2015 Minerals Yearbook

SIERRA LEONE [ADVANCE RELEASE]

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The Mineral Industry of Sierra Leone

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Sierra Leone's mining industry was significantly affected in 2015 by both low international commodity prices and the residual effects of the 2014 Ebola virus disease (EVD) outbreak. With the price of iron ore declining on the global market, production of iron ore in Sierra Leone in 2015 plummeted to less than 14% of what it was in the previous year, correlating with the closure of the Marampa and the Tonkolili Mines in the Northern Province. Zirconium concentrate production declined steeply as well, although production of gold increased by 146%. As a result of these factors, the mineral sector's contribution to the gross domestic product (GDP) was significantly less than the year before, decreasing to 4.28% in 2015 from 26.2% in 2014 (Mining Weekly, 2015; Reuters Africa, 2015; Bank of Sierra Leone, 2016, p. 2, 6).

On November 7, the World Health Organization declared that the Ebola virus transmission had been stopped in Sierra Leone. The National Ebola Recovery Strategy (NERS) was launched in an effort to keep the EVD count at zero while simultaneously attempting to bring the economy back on the path to sustainable growth and stability. After real GDP growth in 2014 totaled 4.6%, it plummeted to −21.1% in 2015, in part owing to iron ore production decreasing by 86.5% (table 1; World Health Organization, 2015; International Monetary Fund, 2016, p. 1).

Minerals in the National Economy

The Ministry of Mines and Metal Resources of Sierra Leone is the Government agency responsible for the administration of the mining sector, which is regulated by the Mines and Minerals Act of 2009. Under this law, all rights of ownership in and control of minerals in Sierra Leone are vested in the state. Petroleum exploration and production are regulated by the Petroleum (Exploration and Production) Act (2011). The Petroleum Directorate is the Government agency tasked with monitoring all petroleum operations in the country, including assisting in the assessment of prospective investors in the sector, participating in the bidding process, assessing royalties and bonuses owed to the Government, and ensuring the establishment of a central database for petroleum-related activities, among other tasks. The Sierra Leone National Petroleum Company is responsible, on behalf of the Government, for the management of all commercial aspects of petroleum operations in the country (Ministry of Mines and Mineral Resources of Sierra Leone, 2010; Sierra Leone Web, 2013, p. 10–13).

The National Minerals Agency (NMA), which was created through the enactment of the National Minerals Agency Act in 2012, was officially launched on March 7, 2013. NMA is tasked with implementing mining policies and mineral legislation as devised by the MMR, and is responsible for the enforcement of the Mines and Minerals Act of 2009, for the management of mineral rights, for the collection and dissemination of geologic information, and for the regulation of trade in precious minerals (National Minerals Agency, 2014).

Production

The most significant decrease in production in 2015 was that of iron ore, which decreased by about 86% to 2.6 million metric tons (Mt) from 19.4 Mt in 2014. Low international prices, in conjunction with the economic toll of the EVD outbreak, resulted in the cessation of operations in the country's two major iron ore mining companies. Zirconium production decreased by about 44% to 1,326 metric tons (t) in 2015, down from 2,357 t the year before. Diamond production declined significantly as well, as the country produced only 500,000 carats in 2015 compared with 620,181 carats in 2014. Gold also saw a significant change in production, but unlike iron ore and zirconium, its production increased in 2015, by 146% to 106 kilograms (kg) from 43 kg in 2014. Additionally, rutile production increased by 10%, as Sierra Leone produced 126,022 t in 2015 compared with 114,163 t in 2014. Data on mineral production are in table 1.

Structure of the Mineral Industry

Sierra Leone's mining and mineral-processing operations were privately owned. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Bauxite and Alumina.—In 2015, Sierra Leone's bauxite production increased to 1.33 Mt from 1.16 Mt in the previous year. Vimetco N.V. reported that investments at the Sierra Minerals Mine, which included the commissioning of a new processing plant in late 2015, were among the reasons for the increase in production. In 2014, a reorganization program had been implemented at Vimetco, which included, among other things, the outsourcing of mining and transportation activities and the refurbishing of the mine's bauxite washing equipment. Vimetco operated Sierra Minerals Mine through its subsidiary Sierra Mineral Holdings I Ltd. (SMHL). All bauxite produced by SMHL was shipped to Romania for refining into alumina at Vimetco's alumina refinery in Tulcea and into aluminum at the company's aluminum smelter in Slatina. Since 2012, SMHL has had an updated mining lease agreement with the Government, granting the company 321 square kilometers in the Mokanji area for a 20-year period (Vimetco N.V., 2015, p. 10–15; 2016, p. 8, 14).

Gold.—Amara Mining plc of the United Kingdom continued to evaluate the potential of developing the Baomahun gold project. The company was in the process of re-examining and relogging core data to evaluate the potential of developing a mine with a production capacity of between 10,000 to 12,000 kilograms per year of gold. Indicated mineral resources for Baomahun were estimated to be 38.4 Mt at an average grade of 1.81 grams per metric ton (g/t) gold and inferred mineral resources were estimated to be 6.6 Mt at an average grade of

2.2 g/t gold. A feasibility study for Baomahun property was completed during the second quarter of 2013, and the results of the first phase of optimization work, which established the potential for the development of both an open pit and an underground mining operation, was announced in January 2014 (Amara Mining plc, 2015, p. 7, 12).

Iron Ore.—The combination of rapidly declining international iron ore prices and the damage caused by the EVD outbreak took a major toll on iron ore production in 2015. On April 20, Shandong Iron and Steel, which owned a 25% stake in the Tonkolili Mine, acquired all the remaining shares from its partner African Minerals after the latter had failed to make payments to Shandong, its lender and partner in the project. The iron ore mine, which was the second largest in Africa, had been in care-and-maintenance status since 2014. In addition to having complete equity in Tonkolili, Shandong also obtained the associated infrastructure company African Port and Railway Services. Shandong had stated its intent to restart production at the mine, but as of yearend 2015, had not yet done so (Reuters Africa, 2015).

Sierra Leone's other iron ore mine, Marampa, which was acquired by Timis Corp. in October 2014, ceased production in April. The closure of both mines had a substantial effect on Sierra Leone's economy, contributing to a decline in real GDP growth, a widening trade deficit, and inflationary pressures (Bloomberg.com, 2015; Bank of Sierra Leone, 2016, p. 1, 3).

Titanium and Zirconium.—Zircon production, like iron ore production, declined significantly in 2015 as a result of the commodity price decreasing by 3% from that of 2014. Sierra Rutile Ltd., which was Sierra Leone's sole producer of mineral sands, reported that 1,326 t of zirconium concentrate was produced throughout the year, which was down from 2,357 t in 2014. Production of rutile concentrate increased to 126,022 t, however, and production of ilmenite concentrate increased to 37,633 t during the year. Owing to the low production costs of these commodities, the industry was not as vulnerable to fluctuating international prices as other industries in the mineral sector (Bank of Sierra Leone, 2016, p. 6; Sierra Rutile Ltd., 2016, p. 12).

Industrial Minerals

Diamond.—BSG Resources Ltd. (BSGR) mined diamond from primary (kimberlite pipe) deposits in the Tankoro chiefdom of Kono District, which is located in Eastern Province about 360 kilometers (km) east of the capital city of Freetown. The project, known as the Koidu Kimberlite Project (KKP), consisted of two kimberlite pipes, four kimberlite dike zones, and four small blows (small pipe-like primary diamond deposits that form along kimberlitic dike systems), which the company mined through its subsidiary OCTÉA Diamond Group. The company also held the exploration rights for an area that hosts several kimberlite dike zones known as the Tonguma diamond project. The project is located about 68 km south of Koidu in the Lower Bambara chiefdom, Kenema District. In 2015, the Kimberley Process Certification Scheme reported Sierra Leone's total rough diamond production as 500,000 carats, which was down from 620,181 carats in 2014 (Koidu Holdings Ltd., 2017; Kimberley Process, 2017).

Mineral Fuels

Petroleum.—Sierra Leone did not produce or refine petroleum and was dependent upon imports to meet its domestic petroleum requirements. In 2015, African Petroleum Corp. Ltd. of Australia held a 100% working interest in offshore licenses SL–03 and SL– 4A–10, for which it acquired three-dimensional seismic data in 2014. In December, the company announced that it had entered the first extension period on the SL–03 license after the initial exploration license expired in April (African Petroleum Corp. Ltd., 2017).

Outlook

Sierra Leone's economy continued to be affected by dwindling global prices for mineral commodities, such as iron ore, and the residual effects of the 2014 EVD outbreak. The closures of the Marampa and the Tonkolili Mines had a devastating effect not only on the mineral sector, but on Sierra Leone's economy as a whole. Whereas the future of Sierra Leone's iron ore mines and undeveloped mining projects, such as the Baomahun gold project, remains uncertain, signs of economic improvement were evident as well, such as the removal of travel restrictions and the recovery from the EVD crisis.

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TABLE 1
SIERRA LEONE: PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Metric tons unless otherwise specified)

Commodity		2011	2012	2013	2014	2015
Bauxite[3]	thousand metric tons	1,300	776	616	1,161	1,334
Cement[4]		310,890	335,400	313,360	336,300	324,110
Diamond[5, 6]	carats	357,161	541,166	608,955	620,181	500,000
Gold, mine output, Au content[4]	kilograms	164	135	98	43	106
Iron ore:						
Gross weight	thousand metric tons	1,300 [7]	6,800	20,300	19,429 [r, 4]	2,624
Fe content	do.	800 [8]	3,600	11,900 [9]	11,300 [r, e]	1,500 [e]
Titanium:						
Ilmenite concentrate		15,946	22,590	32,349	35,838	37,633
Rutile concentrate		67,916	94,493	120,349	114,163	126,022
Zirconium, zircon concentrate		8,496 [4]	1,120	2,951	2,357	1,326

[e]Estimated; estimated data are rounded to no more than three significant digits. [r]Revised. do. Ditto.
[1]Table includes data available through March 31, 2017.
[2]In addition to the commodities listed, lignite, molybdenum, silver, and tin reportedly were produced, but available information was inadequate to make reliable estimates of output.
[3]Production in dry metric tons.
[4]Source: Bank of Sierra Leone.
[5]Source: Kimberley Process Certification Scheme.
[6]About 80% gem quality and 20% industrial quality.
[7]Excludes production from the Marampa Mine, which began operating in December 2011.
[8]The ore grade at the Marampa Mine was estimated to be 32% for a total iron content of 1.5 million metric tons (Mt); the ore grade at the Tonkolili Mine was estimated to be 58% for a total iron content of 5.1 Mt.
[9]The ore grade at the Marampa Mine was estimated to be 63.6% for a total iron content of 13.4 Mt; the ore grade at the Tonkolili Mine was estimated to be 57.6% for a total iron content of 16.9 Mt.

TABLE 2
SIERRA LEONE: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Bauxite		Sierra Mineral Holdings I Ltd. (Vimetco N.V., 100%)	Sierra Minerals Mine, 150 kilometers southeast of Freetown	1,700
Cement		Sierra Leone Cement Corp. Ltd. (HeidelbergCement AG, 100%)	Leocem cement plant, Freetown	600
Diamond	thousand carats	OCTÉA Diamond Group (BSG Resources Ltd., 100%)	Two kimberlite pipes, 2 kilometers from the district capital of Koidu	540
Gold	kilograms	Artisanal miners	Various locations throughout the country	NA
Iron ore		Tonkolili Iron Ore (SL) Ltd. (Shandong Iron and Steel Group, 100%)	Tonkolili Mine, 190 kilometers northeast of Freetown	20,000 [1]
Do.		London Mining plc	Marampa Mine, 150 kilometers northeast of Freetown	5,400 [1]
Titanium:				
Ilmenite		Sierra Rutile Ltd.	Sierra Rutile Mine, 130 kilometers southeast of Freetown	41
Rutile concentrate		do.	do.	200
Zirconium, zircon concentrate		do.	do.	10

Do., do. Ditto. NA Not available.
[1]On care-and-maintenance status.