



2013 Minerals Yearbook

ERITREA

THE MINERAL INDUSTRY OF ERITREA

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Eritrea was a producer of copper, gold, and silver from volcanic massive sulfide (VMS) deposits. The country also produced basalt, brick clay, cement, coral, granite, gravel, gypsum, lime, limestone, kaolin, marble, pumice, quartz, salt, and sand. Eritrea was not a globally important consumer or producer of minerals in 2013.

All mineral resources in Eritrea were the property of the state, and licenses were required for exploration and development. The mining sector was governed by legislation that included Minerals Proclamation no. 68/1995, Mining Income Tax Proclamation no. 69/1995, Regulations on Mining Operations Legal Notice no. 19/1995, and Minerals Proclamation no. 68/1995 Amendment Proclamation no. 165/2011.

Minerals in the National Economy

In 2012 (the latest year for which data were available), the manufacturing sector accounted for 5.9% of the gross domestic product, and the mining and quarrying sector, 1.7%. The value of output from the mining and quarrying sector increased by 3.5%. Gold accounted for 89% of total exports in 2012 (African Development Bank Group, 2014).

Production

In 2013, the production of salt increased by an estimated 21%. The production of gold decreased by 70%, and silver, by 47%. Copper mining started in 2013 (table 1).

Structure of the Mineral Industry

Under Eritrean law, the Government had a 10% free-carried interest in mining operations that were privately owned. The Government also had the right to purchase as much as an additional 30% interest in mining operations (table 2).

Commodity Review

Metals

Copper, Gold, Silver, and Zinc.—In 2013, Nevsun Resources Ltd. of Canada and Government-owned Eritrean National Mining Corp. (ENAMCO) produced 2,900 kilograms (kg) of gold at the Bisha Mine compared with 9,735 kg in 2012. Total sales of silver decreased to 15,799 kg in 2013 from 29,900 kg in 2012. Decreased production was attributable to the depletion of the gold-rich oxide zone reserves at Bisha. In the third quarter of 2013, Nevsun started mining in the copper-rich supergene zone at Bisha. By yearend, Nevsun had produced 21,800 metric tons (t) of copper in concentrate (Nevsun Resources Ltd., 2014, p. 5–7).

Nevsun planned to produce between 82,000 and 91,000 t of copper in concentrate in 2014; the supergene zone was expected to be depleted by the end of 2016. Nevsun had planned to start

mining at the zinc-rich primary sulfide zone of the deposit in 2015. From 2017 to 2024, production was planned to be about 98,700 metric tons per year (t/yr) of zinc, 17,100 t/yr of copper, 27,000 kilograms per year (kg/yr) of silver, and 470 kg/yr of gold. The startup of production from the primary sulfide zone was delayed until the first half of 2016 because of the identification of additional reserves in the supergene zone (Nevsun Resources Ltd., 2013, p. 5; 2014, p. 3, 6).

At the end of 2013, Nevsun estimated that reserves in the primary sulfide zone at the Bisha Main VMS deposit were 18.4 million metric tons (Mt) at a grade of 5.66% zinc, 1.02% copper, 46 grams per metric ton (g/t) silver, and 0.68 g/t gold. Reserves in the supergene zone at the Bisha Main deposit were estimated to be 7.4 Mt at a grade of 3.57% copper, 27 g/t silver, and 0.61 g/t gold (Nevsun Resources Ltd., 2014, p. 6).

In May 2013, Sunridge Gold Corp. of Canada completed a feasibility study with positive results for a new mine at its Asmara project. The Asmara deposits include the Adi Nefas VMS copper-gold-zinc deposit, the Debarwa VMS copper-gold deposit, the Emba Derho VMS copper-gold-zinc deposit, and the Gupo gold deposit. Sunridge planned to start mining in mid-2015 (Sunridge Gold Corp., 2013).

In the first phase of the project, Sunridge planned to produce nearly 5,400 kg/yr of silver and 970 kg/yr of gold in concentrate from the oxide zones at Debarwa and Emba Derho. The company also planned to mine 116,000 t of direct-shipment ore from Debarwa at a grade of 15.6% copper, 76.8 g/t silver, and 2.96 g/t gold. In the 15-month second phase, Sunridge planned to produce about 34,100 t/yr of copper, 24,000 kg/yr of silver, and 740 kg/yr of gold from the supergene copper ore at Debarwa and Emba Derho. In the 13-year third phase, the company planned to produce about 64,200 t/yr of zinc, 24,500 t/yr of copper, 21,700 kg/yr of silver, and 680 kg/yr of gold from copper-zinc primary sulfide ore at Adi Nefas, Debarwa, and Emba Derho. The estimated life of the project was more than 16 years (Sunridge Gold Corp., 2013).

China Shanghai Corporation for Foreign and Technological Cooperation (SFECO) of China held a 60% interest in the Zara project, which included the Koka gold deposit. ENAMCO held a 40% interest in the project. SFECO started construction of a new mine at Koka in 2012; production was likely to start in 2014. In a feasibility study completed in 2010, planned output was about 3,200 kg/yr of gold during the estimated 7-year life of the mine. Reserves were estimated to be 4.6 Mt at a grade of 5.1 g/t gold (Tarikh, 2012; Williams, 2013).

In the first half of 2013, Chalice Gold Mines Ltd. of Australia engaged in drilling at the Mogoraib North project. VMS deposits identified during the drilling program were deemed to be subeconomic. Andiamo Exploration Ltd. of the United Kingdom engaged in drilling at the Yacob Dewar VMS deposit in 2013, which was located about 50 kilometers southwest of the Bisha Mine (Chalice Gold Mines Ltd., 2013, p. 4; Williams, 2013).

Industrial Minerals

Cement.—Eritrea's cement plants were producing at the rate of about 260,000 t/yr in 2012 and 2013. Domestic cement consumption was estimated to be about 320,000 t in 2012 compared with 290,000 t in 2011. Gedem Cement Works and Eritrea Cement Works had capacities of 350,000 t/yr and 45,000 t/yr, respectively. Both plants were operating below capacity because of power shortages; Gedem Cement Works was engaged in the construction of a new generator that would allow the company to operate at full capacity (Edwards, 2013; International Cement Review, 2013; Ghebrihiwet, 2014).

Potash.—South Boulder Mines Ltd. of Australia's Colluli potash project is located in the Danakil Depression region. The company was engaged in a feasibility study of a new mine at Colluli in 2013. Depending on the results of the study, South Boulder could start mining by 2016. Planned production from sylvinite resources was 1 million metric tons per year (Mt/yr) of potash for the estimated 17-year life of the mine. South Boulder also studied the possibility of increasing production to 2 Mt/yr and extending the lifetime of the mine to 26 years by mining carnallite resources. Sylvinite production would reach 1 Mt/yr by 2017, and carnallite production, 1 Mt/yr by 2020. Carnallite resources were estimated to be 309 Mt at a grade of 12.3% potassium chloride (KCl), and sylvinite resources were estimated to be 110 Mt at a grade of 28.4% KCl (South Boulder Mines Ltd., 2013).

Salt.—Eritrea's salt miners were producing at the rate of about 290,000 t/yr in 2013. Assab Salt Works and Salina Salt Works had capacities of 150,000 t/yr and 80,000 t/yr, respectively. About 93% of Eritrea's salt production was exported, and 7% was consumed domestically (Woldu, 2013).

Outlook

Eritrea's mineral sector could expand substantially in the near future. Potash and zinc mining is expected to start in 2016. Gold production is likely to increase because of the planned

openings of the Koka project in 2014 and the Asmara North project in 2015. Silver production is expected to increase because of the mining of supergene and primary ore from the Bisha and the Asmara North projects. Copper production is likely to increase in 2014 and decrease after 2016; lower production resulting from the depletion of the supergene zone at the Bisha project would be partially offset by the development of the Asmara North project. Cement output could increase because of a new generator set up by Gedem Cement Works. Brick clay production also could increase in the near future (Ghebrihiwet, 2014).

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TABLE 1
ERITREA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity ³	2009	2010	2011	2012	2013
Basalt	51,000	52,000	59,000	62,000	62,000
Cement	45,000	45,000	190,000	260,000	260,000
Clays:					
Common	95,000 ^r	98,000 ^r	110,000 ^r	120,000 ^r	120,000
Kaolin	200	210 ^r	240 ^r	250 ^r	250
Copper	-- ⁴	-- ⁴	-- ⁴	-- ⁴	21,800 ⁴
Coral	75,000 ^r	77,000 ^r	89,000 ^r	92,000 ^r	92,000
Gold kilograms	30	50	11,788 ^{r,4}	9,735 ^{r,4}	2,900 ⁴
Granite	24,000 ^r	25,000 ^r	28,000 ^r	29,000 ^r	29,000
Gravel	89,000 ^r	92,000 ^r	105,000 ^r	110,000 ^r	110,000
Gypsum	1,000 ^r	1,000	1,200 ^r	1,200	1,200
Lime	155,000 ^r	170,000 ^r	190,000 ^r	190,000 ^r	190,000
Limestone	3,300 ^r	3,400 ^r	4,000 ^r	4,100 ^r	4,100
Marble, block cubic meters	35,000 ^r	36,000	41,000 ^r	42,000 ^r	42,000
Pumice	60	65 ^r	70 ^r	75 ^r	75
Quartz	100	110 ^r	120 ^r	120 ^r	120
Salt	70,000 ^r	120,000 ^r	180,000 ^r	240,000 ^r	290,000 ^r
Sand thousand metric tons	2,600 ^r	2,700 ^r	3,000 ^r	3,200 ^r	3,200
Silver ⁵ kilograms	--	-- ^r	4,400 ^r	29,900 ^r	15,799 ⁴

^rRevised. -- Zero.

¹Estimated data are rounded to no more than three significant digits.

²Table includes data available through July 31, 2014.

³In addition to the commodities listed, feldspar and talc were thought to be produced, but information is inadequate to confirm output.

⁴Reported figure.

⁵Reported sales.

TABLE 2
ERITREA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Brick	Dahlak Brick and Block Factory	Plant at Massawa	7,300 ^e
Cement	Gedem Cement Works	Gedem	350,000
Do.	Eritrea Cement Works	Massawa	45,000
Copper	Bisha Mining Share Co. (Nevsun Resources Ltd., 60%, and Eritrean National Mining Corp., 40%)	Bisha Mine near Bishia	86,000
Gold kilograms	do.	do.	2,900
Granite cubic meters	Margran plc	Gogne	3,000
Lime	Badme Construction Co.	Plants at Gogne	7,300
Do.	do.	Plant at Barentu	1,800
Marble cubic meters	Margran plc	Gheleb	5,000
Salt	Assab Salt Works	Assab	150,000
Do.	Salina Salt Works	Massawa	80,000
Silver kilograms	Bisha Mining Share Co.	Bisha Mine near Bishia	16,000

^eEstimated. Do., do. Ditto.