllites and gypsum of the Yagman and Gaourdak deposits. The plant had the capacity to produce about 1 million metric tons per year of portland cement, as well as certain construction materials.

C. Enterprise Subordinate to the Ministry of the Oil and Gas Industry and of Mineral Resources

1. Oglanly mine

The mine, located in the Oglanly settlement 37 km from Jebel in Balkan Velayat, was built in 1934. Industrial exploration began in 1936. It employed 94 people. The mine had the capacity to produce about 100,000 t/yr of bentonite, which was exported to Russia, Kazakstan, Ukraine, Uzbekistan, and Belarus.

Source: Embassy of Turkmenistan, Processing Enterprises. (Accessed at <http://mh102.infi.net/embassy/>)

In 1997, industrial production fell by 29.2% compared with that of 1996, mainly because of the fall in natural gas production that took place when Turkmenistan decided to stop shipping gas to countries of the Commonwealth of Independent States (CIS) that were far behind in their payments. Industrial output comprised 53% of the gross domestic product in 1997, and the fuel and energy sector accounted for about 50% of industrial production. Output of natural gas fell by 51%, compared with that of 1996, to 17.3 billion cubic meters. Output of oil, however, increased by 9% to 4.7 million metric tons (Mt) (Interfax Statistical Report, 1998). In the industrial minerals sector, output of bentonite, cement, iodine, lime, sodium sulfate and sulfur increased compared with that of 1996. Production of bischofite, bromine, gypsum, nitrogenous fertilizers, and salt, however, decreased compared with that of 1996. (See table 1.)

Turkmenistan's main exports were cotton fiber, natural gas, and petroleum refinery products, which accounted for 84.6% of all exports. The country exported 6.5 billion cubic meters of natural gas in 1997, which was a 70% decrease compared with 1996 exports (Interfax Statistical Report, 1998). In March, Turkmenistan stopped gas deliveries to Ukraine and the Caucasus countries because of rising debts (Interfax Petroleum Report, 1997). Exports of oil and refinery products rose by 27% owing to an increase in oil extraction and refinery output. The largest increase in exports was for crude oil, which rose to 329,999 metric tons (t) in 1997 from 193,000 t in 1996. While in 1996 crude oil was exported to Iran, Liberia, and Switzerland, in 1997, Turkmenistan also began shipping crude oil to Azerbaijan, Romania, Russia, and the United Kingdom. Exports of petroleum refinery products increased to 2.458 Mt compared with 1,980 Mt in 1996. The largest importer of refinery products from Turkmenistan was Iran, which bought about 1,396 Mt followed by Russia with 235,700 t, Austria with 158,900 t, and Azerbaijan with 127,000 t. Turkmenistan, however, was also an importer of refinery products. Imports fell to 53,100 t in 1997 from 71,500 t in 1996 (Interfax Statistical Report, 1998).

According to information from the U.S. Embassy in Ashgabat reported by the Business Information Service for the Newly Independent States (Bisnis) at the U.S. Department of Commerce, Turkmenistan is seeking investors for a number of industrial minerals production projects proposed by Turkmenistan's Ministry of Energy and Industry, which Turkmenistan believes, along with energy, have the potential to generate significant revenue for the country (U.S. Department of Commerce, July 29, 1997, IMI—Turkmenistan—List of investment projects in the chemical industry, Accessed June 4, 1998, at URL <http://www.itaiep.doc.gov/bisnis/cables/970730t.htm>)

Investors were being sought to upgrade the Nebitdag iodine and bromine production plant in the village of Vyshka 30 km from Nebitdag. The reported concentration of bromine in the water is 412 grams per cubic meter (g/m^3), and the iodine concentration is 33 g/m^3 . The current production capacity of the plant is 3,000 metric tons per year (t/yr) of ferrous bromide and 300 t/yr of iodine.

Investors also were being sought for a number of new iodine and bromine production projects. These included the Boyadag iodine and bromine plant at the Boyadag field 55 km from Nebitdag. The field reportedly contains water with a concentration of 380 g/m^3 of bromine and 35 g/m^3 of iodine. Plans call for the plant to produce 2,500 t/yr of bromine and 250 t/yr of iodine.

Investment also was being solicited for the construction of the Gograndag iodine and bromine plant at the Gograndag-Garadshali field 60 km from Nebitdag. The field contains water with a reported bromine concentration of 403 g/m^3 and an iodine concentration of 32.5 g/m^3 . Planned production at the plant is 5,000 t/yr of bromine and 500 t/yr of iodine.

Opportunities for investment existed in the construction of the Goturdepe iodine and bromine production plant at the Goturdepe oilfield where several oil wells are in operation 32 km from Cheleken and 78 km from Nebitdag. The bromine concentration in the water reportedly is 190 g/m^3 , and the iodine concentration 28 g/m^3 . Projected production at the plant is between 1,000 and

1,300 t/yr of bromine and 100 and 150 t/yr of iodine.

Investment opportunities also were being promoted for construction of the Achak iodine and bromine plant at a gasfield 18 to 20 km from the village of Gasachak. Reportedly, the bromine concentration in the water is 370 g/m³, and the iodine concentration 15 g/m³. The projected capacities of the plant are 2,000 t/yr of bromine and 80 t/yr of iodine.

Investors were being sought for the development of potash production at the Karluskoye deposit 20 km from Gaurdak in the Lebapsky velayat with annual output projected to be between 200,000 and 250,000 t of potassium chloride; for a urea (carbamide) production facility planned at the Chardzhou chemical plant with a projected annual capacity of 350,000 t of urea and 200,000 t of ammonia; and for a sodium carbonate production facility planned near Gaurdak with an annual capacity of 150,000 t.

For development of metallic compounds for the chemical industry, efforts were underway to attract investment to develop magnesia production at the Karabogazsulfate enterprise in the city of Bekdash. Plans called for producing from 5,000 to 12,000 t/yr of magnesium and from 50,000 to 100,000 t/yr of magnesia and for development of a strontium carbonate plant near the Arikskoye and Sakyrtninskoye deposits near Gaurdak. The plant was projected to have an annual production capacity of 20,000 t of strontium carbonate. The construction site is near the existing Gaurdak sulfur plant (U.S. Department of Commerce, July 29, 1997, IMI—Turkmenistan—List of investment projects in the chemical industry, accessed June 4, 1998, at URL <http://www.itaiep.doc.gov/bisnis/cables/970730t2.htm>).

Turkmenistan considered its major opportunity for economic growth in the production of gas and oil. Most oil production was onshore in the Cheleken district just off the coast of the Caspian Sea. There was also a small amount of offshore production in the Caspian Sea. In addition to currently producing fields, several new large oilfields had been discovered in Turkmenistan that constitute part of a structure extending from the Iranian-Azerbaijani belt to the Tengiz deposit in Kazakhstan.

With already initiated joint ventures, the country could greatly increase production in a few years. In late December 1996, the new “Law On Hydrocarbon Resources” was signed as part of a program to attract foreign investment in its oil and gas sectors. A number of proposed oil investment opportunities were listed on the home page on the World Wide Web for the Embassy of Turkmenistan in the United States.

Estimates of Turkmenistan’s proven gas reserves ranged between 98 and 155 trillion cubic feet (2.74 and 4.37 trillion cubic meters). The country’s largest natural gas fields are in the Amudarya basin, which contains the Dauletabad-Donmez field with one-half of the country’s gas reserves. In addition to the Amudarya basin, Turkmenistan has large gas reserves in the Murgab basin, the site of the giant Yashlar deposit with an estimated 27 trillion cubic feet (760 billion cubic meters) of reserves. Turkmenistan, with the participation of foreign investors, was counting on the development of its large natural gas reserves being the central focus for the country’s economic development (U.S. Department of Energy, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

In 1997, two foreign companies, Argentina’s Bidas S.A.P.I.C. and the Unocal Corp. of the United States, were developing Turkmenistan’s gas reserves. Bidas, which began its involvement in Turkmenistan in 1991, mainly was focusing on developing the Yashlar deposit and the Keimir oilfield and gasfield. In March, a \$180 million agreement was signed by a Dutch subsidiary of South Africa-based Bateman Project Holdings to renovate and develop Turkmenistan’s gas infrastructure (U.S. Department of Energy, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

Regarding oil development, as of yearend 1997 four foreign companies had concluded agreements for exploration and development. The Netherlands’ Larmag Energy Assests had formed the Larmag-Cheleken joint venture to develop three onshore fields near the Caspian Sea. Malaysia’s Petronas Bhd. concluded an agreement in 1996 to develop Block N1 in the Caspian Sea (Interfax Petroleum Report, 1998b). In January, Turkmenistan signed a memorandum of understanding with Monument Oil and Gas plc and Mobil Corp. for the exclusive right to negotiate an oil-production-sharing contract that would give these oil companies the sole rights to a 7,712-square mile area in western Turkmenistan from the Cheleken Peninsula to its southern border with Iran. In a separate deal, Mobil joined Monument in another production-sharing agreement for the 771-square mile Nebit Dag area in western Turkmenistan; this area near the Caspian Sea contains five producing fields and additional exploration opportunities (U.S. Department of Energy, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>). Furthermore, by mid-1998, Turkmenistan expected to sign a number of production-sharing agreements with the winners of a first round of tenders on development of resources in Turkmenistan’s sector of the Caspian shelf (Interfax Petroleum Report, 1998b).

Plans called for Turkmenistan to increase oil production to 50 million metric tons per year (Mt/yr) by 2010, primarily through development of fields on the Caspian shelf and in the eastern part of the country in the Amudarya basin (Interfax Petroleum Report, 1998d). Despite Turkmenistan’s commitment to increasing oil production, its oil industry continued to be involved in disputes with investors. In November 1995, Bidas had its oil export license suspended by the Turkmenistan Government. In response, Bidas, which had invested more than \$400 million in Turkmenistan since 1991, took its case of breach of contract to international arbitration that was set to begin in spring 1997. Larmag also had faced suspension of its oil export license (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

Turkmenistan had two refineries, the Turkmenbashi (formerly Kranovodsk) and the Chardzhou. In 1996, Turkmenistan signed an agreement with the Israeli firm Merhav to head the project to upgrade the Turkmenbashi refinery, the country’s largest (Interfax Petroleum Report, 1998g). Involved in the modernization was a consortium comprising of SNS Lavalin International of Canada, Baran Energies of Israel, and the Swedish-Swiss engineering firm Asea Brown Bovari (ABB). Other foreign firms involved in reconstructing the refinery

included Japan's Chioda and Nichimen and Turkey's Gamma, which will install hydrofining and catalytic cracking units; a consortium of France's Technip and Iran's National Iranian Oil Company, which will build a catalytic cracking unit; Germany's Mannesman, which will build an 80,000-t/yr-capacity production unit for basic oils, lubricants, and paraffin; and Japan's Itochu, Nishio-Ivai, and JVC, which will install a 90,000-t/yr-capacity propylene unit. The reconstruction, to be completed in 1999, would boost total capacity at the refinery to 6 Mt/yr. According to the Turkmenistan Statistics and Forecasting Agency, oil refining increased by 5.1% in 1997 compared with that of 1996 reaching 4.7 Mt (Interfax Petroleum Report, 1998g).

Turkmenistan was a net importer of coal. Plans called for developing the Tuarkyrskoye deposit in the northwestern part of the country. Total reserves reportedly were estimated to be 800 Mt. Iran was assisting with the feasibility study and in the development of the first section of the deposit, which has estimated reserves of 25 Mt (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

The country's potential to develop its industrial mineral resources depends, in part, on its ability to transport these minerals effectively. Turkmenistan is on the Caspian Sea, which is entirely inland; the country borders Uzbekistan, Kazakhstan, Iran, and Afghanistan. To the north and east, Turkmenistan is surrounded by desert, and to the south, by mountains. The distances involved are major obstacles for transport and trade. Ashgabat, the capital, is approximately 3,000 km by accessible surface transport routes from the Black Sea and from Moscow and approximately 1,500 km from the Persian Gulf and Indian Ocean.

To provide better transportation corridors for its foreign trade, the Government accelerated the construction of new railroads and the electrification of existing ones. The most important railway was the Tedzhen-Serakhs line, inaugurated in May 1996, with the commissioning of a 190-mile railway linking the northeastern Iranian city of Mashhad and the Turkmen town of Tedzhen, which is a stop on the Turksib railway. This new rail link would open a new trade route to Europe and to the Far East and provide landlocked Turkmenistan with access to Iran's Persian Gulf ports. A planned north- to- south system would provide service to western Russia, northern Europe, and the Indian Ocean. New lines were also under construction in the north of the country to connect inland oilfields and gasfields to the existing railway network (Embassy of Turkmenistan, Infrastructural reform—Railways, roads, air and maritime transport, accessed September 2, 1998, at URL <http://www.dc.infi.net/~embassy/transp.html>).

Turkmen Otoyollari, the agency responsible for the construction of Turkmenistan's roads, identified a system of roadways that needed to be upgraded. This upgrading, now underway, is a major effort to raise the standard of roads so that large trucks can be driven through Turkmenistan (Embassy of Turkmenistan, Infrastructural reform—Railways, roads, air and maritime transport, accessed September 2, 1998, at URL <http://www.dc.infi.net/~embassy/transp.html>).

Turkmenistan was resolving its major mineral transport issue which was to construct alternative pipeline routes through which it could export its natural gas to world markets. Gas from

Turkmenistan had been sent to consumers through pipeline routes passing through Uzbekistan, Kazakstan, and Russia. After Turkmenistan had gained its independence, it encountered the problem of selling its fuel. Although it had produced an average of 80 billion cubic meters per year of gas in the last years of the Soviet Union, it had sent more than 95% of its gas production to Russia, Ukraine, the Caucasus republics, and the countries of Eastern Europe and Western Europe. Following the dissolution of the Soviet Union, the CIS countries, including Azerbaijan, Armenia, Georgia, and Ukraine, had been ordering and receiving gas from Turkmenistan without being able to pay for it. Russia, which controlled the pipeline route, insisted that Turkmenistan continue supplying these countries. The Turkmenistan Government, which did not want to supply gas without getting paid, stopped shipments to these countries. Turkmenistan was then faced with the problem that the only alternative to using the main CIS pipelines was to build new pipelines.

One alternate pipeline route was completed in December 1997, despite opposition from the United States. It is a 125-mile pipeline linking gasfields in western Turkmenistan with the gas distribution system in Iran's industrialized north (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

A proposed route is a 2,000-mile pipeline beginning in Turkmenistan, passing through Iran into Turkey, and eventually continuing on to Europe. This project would fulfill the terms of a memorandum signed in May 1997 by Turkmenistan, Iran, and Turkey to provide 1,059 billion cubic feet (approximately 30 billion cubic meters) per year of Turkmenistan natural gas to Europe via Iran and Turkey. Italy's Snamprogetti, Gaz de France, and Royal/Dutch Shell expressed interest in forming a consortium to construct the proposed pipeline. In a demonstration of support for Turkmenistan and Turkey, the United States announced in July 1997 that it would not oppose the construction of this line (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

In December, it was announced that Royal Dutch/Shell would be the chief operator of the project to build this pipeline (Interfax Petroleum Report, 1998f). Plans called for it to reach the Turkish-Bulgarian border by 2001. The routing and whether or not it would be extended into Europe was still not determined.

Another proposal called for constructing a new pipeline extending from Turkmenistan to Pakistan via Afghanistan. In July 1997, officials from Turkmenistan and Pakistan and representatives from Unocal and Saudi Arabia's Delta Oil signed an agreement to build the pipeline. It would transport up to 700 billion cubic feet (almost 20 billion cubic meters) per year of gas from Turkmenistan's largest gasfield at Daulatabad to Pakistan where local gas reserves are in short supply. The agreement called for a consortium to be formed by October 1997 and construction to begin by December 1998 and be completed by 2001. Unocal had also proposed to add a nearly 400-mile spur to New Delhi, India. Despite the agreement, significant obstacles for the pipeline remained. These included Bidas being poised to take legal action against Unocal and Delta for allegedly conspiring to undermine its efforts to build a Turkmenistan-Afghanistan- Pakistan gas

pipeline from its Yashlar field. In addition, owing to the unstable political and military situation in Afghanistan, it could be years before the project became feasible (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

Other natural gas export pipeline projects being considered included one under the Caspian Sea. Turkmenistan also could serve as a transit country for oil piped from Kazakhstan to the Persian Gulf via Turkmenistan and Iran. Negotiations on the construction of such a pipeline were underway with Mitsubishi, Exxon, and China's CNPC (Interfax Petroleum Report, 1998a).

Turkmenistan was engaged in two separate disputes involving Caspian Sea oil reserves. The first involved a deal between Azerbaijan and an international consortium to develop three fields in the central part of the Caspian Sea—the Azeri, the Chirag, and the Guneshl. Turkmenistan claimed sovereignty over the oil reserves from the Azeri and parts of the Chirag fields, while Azerbaijan maintained that the fields lie within its sector of the Caspian Sea. Azerbaijan began pumping oil from the fields in late August. The second dispute involved a July 4 agreement between Rosneft and Lukoil, both of Russia, and Azerbaijan's state oil company, Socar, to develop the Kyapaz field, which has estimated crude oil reserves of 50 Mt. The Turkmen Government contested the deal as being illegal, claiming that the field, which it calls Serdar, is in Turkmenistan's territorial waters. Following Turkmenistan's protest, the Russian government annulled the deal in August (Energy Information Administration, September 1997, Turkmenistan, accessed August 3, 1998, at URL <http://www.eia.doe.gov/emeu/cabs/turkmen.html>).

At a meeting in August, Russia recognized Turkmenistan's claim to the disputed field. Azerbaijan announced that it would apply sanctions against any oil company bidding on a disputed field. Mobil, which was planning to sign a memorandum of understanding on developing the Serdar field with Turkmenistan, canceled the planned signing (Interfax Petroleum Report, 1998c).

With the resolution of pipeline development issues that will enable Turkmenistan to get its gas to world markets, the country will be in a position to realize its great potential as a supplier of natural gas. This will boost the country's foreign currency earnings considerably. Like other countries that have large earnings from the export of oil or gas, Turkmenistan, however, will have to ensure its future through balanced development. The country has a number of important industrial mineral resources that could be used to supply regional and world markets with raw materials and downstream products. The country will be better able to focus on the development of these resources and mineral products after the issue of gas transport is resolved, which will provide the country with a more secure economic base and a more favorable investment climate.

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- Interfax Statistical Report, 1998, Turkmenistan's economy in 1997: Interfax Statistical Report, v. 7, issue 7, February 6-13, p. 6-7.

Major Sources of Information

- Turkmen-American Business Cooperation Council
Washington, DC 20008
Telephone: (202) 588-1500
Fax: (202) 588-0697
- Turkmenistan Chamber of Commerce
92 Kemine St.
Ashgabat, Turkmenistan
Telephone/Fax: (993)(12) 47-44-19
- Ministry of Oil and Gas Industry and Mineral Resources
28 Gogolia St.
Ashgabat, Turkmenistan
Telephone: (993)(12) 29-38-27
Fax: (993)(12) 51-04-43
- Ministry of Foreign Economic Relations
92 Kemine St.
Ashgabat, Turkmenistan
Telephone: (993)(12) 29-75-11
Fax: (993)(12) 29-75-24
- Ministry of Energetics and Industry
Nurberdy Pomma St. #6
Ashgabat, Turkmenistan
Telephone: (993)(12) 51-08-82
Fax: (993)(12) 29-06-82
- State Agency for Foreign Investment
Azadi St. 51
Ashgabat, Turkmenistan 74400
Telephone: (993)(12) 35-02-31, or 35-03-18
Fax: (993)(12)35-04-15
- State Commodity and Raw Materials Exchange (CRME)
Magtumluyi St. #111
Ashgabat, Turkmenistan
Telephone: (993)(12) 25-43-21
Fax: (993)(12) 51-03-04
- Ministry of Construction Materials
Ashgabat, Turkmenistan

TABLE 1
TURKMENISTAN: REPORTED PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997	
Bentonite	NA	NA	NA	137,161	137,321	
Bischofite	NA	NA	28,266	3,230	90	
Cement	1,100,000	700,000	437,300	450,500	601,000	
Epsomite	NA	NA	1,500	14,250	NA	
Ferrous bromide (51% Br)	NA	NA	200	255 r/	83	
Gypsum	NA	NA	216,427	169,577	35,324	
Lime	NA	NA	NA	9,000	16,000	
Natural gas	million cubic meters	65,300	35,700	32,300	35,200	17,300
Nitrogen (N content of ammonia)	NA	NA	NA	83,433	60,959	
Petroleum, crude	4,900,000	4,400,000	4,500,000 r/	4,300,000 r/	4,700,000	
Salt	NA	NA	NA	255,738	216,500	
Sodium sulfate	NA	NA	22,226	30,820	56,552	
Sulfur	NA	NA	7,913	8,112	9,227	

r/ Revised. NA Not available.

1/ Table includes data available through December 10, 1998.

TABLE 2
TURKMENISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating company	Location of main facilities	Annual capacity e/	
Ammonia	Maryzaot Association	Mary region	400000 1/.	
Bentonite	Oglanly Mine	Oglanly region	100,000 1/.	
Cement	Byuzmein cement plant	Byuzmein	1,000,000 1/.	
Gypsum	IA Turkmenmineral	Mukry, Tagorin deposits	300,000 1/.	
Do.	Wastes from Gaourdak sulfur deposit	Gaourdak	400,000 1/.	
Iodine and bromine	Cheleken plant	Cheleken region	355 (iodine) 1/.	
	Nebitdag plant	Vyshka	4,740 (bromine) 1/.	
			255 (iodine) 1/.	
			2,370 (bromine) 1/.	
Natural gas	billion cubic meters	Deposits: Achakskoye, Gygyrlinskoye, East and West Shatlykshiye, North and South Naipskiye, Dauletabad-Donmezskoye	Northeastern, eastern southeastern, and southwestern part of country	90 total.
Petroleum:		Deposits:		
Crude		Nebitdag, Cheleken, Kum Dag, Koturtepinskoye, Barsa-Gelmesskoye, Burunskoye, Kuydzhikskoye, Gograndagskoye, Okaremskoye, Kamyshldzhinskoye	Southwestern part of country on Caspian Sea	5,500,000 total.
Refined		Chardzhou refinery Turkmenbashi refinery	Chardzhou Krasnovodsk	6,000,000. 5,000,000.
Sodium sulfate		Karabogazsulfate Association	Bekdash	400,000 1/.
Sulfur		IA Turkmenmineral	Gowurdak (formerly Gaurdak) deposit	340,000 1/.

e/ Estimated. NA Not estimated.

1/ Reported number.