



2014 Minerals Yearbook

LIBERIA

THE MINERAL INDUSTRY OF LIBERIA

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Liberia's mineral sector faced many challenges in 2014, which included a decrease in the international price of iron ore, one of the country's main export commodities; the emergence of the Ebola virus disease (EVD) outbreak and related restrictions regarding the freedom of movement within the country; the temporary cancellation of commercial flights to and from Liberia; and the temporary repatriation of mining company staff. Despite these challenges, companies with active mining operations in Liberia, such as Luxembourg-based ArcelorMittal, China-based Wuhan Iron and Steel (Group) Corp., and Germany-based HeidelbergCement AG, continued to carry out their operations mostly uninterrupted through yearend (ArcelorMittal, 2014a; 2014b, p. 9; 2015, p. 210; British Airways, 2014; Front Page Africa, 2014; Miller, 2014; Wuhan Iron and Steel (Group) Corp., 2014; HeidelbergCement AG, 2015, p. 2; Ministry of Finance and Development Planning, 2015, p. 1).

Liberia produced barite, cement, diamond, small amounts of gold, iron ore, sand, and crushed stone. Cement was manufactured from imported raw materials at a plant in Monrovia, diamond and gold were produced by artisanal miners from alluvial deposits at various locations throughout the country, and iron ore was produced from the Bong and Western Range Project Mines in the northern and western parts of the country. Although Liberia's mineral production was small in terms of its contribution to world output, the mineral sector—in particular the diamond and iron ore industries—played a significant role in the country's economy as a major contributor to the gross domestic product (GDP) and to export revenues. In 2014, however, the mineral sector's contribution to GDP decreased to 10.7% from a revised 17% in 2013. Diamond, gold, and iron ore exports, which generated more than \$423 million in 2014, accounted for about 73% of Liberia's total export revenues. Liberia's nominal GDP in 2014 was estimated to be \$2 billion. The mineral sector remained the country's main source of foreign exchange (International Monetary Fund, 2014; Ministry of Finance and Development Planning, 2015, p. 1, 28–29, 47).

The onset of the EVD outbreak forced mining companies operating in Liberia to take precautionary measures to secure their operations. Most companies secured the perimeters of mining sites, established new health screening and operational protocols, and provided training to staff to ensure safety in and around mining facilities and within adjacent local communities. In August 2014, a group of mining companies operating in Ebola-affected countries, including Liberia, developed a platform to discuss the need for a coordinated effort to address the Ebola crisis. These discussions resulted in the creation of the Ebola Private Sector Mobilisation Group (EPSMG). The EPSMG, which was led by ArcelorMittal, was created to assist in the mobilization of in-country resources to support humanitarian and health-care efforts in Ebola-affected countries and to raise awareness of the EVD. The advocacy group included more than 80 companies operating in a broad

range of sectors, as well as Governmental and nongovernmental organizations. In addition to signing a United Nations pledge to continue to operate their businesses, honor financial commitments, and pay and train staff, many mining companies also donated funds to the local governments and international organizations and donated medical equipment and supplies, motor vehicles (including ambulances), food, fuel, and disinfectant products (ArcelorMittal, 2014a–c; 2014d, p. 45–46; 2015, p. 219; National Port Authority of Liberia, 2014; Wuhan Iron and Steel (Group) Corp., 2014; Bermúdez-Lugo and Menzie, 2015; HeidelbergCement AG, 2015, p. 2, 101; United Nations Global Compact, 2015).

As of December 31, 2014, the reported number of cumulative cases of the EVD in Liberia was 8,018 or 39.8% of a total of 20,171 cases reported in Guinea, Liberia, and Sierra Leone, the three countries most affected by the EVD outbreak. The total number of reported deaths in Liberia resulting from the EVD was 3,423 people. In a period of 9 months, the 2014 EVD outbreak had become the deadliest EVD epidemic since the discovery of the disease in West Africa in 1976 (Gleeson, 2014; Serapio, 2014; World Health Organization, 2014).

In 2012, mineral projects had been identified by the International Monetary Fund (IMF) and the World Bank as being the underpinnings for forecasts of GDP growth in Liberia through 2015. Future GDP growth was not only to be largely driven by the ramping up of the country's only iron ore operation at the time, but also by the future commissioning of new gold and iron ore projects in the pipeline. The IMF's outlook, however, cautioned about the potential for such growth to slow down owing to an expected decrease in the international price of these mineral commodities, which were likely to adversely affect Government revenue and export receipts. As projected, iron ore prices began to decrease in 2013 and by yearend had decreased to \$68 per metric ton from \$130 per metric ton in early 2014 (International Monetary Fund, 2012, p. 14; Gleeson, 2014; Serapio, 2014; Bermúdez-Lugo and Menzie, 2015).

Despite the slump in the international price of gold and iron ore, mining companies with gold and iron ore projects at advanced stages of development, such as Canada-based Aureus Mining Inc. and Russia-based PAO Severstal, formerly known as OAO Severstal (the name changed on December 3, 2014) continued to work on the development of their respective projects. India-based Vedanta Resources plc, however, reported that on October 10 it had removed some of its staff from Liberia as it continued to monitor the EVD outbreak. Vedanta held the rights to the Western Cluster iron ore project, which is located about 140 kilometers (km) northwest of the capital city of Monrovia. ArcelorMittal contractors working on phase two of the Western Range project (WRP) also temporarily removed staff from the country (ArcelorMittal, 2014b; Aureus Mining Inc., 2014; OAO Severstal, 2014; PAO Severstal, 2014; Vedanta Resources plc, 2014).

At least three mining companies, including Aureus Mining Inc., and Australia-based companies Birimian Gold Ltd. and Sarama Resources Ltd., explored for gold. Two other Australia-based companies, Tawana Resources NL and West Peak Iron Ltd., explored for iron ore to the northeast and southwest of the country. U.S.-based Sunergy Inc. explored for diamond. These projects, however, were at the early stages of exploration as of yearend 2014 (Aureus Mining Inc., 2014; Birimian Gold Ltd., 2014; OAO Severstal, 2014; Sarama Resources Ltd., 2014; Tawana Resources NL, 2014; Vedanta Resources plc, 2014).

Government Policies and Programs

The Ministry of Lands, Mines, and Energy (MLME) is the Government agency responsible for the administration of the mining sector, including the granting of mining licenses, and it has statutory oversight of the energy, land, mineral, and water sectors. The mineral sector is regulated by the Mining and Minerals Law of 2000. The Mineral Policy of Liberia, which was created in 2010, complements the Mining and Minerals Law and outlines the Government's expectations with regard to the contributions of all stakeholders to the sustainable development of Liberia's mineral resources. The draft of a new Mining and Minerals Law continued to be under review in 2014 (Alix, 2014).

Exports and imports of rough diamond are overseen by the Government Diamond Office (GDO) within the MLME and by the Bureau of Customs. The legal framework for the hydrocarbon sector is provided by the Petroleum Law of 2000. The National Oil Company of Liberia (NOCAL) is the state-owned company charged with coordinating the development of Liberia's hydrocarbon sector. The draft of a new Petroleum Law, which was submitted to Liberia's Legislature in 2013, was approved by the House of Representatives on December 19, 2014, and was pending Senate approval as of yearend (allAfrica.com, 2014).

Production

In 2014, cement output increased by 52.3% to 295,363 metric tons (t), mostly as a result of the ramping up of operations at Liberia Cement Corp. Ltd.'s Cemenco plant following the commissioning of a cement mill in 2013. Iron ore production was estimated to have increased by 11.7% to 5.25 million metric tons (Mt). This estimate was based on reported production by ArcelorMittal of 4.9 Mt and estimated production of 350,000 t from China Union Investment (Liberia) Bong Mines Co.'s (CUI) Bong Mine for the 7 months from February to September 2014. Rough diamond production, as reported by the Central Bank of Liberia, increased by 46.2% to 78,497 carats. Gold output, which was reported to be 598 kilograms (kg) remained at about the same level of production that was estimated by the Central Bank of Liberia in 2013. Data on crushed stone and sand output were unavailable and, therefore, were estimated. Data on mineral production are in table 1.

Structure of the Mineral Industry

All major mining operations in Liberia were privately owned. Artisanal and small-scale miners produced gold and diamond in various counties throughout the country. Table 2 is a list of major mineral industry facilities.

Mineral Trade

Liberia's total export earnings were estimated to have increased by 3% to \$577.6 million from \$560.3 million in 2013. Iron ore, which in 2013 displaced rubber as the country's most significant source of Government revenue, accounted for about 65% of total export revenue in 2014. Iron ore export proceeds increased by 15% to \$373.8 million from \$325 million in 2013, and diamond by 106% to \$35.2 million from \$17.1 million; proceeds from gold exports, however, decreased by 29.6% to \$14.5 million from \$20.6 million in 2013 (Ministry of Finance and Development Planning, 2015, p. 46–47).

Liberia's total exports to the United States were valued at about \$83.4 million in 2014 compared with about \$96.5 million in 2013 and \$144 million in 2012. These exports included \$701,000 worth of rough diamond. Imports from the United States were valued at \$184.8 million in 2014 compared with \$173.2 million in 2013 and a revised \$241.1 million in 2012. These imports included nearly \$19.8 million worth of drilling and oilfield equipment, \$11.3 million worth of iron and steel products, \$2.9 million worth of excavating machinery, \$2.3 million worth of petroleum products, and \$2.2 million worth of nonmetallic minerals (U.S. Census Bureau, 2015a, b).

Commodity Review

Metals

Gold.—Gold mining projects under development in Liberia included the New Liberty project, which was operated by Aureus Mining Inc. of Canada, and the Dugbe 1 project, which was operated by United Kingdom-based Hummingbird Resources plc. In May 2013, Aureus had completed a definitive feasibility study for the New Liberty Mine, which yielded a revised reserve estimate of 8.5 Mt of ore grading 3.4 grams per metric ton (g/t) gold in the proven and probable category. Based on these results, the company planned to develop a 3,700-kilogram-per-year (kg/yr) gold mining operation. In 2014, Aureus continued to work on its development plan for the New Liberty Mine and announced that construction work on the primary and secondary crushers had been completed. The construction of the mill, the carbon-in-leach tanks, and the tailings storage facility were also reported to be progressing as planned. Six of a total of eight power generators were commissioned, and the mine workshop buildings had been constructed and were pending connection to the main power supply. An updated mining plan, which was based on the mining of an additional pit not included in the original mining plan, was expected to increase output during the first year of operation to about 3,800 kg/yr of gold. The New Liberty Mine, which was to be located about 90 km north of the capital city of Monrovia,

was expected to be commissioned in June or July of 2015 (Aureus Mining Inc., 2015, p. 4–5, 19).

Aureus also explored for gold at the Ndablama concession area, which is located about 40 km from the New Liberty Mine, and at the Weaju concession area, which is located about 30 km to the northeast of the New Liberty Mine. In 2013, AMC Consultants (UK) Ltd. of the United Kingdom had completed a National Instrument 43-101 resource estimate for both projects. Inferred mineral resources were estimated to be 6.8 Mt at an average grade of 2.1 g/t gold for Ndablama and 2.7 Mt at a grade of 2.1 g/t gold for Weaju. An updated mineral resource estimate for Ndablama was completed in December 2014, which yielded indicated mineral resources of 7.6 Mt at an average grade of 1.58 g/t gold and inferred mineral resources of 9.6 Mt at an average grade of 1.7 g/t gold. Aureus also explored for gold at other target areas contiguous to the New Liberty Mine and the Ndablama concession area but the company's activities were at an early stage of exploration (Aureus Mining Inc., 2015, p. 6–8).

Aureus reported establishing precautionary measures and developing a contingency plan to ensure that its staff in Liberia was not exposed to unnecessary risks resulting from the EVD outbreak. Some of these measures included controlling access to and from its operations, temperature screening of employees, training staff and local community residents, and imposing travel restrictions on its staff. Aureus also reported working with the Government of Liberia to support its efforts to contain and eradicate the EVD and reported becoming a part of the EPSMG (Aureus Mining Inc., 2015, p. 10).

Hummingbird focused on reviewing and optimizing a definitive feasibility study for the Dugbe 1 project. Based on a preliminary economic assessment completed for the project in 2013, the company had reported the potential to develop a mine with the capacity to produce more than 3,800 kg/yr of gold for a period of 20 years. Hummingbird planned to conduct a drilling program for Dugbe 1 in 2015 and to continue with metallurgical testing (Hummingbird Resources plc, 2014; 2015, p. 2, 6–9).

Iron Ore.—ArcelorMittal, which produced iron ore from the WRP in northeastern Liberia announced the delay of phase 2 of its \$1.7 billion expansion project after 645 contractors were evacuated from the country in August. At least 15 companies contracted by ArcelorMittal to work on phase 2 of the WRP were reported to have declared *force majeure* following the increase in the number of reported EVD cases in the country. The evacuation of these staff members did not affect ArcelorMittal's phase 1 expansion program for WRP, which progressed uninterrupted for the remainder of the year. In 2014, production from the WRP Mine increased by about 19.5% to 4.9 Mt from 4.1 Mt in 2013. ArcelorMittal produced iron ore in Liberia at a reported cost of less than \$30 per metric ton. The company transported iron ore from the mine to the Port of Buchanan by way of a 243-km single-track railway line. The phase 2 expansion program was expected to increase iron ore production to 15 million metric tons per year (Mt/yr) by 2015 (Mawolo, 2013; ArcelorMittal, 2014a, p. 6; 2014b; 2014d, p. 45–46; 2015, p. 210, 216–219, 221).

In July, PAO Severstal was granted a mining license for the Putu Range Project. The project included the Putu iron ore

deposit, which is a 13-km-long iron-rich ridge located 130 km inland from the deepwater shoreline of eastern Liberia. The mineral resource estimate for the Putu deposit was 4.4 billion metric tons of iron ore at an average grade of 34% iron. In addition to this resource, the area was reported to hold about 100 Mt of direct-shipping ore. A definitive feasibility study for the Putu Range conducted in 2013 was expected to be completed in 2014. Information on the status of the Putu Range Project as of yearend 2014 was unavailable. In 2013, the company had reported that it planned to commission the 20 Mt/yr iron ore operation by 2018 (OAO Severstal, 2014; PAO Severstal, 2014).

CUI shipped its first iron ore production from the Bong Mine in early February. CUI, which was Wuhan Iron and Steel (Group) Corp.'s (WISCO) subsidiary in Liberia, planned to invest \$2.6 billion to rehabilitate the Bong Mine and the facilities at the Freeport of Monrovia and to construct a road between Kakata in Margibi County and the Bong Mine site. As of February 2014, the company had invested about \$100 million in the project. Annual iron ore production from the Bong Mine was expected to be 1 Mt during its first phase of production and to ramp up to 10 Mt/yr by 2016. Despite the EVD outbreak and the decrease in the price of iron ore, the Bong Mine remained operational through yearend. WISCO reported taking precautionary safety measures to protect its staff and assisting the Government in its efforts to contain the virus by providing food, petroleum, medicine, and medical assistance (National Port Authority of Liberia, 2014; Wuhan Iron and Steel (Group) Corp., 2014).

Industrial Minerals

Cement.—HeidelbergCement reported in September that its Cemenco plant in Monrovia was operational although heavy rainfall and the EVD outbreak had impaired construction activities in the country. The company also reported that the outbreak had a negative effect on the availability of vessels and on freight rates. HeidelbergCement, which had commissioned a 500,000-metric-ton-per-year (t/yr) cement mill in 2013, reported that the EVD outbreak had not had a significant effect on its operation at Cemenco. The company reported providing training to staff regarding preventative measures to follow in light of the EVD outbreak and announced that none of its employees had contracted the disease. HeidelbergCement cautioned that as of yearend 2014 new cases of EVD were still being recorded in Liberia and warned that if the number of new cases continued to increase there would be a risk that imports of raw materials used in the manufacturing of cement at Cemenco could be interrupted (HeidelbergCement AG, 2014a, p. 2; 2014b, p. 9; 2015, p. 2).

Diamond.—Sunergy explored for diamond in the vicinity of the Lofa River. In August, the company reported that its exploration activities remained uninterrupted despite the EVD outbreak and announced that it had taken all precautionary safety measures to protect its staff. The company had two dredges operating in Liberia, which it used to explore for diamond and gold (Sunergy Inc., 2014a, b).

Mineral Fuels

Petroleum.—Liberia did not produce or refine petroleum in 2014 and was dependent upon imports for its domestic petroleum requirements. Between 2000 and 2010, NOCAL hired TGS Nopec Geophysical Co. of the United States to carry out two-dimensional and three-dimensional seismic data surveys for most of Liberia's offshore petroleum acreage. This led to the establishment of Liberia's existing 30 concessionary blocks. Seventeen of these blocks were within the continental shelf to water depths of between 2,500 to 4,000 meters (m), and 13 were ultra-deep blocks with water depths of as much as 4,500 m. Most of these blocks were open for exploration in 2014, and eight were under exploration contracts (National Oil Company of Liberia, 2015).

On August 5, NOCAL announced the opening of the 2014 Liberia Basin competitive bidding round for four offshore petroleum exploration blocks, which included Blocks LB-6, LB-7, LB-16, and LB-17. Joint-venture partners Anadarko Petroleum Corp. of the United States, Repsol S.A. of Spain, and Tullow Oil plc of the United Kingdom had been awarded the production-sharing contracts for Blocks LB-16 and LB-17 in 2005 when the Government offered the blocks for exploration, but the blocks were eventually relinquished by the joint-venture partners in 2012 and 2013 without drilling. Blocks LB-6 and LB-7 had become available during a 2007–8 bidding round, but no production-sharing agreements were granted at the time. The country's LB-1 through LB-5 blocks and the ultra-deep water blocks (LB-18 through LB-30) were under a licensing moratorium pending the enactment of new oil sector legislation (National Oil Company of Liberia, 2014a, b; 2015).

Outlook

Liberia's Ministry of Finance and Development Planning reported that prior to the onset of the EVD outbreak the country was experiencing a slowdown in economic activities as a result of a decrease in domestic demand and in the international price of its key commodities, iron ore and rubber (Ministry of Finance and Development Planning, 2015, p. 1). Although neither the widespread transmission of the EVD nor the decrease in the international price of iron ore deterred (for the most part) mining company activities in the country in 2014, these events are likely to continue to put financial pressure on mining companies operating in the country. The prospects for future foreign direct investment in mining and hence that of the country's economic growth are more likely to remain vulnerable to changes in mineral market conditions than to the effects of the EVD outbreak on mining operations. The Ministry of Finance and Development Planning projects GDP growth in 2015 to be -1.1% (Ministry of Finance and Development Planning, 2015, p. 11).

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TABLE 1
LIBERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2010	2011	2012	2013	2014
Barite	--	--	8,000 ^e	25,000 ^e	50,000 ^e
Cement, hydraulic ²	71,733	80,594	121,592	193,980 ^r	295,363
Diamond ^{3,4}	carats	26,591	41,932	41,985	53,699 ^r
Gold, mine output, Au content ^{2,5}	kilograms	666	448	641	600 ^e
Iron ore: ⁶					
Gross weight	thousand metric tons	--	1,300	3,300	4,698 ²
Fe content ^e	do.	--	780	1,980	2,800
Sand		110,000	103,000	201,800	200,000 ^e
Stone, crushed ^{e,7}		3,000	2,600	4,400	7,800

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. -- Zero.

¹Table includes data available through June 23, 2015.

²Reported by the Central Bank of Liberia.

³Production estimated to be approximately 60% gem quality.

⁴Reported by the Kimberley Process Certification Scheme.

⁵Production of gold by artisanal miners.

⁶Direct-shipping ore.

⁷Estimated based on cement production.

TABLE 2
LIBERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Barite	Steinbock Minerals Liberia Ltd.	Margibi County	NA
Cement	Liberia Cement Corp. Ltd. (HeidelbergCement AG, 81.76%)	Cemenco plant, Monrovia	700
Diamond	Artisanal and small-scale mining	Various counties	NA
Gold	do.	do.	NA
Iron ore	ArcelorMittal (Liberia) Ltd. (ArcelorMittal, 85%)	Western Range Project, 300 kilometers northeast of Monrovia	5,000
Do.	China Union Investment (Liberia) Bong Mines Co. [Wuhan Iron and Steel (Group) Corp. (WISCO)]	Bong Mine, Fuamah District, Bong County	1,000

Do., do. Ditto. NA Not available.