

2009 Minerals Yearbook

ERITREA

THE MINERAL INDUSTRY OF ERITREA

By Harold R. Newman

On December 23, 2009, the United Nations (UN) Security Council passed a resolution to impose sanctions on Eritrea. The resolution accused the country of backing the Islamic al-Shabab and Hizbul-Islam insurgents trying to topple the Government in Somalia and expressed concerns about Eritrea's rejection of the Djibouti Agreement. The resolution placed an arms embargo on Eritrea, and also imposed travel bans and asset freezes of certain businesses and individuals. The Government opposed the resolution and denied the charges of the UN. The effect of the resolution on Eritrea's mineral sector was unknown at yearend. The resolution did not target mining companies operating in Eritrea, where licenses were held by groups from Australia, Canada, China, Libya, and the United Kingdom (UN News Centre, 2009).

Nevsun Resources Ltd. of Canada stated that it did not believe the resolution would have a direct effect on its operations. Nevsun stated that it had a long and close working relationship with the Government and was proceeding with its Bisha Mine project (Anderson, 2009).

The legal framework governing the conduct of all mining and related operations in Eritrea is embodied in mining law that comprises Minerals Proclamation No. 68/1995, Mining Income Tax Proclamation No. 69/1995, and Regulations on Mining Operations Legal Notice No. 19/1995. Several mining companies were involved in mineral exploration in 2009 (Ministry of Energy and Mines, 2009c).

Minerals in the National Economy

The geology of the East African country of Eritrea was considered to be favorable for the occurrence of mineral resources. The greenstone belt, which hosts base and precious metals in other areas, covers about 70% of the country. The country had the potential to host economically viable volcanic massive sulfide (VMS) deposits as typified by the Bisha discovery.

All mineral resources in Eritrea are the property of the State and licenses are required for the exploration and development of these resources. Mining was believed to be a good prospect for contributing to the economic development of Eritrea; however, mining and quarrying were not significant contributors to the gross domestic product in 2009. Exploration and exploitation of Eritrea's mineral resources were severely hindered by three decades of war. Nonetheless, in 2009, eight more firms entered the mining section with the award of new exploration licenses by the Government. This brought to 14 the number of foreign companies exploring or preparing to explore in Eritrea (Thomson Reuters, 2009b).

Production

Eritrea produced a variety of minerals and mineral products, which included basalt, cement, common clay, coral, granite,

gravel, gypsum, kaolin, lime, limestone, marble, pumice, quartz, salt, sand, and silica sand (table 1). Small amounts of gold were produced in western Eritrea by artisanal miners. The country had deposits of asbestos, barite, copper, feldspar, iron ore, lead, magnesium, nickel, potash, silver, talc, and zinc that were not exploited in 2009. Refined petroleum products were imported to meet domestic needs.

Structure of the Mineral Industry

Table 2 lists the country's major mineral industry facility, its location, and its capacity.

Commodity Review

Metals

Gold.—Eritrea's gold mineralization is typically hosted in quartz veins and stockworks in shear zones associated with felsic volcanic rocks, dioritic intrusions, and various schists. Gold also occurs within exhalative VMS deposits and in the weathered and supergene zones overlying them. These deposits occur in the highlands near the capital of Asmara and include the Emba Derho prospect of Sunridge Gold Corp. Another area containing VMS deposits is in the lowlands and includes the Bisha and the Harena projects of Nevsun Resources Ltd. and the Hambok project of Sanu Resources Ltd. (Ministry of Energy and Mines, 2009b).

Chalice Gold Mines Ltd. of Australia announced that it had received approval of its merger with Sub Sahara Resources NL of Australia, which would raise its stake in the estimated 26,760- kilogram (kg) Zara project to 80%. The resource base at Zara was an estimated indicated and inferred resource of 5.04 million metric tons (Mt) grading 5.8 grams per metric ton (g/t) gold for 26,700 kg at a cutoff of 1.2 g/t. This resource was in the Koka deposit. An expanded regional exploration effort, which included geophysics and geochemistry to refine exploration targets, was planned for 2010. About 2,500 meters (m) of diamond drilling to test the Koka deposit below the existing resource and other targets along the strike zone was underway in 2009. Chalice planned to start production at the Koka site in 2011 (Australia's Paydirt, 2009).

Gippsland Ltd. of Australia announced that its wholly owned subsidiary Nubian Resources Ltd. had been granted three prospecting licenses in northeastern Eritrea. Gippsland held licenses totaling 300 square kilometers (km²) in a region that had minimal previous exploration but was thought to have the potential to host high-grade gold and base-metals deposits based on previous studies. The licenses of 100 km² each were located between 203 km and 247 km north of Asmara. Nubian Resources planned to start sampling in late 2009 in the remote Adobha region near the border with Ethiopia (Thomson Reuters, 2009a).

Nevsun Resources Ltd. of Canada was progressing with the Bisha project; first output was expected in 2010. The project

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was expected to cost \$246 million and to produce an average of 12,000 kilograms per year of gold (kg/yr) and 19,650 kg/yr of silver in the first 2 years of production. After the startup of gold production, copper production was expected to begin in 3 years, and zinc production, in 6 years. Mine life was estimated to be 12 years (Hill, 2009).

Canadian Gold Hunter Corp. completed its acquisition of Sanu Resources Ltd.; the enlarged company was to be named NGEx Resources Inc. NGEx would continue to target VMS deposits in the Kerkebet and the Mogoraib licenses. NGEx was granted two contiguous licenses—Lelit and Shukla—for a new discovery of VMS occurrences in northern Eritrea (Mining Journal, 2009, p. 22).

Industrial Minerals

Potash.—South Bolder Mines Ltd. of Australia received the Colluli potash project exploration license from the Government. The project is located in the Danakil Depression region about 200 km east of Asmara. The project consists of buried evaporates deposits in which two shallow potash horizons were identified. The Danakil Depression has an ancient history of artisanal salt production by evaporation and limited underground mining. The potential to utilize solar evaporation and solution mining techniques made the project attractive to South Bolder. South Bolder intended to complete data compilation and to undertake diamond drilling in 2010 to confirm the reported potash intercepts (RWE Equity Business News Service, 2009).

Mineral Fuels

Petroleum.—The Ministry of Energy and Mines was responsible for granting petroleum rights, executing petroleum contracts, and implementing the petroleum law. Administration was carried out by the Hydrocarbon Division. Petroleum exploration and production activities were governed by the Revised Petroleum Proclamation No. 108 of 2000. Terms, most of which were negotiable, included up to 8 years for exploration and an initial period of 25 years for production, which was renewable for another 10 years of production, a sliding-scale royalty, and a 35% income tax rate (Ministry of Energy and Mines, 2009a).

Outlook

The development of metal deposits in the near future could have a positive effect on Eritrea's mineral industry. It is

expected that exploration for gold, specifically, and copper will continue. The UN resolution could have an indirect effect on the mineral industry. Exploration for industrial minerals could increase as the demand for construction materials increases. Eritrea's proximity to Europe and the Middle East would be favorable for export of minerals if mining develops. Petroleum resources are thought to be substantial, although there is little information available in this regard. The establishment of a Free Port Zone at Masswa Port in the near future is expected to boost trade prospects within the African and Middle Eastern markets.

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 $\label{eq:table 1} \textbf{TABLE 1}$ <code>ERITREA: PRODUCTION OF MINERAL COMMODITIES^1</code>

(Metric tons unless otherwise specified)

Commod	ity ²	2005	2006	2007	2008 ^e	2009 ^e
Basalt ³		119,617	211,053	45,335	50,000 r	45,000
Cement ^e		45,000	45,000	45,000	45,000	45,000
Clays: ³						
Common		169,876	29,000	3,700	4,000 r	4,000
Kaolin		471	129	183	200 r	175
Coral		91,348	59,900	67,332	65,000 r	60,000
Gold	kilograms	25	46	87	50 r	50
Granite		350,280	144,775	21,394	25,000 г	25,000
Gravel		242,977	187,826	79,913	80,000 ^r	78,000
Gypsum ³		1,142	634	874	800 r	800
Laterite ³		144	NA	NA	NA	NA
Lime ^{e, 3}		22,423 4	164,227 4	165,000 ^r	165,000 ^r	165,000
Limestone ^{e, 5}		2,900	3,000	3,000	3,000	3,000
Marble:						
Block	square meters	36,046	1,860,146	31,010	35,000 r	32,000
Chip ³		972	4,058	NA	NA	NA
Pumice ³		23	1,072	55	60 ^r	60
Quartz ³		103	83	90	100 r	100
Salt ³		6,300	9,737	7,448	7,500 ^r	7,500
Sand ³	thousand metric tons	2,100	2,100	2,309	2,200 ^r	2,200
Silica sand ³		NA	1,025	NA	NA	NA

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. NA not available.

TABLE 2
ERITREA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

	Commodity		Major operating companies	Location of main facilities	Annual capacity
Cement		metric tons	Eritrea Cement Works	Massawa	45,000

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¹Table includes data available through May 31, 2010.

²In addition to the commodities listed, feldspar and talc reportedly were produced, but information is inadequate to make reliable estimates of output.

³Values converted from cubic meters to metric tons.

⁴Reported figure.

⁵For other than cement.