THE MINERAL INDUSTRY OF

TAJIKISTAN

By Richard M. Levine and Walter G. Steblez

Tajikistan continued to be a substantial regional producer of primary aluminum, although its entire alumina supply must be imported. The country also mined a number of metals, including antimony, bismuth, copper, gold, lead, mercury, molybdenum, silver, tungsten, and zinc; a variety of industrial minerals; and mineral fuels, including coal, natural gas, petroleum, and uranium.

In mid-1992, a civil war began with some of the most intense fighting in 1992-93. Peace negotiations between the factions, begun in 1994, resulted in a peace agreement finalized on June 27, 1997, in Moscow. Need for rapid reconstruction of damaged infrastructure resulting from this conflict is great (World Bank for Reconstruction and Development, 1998**)**.

According to the Interstate Committee of the Commonwealth of Independent States (CIS), the gross domestic product of Tajikistan rose by 1.7% in 1997, compared with that of 1996. Industrial production, however, declined by 2.5% during the same period. The country's output of electric power in 1997 declined by 6% compared with that of 1996; this had a negative impact on such energy-intensive industries as primary aluminum smelting (Interfax International Ltd., 1998a).

Government efforts to promote the denationalization of Tajikistan's economy involved mainly the retail and service sectors. By the beginning of 1997, 2,300 enterprises had been privatized, of which 80% were in catering, general services, and retail sectors. Reportedly, only 3% to 4% privatized enterprises were in the industrial and construction sectors (Interfax International Ltd., 1998d).

The Government of Tajikistan promulgated an official reform program for the 1995-2000 period. A major provision of this program called for creating legislation to protect foreign investors. Legislation passed in 1997 reportedly attempted to improve conditions for foreign investment (U.S. Department of Commerce, 1998c).

The Government remained the main source of investment capital, accounting for about 88% of total investment during the 10-month period from January though October 1997. During the 1991-97 period, $186 million in foreign investment was made in the economy of Tajikistan. Direct foreign investment, by year amounted to $52 million in 1991, $2.6 million in 1992, $0.5 million in 1993, $10.9 million in 1994, $36 million in 1995, $49 million in 1996, and $35 million in 1997. The United Kingdom and Canada ranked first and second, respectively, among foreign investors, with the chief activities of both countries being gold exploration and development (U.S. Department of Commerce, 1998c) . Projects that the Government considered to be of high priority for foreign investment included constructing plants to process bentonite and bitumen, developing stone quarrying operations, and constructing hydroelectric powerplants.

Tajikistan's mineral industry registered increases and decreases in production during 1997, with the country's major mineral product, primary aluminum, increasing by 3.3% compared with 206,400 metric tons (t) in 1996. Coal production totaled 14,000 t; petroleum and gas condensate production, 26,000 t; and natural gas production, 42 million cubic meters, which, respectively, resulted in a decline of 28%, an increase of 1.6%, and decline of 12%, compared with output levels in 1996. Cement production amounted to 34,800 t, a decline of 29% compared with that of 1996. The production of mineral fertilizers declined by 11% to 9,800 t calculated in terms of nutrient content. However, the production of gold (2.55 t) and steel (80 t) rose from a low base of output in 1996, and increased by 76% and 40%, respectively, in 1997.

Tajikistan's total exports for 1997 were valued at $785 million, of which $311 million was exported to fellow member countries of the CIS. Total imports were valued at $797 million, of which $502 million was imported from the CIS. Aluminum continued to be a major export item, accounting for about 33% of the total value of exports; in 1996, Tajikistan's total exports of aluminum, in terms of volume, had amounted to 191,000 t (Interfax International Ltd., 1997a). In 1997, exports of electric power and precious and semiprecious stones accounted for 24% and 4%, respectively, of the total value of exports. Major imports in 1997 included alumina, petroleum refinery products (from Russia and Turkmenistan), and natural gas (from Uzbekistan) (U.S. Department of Commerce, 1998b).

The Tajik aluminum plant in Tursunzade in the southwestern part of the country had the capacity to produce about 520,000 metric tons per year (t/yr) of primary aluminum; it has been rated among the largest producers of primary aluminum in the former Soviet Union (FSU). Although fighting had been reported within several kilometers of the facility, the aluminum smelter reportedly was not seriously affected (Interfax International Ltd., 1997c). The Tadaz facility was under the protection of the CIS peacekeeping forces. Practically the entire output of aluminum at Tadaz was exported; a small amount of metal (about 5,000 t/yr) was consumed domestically to produce consumer durables. Tadaz also was a major regional employer, employing 12,000 persons directly and supporting a community of about 100,000 persons indirectly. Major importers of Tajikistan's aluminum in 1996 included Belgium, Finland, Hungary, the Netherlands, the Republic of Korea, Turkey, and the United Kingdom. In 1996, the principal CIS importers were Russia and Turkmenistan (U.S. Department of Commerce, 1998a).

Tadaz was a major consumer of the country's electric power production, consuming about 40% of total production. After the

Russian Federation, however, Tajikistan has the second largest hydroelectric power resources among the countries of the FSU. Hydroelectric power accounted for about 75% of total energy produced by the country and was also exported to neighboring countries (U.S. Department of Commerce, 1998a).

Tadaz was included in the Government's privatization effort in 1997. According to this plan, the Government was to retain a controlling interest in the enterprise's stock and would offer the remainder of the shares for sale. Tadaz's outstanding debts of about $120 million, however, were one of the obstacles to foreign investment in the venture.

Antimony and mercury concentrates were produced at the Anzob mining and beneficiation complex. In 1997, output of antimony concentrate (30% Sb) was projected to be 7,000 t, or 500 t more than that produced in 1996, but far below the complex's capacity. Ore mined at the Dzhizhikrutskoye antimony and mercury deposit was the principal feedstock for Anzob. The antimony concentrates were exported for further processing to the Kadamzhay antimony plant in Kyrgyzstan, the FSU's major producer of antimony metal and compounds. Tajikistan planned to produce antimony domestically at the Isfara hydrometallurgical plant; which was expanded to produce 500 t/yr of antimony metal. Despite the commissioning of antimony production facilities in 1996, financial constraints and transportation problems idled production during 1997. Isfara's output of antimony during its first year of production was to have ranged from 250 to 300 t. Nevertheless, the Government planned to continue efforts to initiate antimony metal production at Isfara (Interfax International Ltd., 1997d).

Gold production was an important part of Tajikistan's economy and mineral industry. The gold and silver deposits are mainly in the Zeravshan Valley in the northwestern part of the country. Only a few of the country's 30 known gold deposits, however, have been explored in detail.

In 1997, total production of gold reached 2.55 t compared with 1.45 t in 1996. According to Tajikistan's State Committee for Precious Metals, the Zeravshan Gold Co. (ZGC), a joint venture, produced 2.44 t of gold in 1997 (Interfax International Ltd., 1998e), compared with 1.25 t of gold in 1996. Investors in ZGC, apart from the Tajik Government, included Nelson Gold Corp. Ltd. of Canada with 44% of the shares of stock and the International Finance Corp. with 5% of the shares (Interfax International Ltd., 1998c).

ZGC was created in mid-1995 as a joint venture between Commonwealth Minerals Ltd. of the United Kingdom, a wholly owned subsidiary of Nelson Gold, and the Government of Tajikistan. ZGC took control of the former Soviet gold mining effort in the Pedjikent region of the Zeravshan Valley. The operation mined the Jilau deposit and planned to restart mining at the Taror deposit. The Jilau deposit was an open pit operation with ore reportedly grading 3 grams per metric ton (g/t) gold. Deeper, higher grade ore at this deposit (reportedly up to 10 g/t gold) was expected to be mined by underground methods. The Taror deposit had been developed by underground mining. Reserves at Taror was estimated to be about 3 million ounces (about 93 t) of gold. Gold from Taror will require more-complex processing than that from Jilau. The beneficiation plant, originally designed during the Soviet period to handle Taror ore, was subsequently modified to accept Jilau material. Planned upgrading at the plant would allow treatment of ore from Jilau and Taror at a rate 5,000 metric tons per day of ore (U.S. Trade Development Agency, 1998, p. II-Tj-1—II-Tj-8).

The Darvaz joint venture, in the Hatlon region of Eastern Tajikistan, involving Gold & Mineral Excavation Co. of the United Kingdom (49% of stock) and the Government of Tajikistan, produced 110 kilograms (kg) of gold in 1997, a decline of about 47%, or 100 kg, compared with that of 1996. The Darvaz mine, the second largest gold mine in Tajikistan, has resources reportedly amounting to 25 t of gold. Operational problems arose following damage to the placer mining operation that took place during hostilities in the area in December 1996. Mills and the living quarters at the facility were damaged as result of the hostilities. According to company spokespersons, restarting operations was planned for March 1997 (Interfax International Ltd., 1998b).

The Aprelevka joint venture (Gulf International Minerals of Canada 49%, and the Government of Tajikistan) initially had planned to produce 200 kg of gold during the year (Interfax International Ltd., 1998c). The purpose of the joint venture agreement, concluded in 1993, was to develop deposits in the Karamzar district, including the Aprelevka deposit, which reportedly hosts about 650,000 ounces (about 20 t) of proven gold resources. The Aprelevka deposit was mined by open pit method from 1986 to the early 1990's, when operations were discontinued because of financial constraints (Interfax International Ltd., 1997e). Gulf also conducted further exploration of the Burgunda and the Ikkizhilon deposits, which together were estimated to contain 553,300 ounces (about 17 t) of gold, as well as resources of copper and silver. Production at the Burgunda and the Ikkizhilon deposits was planned for mid-1999 (Gulf International Minerals Ltd., 1998).

Additional development in the gold sector in 1997 included the signing of a commercial agreement between the Oxus Resources Corporation of the United Kingdom and the State Committee for Geology and Mineral Resource of Tajikistan. The agreement called for geologic study of the Chulboy gold deposit in the Aini district, with estimated reserves of more than 16 t of gold, and the Tabaspin deposit in the Matcha district in the northern part of the country (Interfax International Ltd., 1997b).

Tajikistan possesses large deposits of silver with total resources reportedly of more than 60,000 t. The Adrasman mining and beneficiation complex in the Leninabad region mines and processes about 12,000 t/yr of ore from the Bolshoy Kanimansur deposit, which reportedly hosts silver resources estimated to be about 38,000 t (U.S. Department of Commerce, 1998a).

Tajikistan reportedly potentially could supply more of its needs from its own gas and oil resources. The country's fields reportedly contain reserves of more than 1 trillion cubic meters of gas and 430 million metric tons of oil. More than 80 % of the reserves are located in the south of the country. During the Soviet period, Tajikistan produced up to 200,000 t/yr of oil and 200 million cubic meters per year of gas. Since the breakup of the Soviet Union, production has fallen precipitously, and Tajikistan is more import reliant.

Tajikistan is well endowed with a number of mineral resources, including antimony, gold, silver, and uranium. Mineral

development as well as economic development, however, has been seriously hampered by the instability caused by the civil war. Despite the problems of recent civil warfare and the concomitant issues of economic and political stability, Tajikistan has succeeded in attracting investment in its gold mining industry. Also, the country retains a large aluminum producing industry, which is trading with and being supplied by western firms. Investment in these mineral industries and the development of other mineral industries could provide for increased revenues from Tajikistan's mineral sector. However, Tajikistan's distant location from world markets and major transport arteries will result in transport and infrastructure development costs being factors affecting the viability of mineral development.

References Cited

Gulf International Minerals Ltd., 1998, Tajik/Canadian jv "Aprelevka": Gulf International Minerals Ltd. news release, February 16, 1 p.

Interfax International Ltd., 1997a, Country close-up-Tajikistan in 1991-1996 and January-August 1997: Statistical Report, v. VI, issue 44 (267), October 24-31, p. 11-18.

———1997b, Oxus resources may invest $1.5 mln in Uzbek metals project: Mining and Metals Report, v. VI, issue 25 (279), June 13-20, p. 15.

———1997c, Tajik aluminum smelter under protection by CIS peace-keepers: Mining and Metals Report, v. VI, issue 1-2 (255-256), January 3-10, p. 4.

———1997d, Tajik plant to boost antimony concentrate output in 1997: Mining and Metals Report, v. VI, issue 20 (274), May 9-16, p. 11.

———1997e, Tajikistan to double gold production in 1997: Mining and Metals Report, v. VII, issue 8 (262), February 14-21, p. 4.

———1998a, CIS socioeconomic indicators for 1997: Statistical Report, v. VII, issue 13 (288), March 20-27, p. 5-20.

———1998b, Davaz gold mine in Tajikistan to restart in March: Mining and Metals Report, v. VI, issue 6 (260), January 31-February 7, p. 5.

———1998c, Tajikistan nearly doubled gold production in 1997: Mining and Metals Report, v. VII, issue 3 (308), January 9-16, p. 5.

——— 1998d, Tajikistan's economy in January-October 1997: Statistical Report, v. VII, issue 3 (278), January 9-16, p. 9.

———1998e, Zeravshan gold company to double capacity at Jilau mine: Mining and Metals Report, January 9-16, v. VII, issue 3 (308), p. 7.

U.S. Department of Commerce, 1998a, Selected industrial sectors, Commercial overview of Tajikistan: part 3, BISNIS, June, 2 p.

———1998b, Tajikistan economic update: BISNIS, AMEMBASSY Dushanbe, March 17, 5 p.

———1998c, 1998 investment climate statement for Tajikistan: BISNIS, AMEMBASSY, Dushanbe, July, 6 p.

U.S. Trade Development Agency, 1998, Tajikistan—Mining & minerals—Rehabilitation and development of mines in the Zeravshan Valley: TDA Crossroads of the World Conference, May, 8 p.

World Bank for Reconstruction and Development, 1998, World Bank to support reconstruction efforts in Tajikistan: World Bank for Reconstruction and Development, news release 98/1627/ECA, 2 p.

TABLE 1
TAJIKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity e/
Aluminum	Tajik aluminum plant	Tursunzade	500,000.
Antimony	Anzob mining and beneficiation complex	Dzhizhikrutskoye deposit	2,000.
Do.	Isfara hydrometallurgical plant	Isfara	500.
Bismuth	Leninabad mining and beneficiation complex	Yuzhno-Yangikanskiy deposit	25.
Do.	Isfara hydrometallurgical plant	Isfara	500.
Coal			300,000 total.
Do.	Shurabskoye brown coal	Shurab region	NA.
Do.	Fan-Yagnobskoye hard coal, deposits	Pyandzh region	NA.
Copper	Leninabad mining and beneficiation complex	Yuzhno-Yangikanskiy deposit	NA.
Gold	Tajikzoloto mining-beneficiation complex, Pamir Artel	Darvazy, Rankul placer deposits, placers in central and southern part of country	5
Do.	Zeravshan Gold Company (ZGC)	Jilau and Taror deposits	2.5
Do.	Darvaz joint venture (JV)	Yakh-Su field	2.
Do.	Aprelevka joint venture (JV)	Aprelevka deposit	0.2.
Do.	Vostokredmet refinery	Chkalovsk	NA.
Lead	Leninabad mining and metallurgical complex	Yuzhno-Yangikanskiy deposit	2,500.
Mercury	Anzob mining and beneficiation complex	Dzhizhikrutskoye deposit	150.
Molybdenum	Leinabad mining and beneficiation complex	Yuzhno-Yangikanskiy deposit	NA.
Petroleum and natural gas			200,000 (petroleum) total. 200,000,000 cubic meters (natural gas) total.
Do.	16 oil-gas deposits under exploration, including: Ravatskoye, Ayritanskoye, Madaniyatskoye	Fergana depression	NA.
Do.	Shaambary Beshtentyakskoye, Uzunkhorskoye, Kichik-Belskoye	Southern Tajik depression	NA.
Silver	Adrasman mining and beneficiation complex	Bolshoy Kanimansur deposit	NA
Vanadium pentoxide	Vostokredmet plant	Chkalovsk	350,000.
Uranium	Adrasman, Maylisu, Taboshar, Usugai deposits	Northern Tajikistan	NA.
Do.	Vostokredmet processing plant	Chkalovsk	NA.
Zinc	Leninabad mining and beneficiation complex	Yuzho-Yangikanskiy deposit	NA.

e/ Estimated. NA Not available.