

# 2007 Minerals Yearbook

# GEORGIA

# THE MINERAL INDUSTRY OF GEORGIA

#### By Richard M. Levine and Glenn J. Wallace

During the Soviet period, a range of mineral commodities were mined in Georgia, including arsenic, barite, bentonite, coal, copper, diatomite, lead, manganese, zeolite, and zinc, among others. The country had been a major producer of high-grade manganese ore for about a century, and ore reserves were significantly depleted. Part of the manganese was used within Georgia for ferroalloys production. Following the dissolution of the Soviet Union, there was a steep decline in mineral production.

Georgia's main role in the world mineral supply was serving as a transport route for oil and gas shipments out of the Caspian region to world markets. Three of the new large oil and gas export pipelines that had been or were being constructed in the Caspian region pass through Georgia. These include the Baku-Tbilisi-Ceyhan (BTC) oil transport pipeline, the Baku-Tbilisi-Erzurum (BTE) gas transport pipeline (also called the South Caucasus pipeline), and the Baku-Supsa pipeline (also called the Western Early Oil Route pipeline). In 2007, Georgia imported more than 70% of the energy it consumed (Transparency International of Georgia, 2008).

In 2006, the price that Georgia paid for Russian gas more than doubled. The Government of Georgia initiated a process to allow companies that were large gas consumers to conduct direct negotiations to import gas from Russia, but these companies were unsuccessful in negotiating to supply the Georgian energy market with cheaper Russian gas. In response, the Government of Georgia started searching for alternative gas supplies, particularly from Azerbaijan and Turkey (Alkhazashvili, 2007; Georgia Today, 2008).

In 2007, the State Oil Company of the Republic of Azerbaijan (SOCAR) delivered about 475,000 cubic meters of natural gas to Georgia. Georgia was attempting to obtain its entire 2008 requirements for gas, which would total about 1.5 billion cubic meters, from Azerbaijan (Alkhazashvili, 2007; Georgia Today, 2008). Georgia was able to obtain part of its gas supply from Azerbaijan because of an agreement executed in 2001 with the consortium that was developing the Shah Deniz offshore gas condensate deposit. The terms of the agreement specified that Georgia, as a transit state, would receive 5% of the gas transported from Shah Deniz along the pipelines through Georgia free of charge. In addition, Georgia had priority right to purchase about 500 million cubic meters per year of Shah Deniz gas at a prearranged discounted price. Azerbaijan began producing gas from Shah Deniz in early 2007 and began exporting Shah Deniz gas to Georgia in March 2007 (Georgia Today, 2008).

The main pipeline for Azerbaijan's natural gas exports is the BTE pipeline. It runs parallel to the BTC oil pipeline for most of its route before connecting with the Turkish gas pipeline network near the town of Horasan. In 2008, the BTE pipeline was expected to transport about 6.6 billion cubic meters of gas

to Turkey, some of which would then be forwarded to Greece and Italy. The line was expected to reach its full capacity for transporting almost 20 billion cubic meters per year by about 2014 (Alexander's Gas & Oil Connections, 2003, 2006; Roberts, 2008).

In 2007, Georgia still received 60% of the gas that it consumed from Russia (Patsuria, 2008). Georgia received between 200 and 220 million cubic meters of gas from Russia's Gazprom as a transit fee for gas exported to Armenia from Russia through Georgia (Interfax Russia & CIS Oil and Gas Weekly, 2007a, b; Pasturia, 2008).

In early 2007, SOCAR acquired the Kulevi oil terminal in Georgia. The terminal had the capacity to handle 10 million metric tons per year (Mt/yr) of oil. The oil would be transported by rail, then loaded onto tankers at Kulevi for shipment to European markets (Izmayilov, 2008).

#### Production

In 2007, production of most metals increased whereas production of most industrial minerals and mineral fuels was estimated to have remained stable. Production data for 2007 for most mineral commodities generally were not available at the time of the preparation of this report and the data in table 1 are estimated based on fragmentary information or general economic data.

#### Structure of the Mineral Industry

Georgia's main nonferrous and precious metals mining enterprise was the Madneuli mining and beneficiation complex that mined a large copper-gold and barite deposit. The Madneuli mining and beneficiation complex was transformed in 1994 into joint-stock company (JSC) Madneuli, in which the controlling interest belonged to the state. In 1997, a joint-venture Georgian-Australian enterprise, Quartzite Ltd., commissioned a gold recovery mill at the Madneuli deposit (World Investment News, 2008). In November 2005, JSC Madneuli was privatized; the tender awarded a 97% stake to Stanton Equities Corp., which was renamed GeoProMining Ltd. and which listed the location of its contact office as Moscow. Stanton Equity also acquired a stake in the Quartzite gold mill and received a 50% stake in Trans-Georgian Resources Ltd., which held the license to the Sakdrisi copper-gold deposit (Interfax Russia & CIS Metals and Mining Weekly, 2007; GeoProMining Ltd., 2008).

In February 2006, Stemcor UK Ltd., which was based in the United Kingdom, bought a 96% controlling stake in the Zestafoni ferroalloy plant. The Government of Georgia also privatized JSC Vartsikhe HEPS Cascade, a hydroelectric power plant that supplied power to Zestafoni, by selling it to Stemcor (Caucaz Europenews, 2008).

#### **Commodity Review**

#### Metals

**Copper.**—The Madneuli deposit is situated in the Bolnisi Region in the south of Georgia about 80 kilometers south of Tbilisi near the Armenian and Azerbaijan borders. Its main operations include mining and processing of copper and gold-bearing ore. GeoProMining (formerly JSC Madneuli) produced copper concentrate and gold as doré, which were sold according to standard international sales contract terms and based on prices quoted by the London Bullion Association and London Metal Exchange, Ltd.. In 2005 (the latest year for which the export data were available), the company's exports composed 8% of the total value of Georgia's exports (World Investment News, 2008).

GeoProMining was planning to construct a second copper concentrator in the village of Kazreti to process ore extracted from the Sakdrisi deposit. In addition, work was being conducted to construct a plant to process waste from the concentrator according to a contract signed with the country's Ministry of Environmental Protection and Natural Resources. The contract was negotiated within the framework of a memorandum on environmental protection that the company signed with the Ministry (Interfax Russia & CIS Metals and Mining Weekly, 2007).

**Gold.**—The Madneuli deposit reportedly contained 48 metric tons (t) of gold reserves. The Madneuli deposit had been mined by JSC Madneuli. In 1997, the Georgian-Australian enterprise Quartzite commissioned a gold recovery mill at the Madneuli deposit that employed heap leaching of gold-bearing secondary quartzite (World Investment News, 2008).

Although Georgia appeared to have potential resources for gold mining, it had not obtained the investment backing required to sustain a major mining venture. In 1995, the Georgian State Geology Committee announced that, based on Soviet records, the country had reserves of 8 million troy ounces (almost 250 t) of gold, and 48 million troy ounces (almost 1,500 t) of silver. A March 2007 report by the London based Hardman & Co. stated that Georgia had never been explored using market economy standards for evaluating reserves and, therefore, should be considered only highly prospective for precious metals. Soviet-era prospecting and geologic surveys did locate Georgia's gold deposits (Helmer, 2007).

The prospect of gold reserves attracted junior companies, the first of which was Bolnisi Gold Nl of Australia. Bolnisi, in partnership with JSC Madneuli, worked through Quartzite. In 1997, Bolnisi had said that the joint venture's indicated and inferred gold resource amounted to 780,000 troy ounces (24 t). In 2000, an extra 1 million metric tons (Mt) of ore was identified with a grade of 1.9 grams per metric ton (g/t) gold and 2.2 g/t silver. Bolnisi stated that between commencing gold production in 1997 and December 2005, Bonisi, in conjunction with JSC Madneuli, produced almost 483,000 troy ounces (15 t) of gold and 249,000 troy ounces (almost 8 t) of silver (Helmer, 2007).

A disagreement arose in 2000 between Bolnisi and JSC Madneuli when a representative of Quartzite made allegations against Bolnisi, which escalated into a dispute that had a severe effect on Bolnisi's activities in Georgia. Bolnisi eventually evacuated its expatriate managers; subsequently, prospecting stopped, gold output fell, and the cost of production rose sharply. Bolnisi's dispute with its Georgian partners eventually was partially resolved and production resumed, but at a much higher cost. In December 2005, Bolnisi announced that it had sold out its Georgian interests (Helmer, 2007).

**Manganese.**—For more than a century, Georgia had mined manganese ore from the Chiatura deposit. A portion of the ore was used to produce manganese ferroalloys at the Zestafoni ferroalloy plant. Stemcor owned the manganese mining enterprise Chiaturmanganumi, the Zestafoni ferroalloy plant, and the Vartsikhe hydroelectric powerplant, which were interlinked enterprises engaged in a full cycle of manganese ferroalloy production, from the mining of manganese ore to the production of manganese ferroalloys and the supply of power for these processes (Caucaz Europenews, 2008).

On January 5, 2007, the Minister of Economic Development of Georgia vested the certificate of ownership of Stemcor's holdings to Georgian Manganese Holding Limited LLC of the United Kingdom (a subsidiary of Stemcor). The new owner of the holding was obliged to invest \$100 million within 2 years and to produce no less than 200,000 t of ore mined, which had to be processed in Georgia. To meet these requirements the company planned to purchase new furnaces for the Zestafoni plant. Production of ferroalloys was to reach at least 200,000 t in 2007 instead of the 120,000 t produced in 2006. In the long term, the annual production of ore was to increase to 700,000 t, and annual production of ferroalloys was to increase to 400,000 t (Ministry of Economic Development of Georgia, 2007).

Nine mines were operating at Chiaturmanganumi. When Georgia Manganese Holding acquired Chiaturmanganumi, it acquired a 40-year license to mine manganese ore at the Chiatura deposit. Chiaturmanganumi planned to restore operations at an additional six mines and to increase production of manganese concentrate in 2008 to 460,000 t compared with 350,000 t in 2007 (Interfax Financial & Business Report, 2006).

Georgian Manganese Holding stated that, because of reconstruction work on furnaces that began when the company started operation at the ferroalloy plant 15 months ago, the plant had increased production of ferroalloys to 15,000 metric tons per month (t/mo) from 10,000 t/mo. One additional furnace was scheduled to be renovated in 2008, and, as a result, production of ferroalloys was expected to increase to 170,000 t in 2008 compared with 120,000 t in 2007. Additional furnace renovations were planned for 2009 (Interfax Financial & Business Report, 2006).

#### Industrial Minerals

**Nitrogen.**—After many unsuccessful attempts at privatization, the Rustavi Azoti (Nitrogen) chemical plant had its ownership transferred to the Russian-Georgian business group JSC Energy Invest. Hundreds of millions of dollars worth of investments and a guaranteed supply of inexpensive natural gas were needed to renew the outdated technology of the Azoti works. If the technology is installed, major rehabilitation and training of personnel would also be necessary (Georgia Today, 2008).

#### Outlook

Production in the mineral industry of Georgia was reviving and the country could increase its production of copper, gold, manganese concentrates, ferroalloys, and other mineral products considerably. Georgia has been able to attract a limited number of foreign investors, and the future prospects for mineral development will depend, to some degree, on the country being able to attract additional foreign investment.

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### TABLE 1 GEORGIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

#### (Metric tons unless otherwise specified)

Commodity	2003	2004	2005	2006	2007 <sup>e</sup>
METALS					
Copper, mine output, Cu content of concentrate <sup>e</sup>	14,700 <sup>r</sup>	12,000	10,000 <sup>r</sup>	9,000 <sup>r</sup>	11,000
Gold kilograms	2,336 <sup>r</sup>	1,377 <sup>r</sup>	1,620 °	1,600 <sup>r, e</sup>	2,000
Iron and steel, ferroalloys, electric furnace:					
Ferromanganese	12,425 <sup>r</sup>	12,821 <sup>r</sup>	13,945	5,130	5,000
Silicomanganese	50,932 <sup>r</sup>	93,830 <sup>r</sup>	109,414	116,945	120,000
Total	63,357 <sup>r</sup>	106,651 <sup>r</sup>	123,359	122,075	125,000
Lead, mine output, Pb content <sup>e</sup>	400	400	400	400	400
Manganese ore, marketable:					
Gross weight	173,500	218,700	251,800	328,643	350,000 <sup>2</sup>
Mn content <sup>e</sup>	50,500	63,600	73,000	95,300	102,000
Silver <sup>e</sup> kilograms	600 <sup>r</sup>	1,200 <sup>r</sup>	1,000 <sup>r</sup>	1,000 <sup>r</sup>	1,200
Zinc, mine output, Zn content of concentrate <sup>e</sup>	400	400	400	400	400
INDUSTRIAL MINERALS					
Barite <sup>e</sup>	NA	NA	NA	NA	NA
Cement	344,800	424,600	450,000 e	450,000 <sup>e</sup>	450,000
Clays, bentonite	9,700 <sup>e</sup>	1,800	7,876	4,487	5,000
Gypsum	8,507 <sup>r</sup>	1,707 <sup>r</sup>	238	123	125 2
Nitrogen, N content of ammonia	102,300	107,800	130,000 <sup>e</sup>	140,000 <sup>e</sup>	150,000
Perlite <sup>e</sup>	NA	45,000	45,000	45,000	45,000
Salt <sup>e</sup>	30,000	30,000	30,000	30,000	30,000
Zeolites	NA	NA	NA	NA	NA
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	8,000	8,000	5,100	8,284	8,280
Natural gas thousand cubic meters	17,800	6,100	14,800	21,400	21,400
Petroleum:					
Crude	91,300 <sup>r</sup>	97,600	66,600 <sup>r</sup>	63,506	63,500
Refined	18,600	37,500	40,000	40,000 e	40,000

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. NA Not available.

<sup>1</sup>Table includes data available through February 28, 2009.

<sup>2</sup>Reported figure.

## TABLE 2 GEORGIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2007 $^{\rm l,\,2}$

#### (Metric tons unless otherwise specified)

Commod	ity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>e</sup>
Commodity Arsenic:		Deposits:	Locations:	2,000
Alsonic. As content of ore		Lukhumi deposit	Ambrolauri region	2,000
		Tsani deposit	Lentekhi region	
Metal and compounds		Racha mining and chemical plant	Racha	NA
Do.		Tsana mining and chemical plant	Ts'ana	NA
Barite		Chordskoye deposit	Onis Raioni	70,000
Do.		NA	Madneuli deposit	NA
Barite-zinc		NA	Kvaisi deposit	NA
Bentonite		Gumbrskoye and Askanskoye deposits	Gumbra and Askana regions	200,000 3
Cement		Rust'avi cement plant	Rust'avi	1,500,000
Coal		Akhaltsikhe, Tkibuli-Shaorskoye, and Tkvarchelskoye	Akhalts'ikhis Raioni, Tqibuli,	300,000 3
		deposits	and Tqvrach'eli regions	300,000
Copper, Cu content of ore		JSC Madneuli complex [GeoProMining Ltd., 97%	Bolnisi region	12,000
		(formerly Stanton Equity Corp.)]	Bonnisi region	12,000
Conner gold		Trans-Georgian Resources [GeoProMining Ltd.,	Sakdrisi deposit	NA
Copper-gold			Sakurisi deposit	INA
Distamita		50% (formerly Stanton Equity Corp.)] Kisatibskoye deposit	K'isat'ibi region	150,000
Diatomite		Kisatibskoye deposit	K isat ibi region	150,000
Ferroalloys:				100.000
Ferromanganese		Zestafoni plant of Georgian Manganese Holding	Zestap'onis Raioni	100,000
0.11		Limited LLC (Stemcor UK Ltd.)	1	250.000
Silicomanganese		do.	do.	250,000
Manganese sinter		do.	do.	250,000
Gold, mill		Quartzite Ltd. [GeoProMining Ltd., 97% (formerly	Madneuli deposit	3
_		Stanton Equity Corp.)]		
Iron ore		Hrazdan deposit	Sulagyan Mountains	NA
Do.		Tkibuli-Shaorskoye deposit	Tqibuli region	NA
Lead-zinc:				
Pb content of ore		NA	Kvaisi deposit	1,200
Zn content of ore		NA	do.	3,000
Manganese, marketable ore		Chiaturamanganumi enterprise of Georgian	Chiat'ura-Sach'kheris field,	400,000
		Manganese Holding Limited LLC (Stemcor UK Ltd.)	Chiat'ura region	
Nitrogen		JSC Azoti chemical plant (Energy-Invest)	Rust'avi	NA
Petroleum:				
Crude		Saknavtobi and most Georgian petroleum companies	About 60 wells that account for	200,000
		in joint ventures with Frontera Resources, Ioris	98% of output in Mirzaani,	
		Valley, Georgian British Oil Company (GBOC)-	Sup'sa, and Zemo T'elet'I regions	
		Ninotsminda, Anadarko, and GeoGeroil		
Refined		Batumi refinery (LLC Terminal)	Batumi region	NA
Do.	42-gallon barrels	Georgian American Oil Company (GAOR) refinery	Sartichala	4,000
	per day	[CanArgo Energy Corp., 51%)		
Steel, crude	<u>.</u>	Rust'avi steel mill [Energy and Industry Complex (a	Rust'avi	1,400,000
		subsidiary of Thames Steel)]		

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

<sup>1</sup>Table includes data available through February 28, 2009.

<sup>2</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>3</sup>Capacity estimate is the total for all enterprises that produce that commodity.