



# 2013 Minerals Yearbook

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**LIBERIA [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF LIBERIA

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In 2013, Liberia's estimated real gross domestic product (GDP) increased by 8.1% to \$896.7 million. Although the mineral sector accounted for only 10.8% of the GDP, the sector grew by 40% during the year. This growth was largely driven by increased output in the cement, diamond, and iron ore industries. The services sector, however, continued to account for the largest share of the GDP (46.7%), followed by the agriculture and fishery, mineral, forestry, and manufacturing sectors, which accounted for 25%, 10.8%, 10%, and 7% of the GDP, respectively. Export earnings from the mineral sector increased by 125% to \$351.2 million in 2013 from \$155.8 million in 2012; the majority of these proceeds were generated by the iron ore industry. Projects to rehabilitate roads connecting the southern parts of the country to Guinea and Sierra Leone and to increase electrical power capacity were underway, and foreign companies continued to engage in gold, iron ore, and petroleum exploration activities in the country (Central Bank of Liberia, 2014, p. 10–11; Ministry of Finance, 2014, p. 7–9).

Mineral commodities produced in Liberia included cement, diamond, gold, iron ore, sand, and crushed stone. Other mineral resources, which were still undeveloped, included base metals (such as cobalt, lead, manganese, nickel, and tin), and industrial minerals (such as dolerite, granite, ilmenite, kyanite, phosphate rock, rutile, and sulfur). Liberia continued to make significant progress in the rehabilitation of the mining sector by opening up to foreign direct investment and adhering to global standards for transparency. The country was a participant in the Extractive Industries Transparency Initiative (EITI) and had been compliant with EITI standards since October 14, 2009. Liberia was also a member of the Kimberley Process Certification Scheme (KPCS) (Extractive Industries Transparency Initiative, 2014; Kimberley Process Certification Scheme, 2014).

## Government Policies and Programs

The Ministry of Lands, Mines and Energy (MLME) is the Government agency responsible for the administration of the mineral 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 was created in March 2010 to complement the Mining and Minerals Law. The document outlines the Government's expectations with regard to the contributions of all stakeholders in the sustainable development of Liberia's mineral resources. These laws were under review in 2013 (AllAfrica Global Media, 2013a; Boima, 2013).

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 was provided by the Petroleum Law of 2002. The Government, however, was in the process of reviewing its hydrocarbon sector policies and legislation. A new

Petroleum Policy was submitted to Congress in late 2013, and, as of yearend, was pending approval by the Liberian House of Representatives. The National Oil Company of Liberia (NOCAL) is the independent state-owned company charged with coordinating the development of Liberia's hydrocarbon sector (Ministry of Lands, Mines and Energy, 2011, p. 10, 14; Perry, 2013).

In 2013, the Government was in the process of rehabilitating its roads, including 180.4 kilometers (km) of road connecting Red Light to Ganta; 86 km of road segments connecting the Kolahun junction to the Vahun and Bomaru Roads, and the Karweaken Road to the Barclayville Road; 68.6 km of road connecting Gbarnga to the Guinean border; a 13.2-km segment of Somalia Drive connecting the Freeport of Monrovia to Red Light; a 12-km road connecting Caldwell to Louisiana; and 5.1 km of S.K.D. Boulevard. These roads constitute a vital transport route linking the city of Harper in Maryland County, which is located in southeastern Liberia near the border with Côte d'Ivoire, to Liberia's borders with Guinea and Sierra Leone. The rehabilitation of these roads is expected to bring economic development to southeastern Liberia as these roads are expected to be used as a major transport corridor linking domestic as well as regional markets (Ministry of Finance, 2014, p. 8).

Other infrastructure projects underway included the rehabilitation of the Mt. Coffee hydroelectric powerplant, which was to add 80 megawatts (MW) to the national grid, and the construction of a new 10-MW heavy-fuel-oil powerplant at a cost of \$10 million to be funded by the Japan International Cooperation Agency and the World Bank. In September, the Government also signed a \$144 million line of credit agreement with Export-Import Bank of India for the financing of a project to transmit and distribute electricity to the cities of Buchanan, Ganta, and Kakata. The administration of the project would be carried out by a third party, which would be selected through a competitive bidding process (Ministry of Finance, 2014, p. 9).

In November, ArcelorMittal of Luxembourg, Putu Iron Ore Mining Co. Inc. (a subsidiary of OAO Severstal of Russia), and Western Cluster Ltd. (a subsidiary of Vedanta Resources plc. of the United Kingdom) signed an agreement to establish Liberia's first Chamber of Mines. The proposed Chamber of Mines was to serve as an umbrella organization representing the interests of companies operating mining concessions in Liberia. The Chamber was also to provide advisory services to its members regarding the country's mineral law and its mining regulations and policy (AllAfrica Global Media, 2013b).

## Production

In 2013, cement output increased by 49.5% to a reported 181,829 metric tons (t) from 121,592 t in 2012. The Central Bank of Liberia (CBL) attributed the increase in production to expansions at local cement plants in response to increased

activities in the domestic construction sector. Iron ore production, as reported by the CBL, increased by 42.4% to nearly 4.7 million metric tons (Mt) as a result of increased production from the Western Range Project (WRP). KPCS public statistics on Liberia's rough diamond production were not available; however, the CBL reported diamond output to be 44,334 carats in 2013, which reflected an increase in production of 5.6% compared with that of 2012. The increase in diamond production was attributed to a rise in the number of diamond fields in operation. Gold output was estimated to have decreased by 6.4% to 600 kilograms. Decreased output was reportedly the result of a decrease in the world market price for gold. Information on crushed stone and sand output was estimated (Central Bank of Liberia, 2014, p. 12–13). Data on mineral production are in table 1.

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

## Commodity Review

### Metals

**Gold.**—Construction work at the New Liberty gold mine was reportedly on schedule and about 33% completed as of yearend 2013. Aureus Mining Inc. of Canada (AMI), which owned the mining rights to the project, completed a definitive feasibility study for the mine in May. The study disclosed a revised reserve estimate of 8.5 Mt grading 3.4 grams per metric ton (g/t) gold in the proven and probable category and resource estimates of 9.8 Mt grading 3.6 g/t gold in the measured and indicated category, and 5.7 Mt grading 3.2 g/t gold in the inferred category. The new reserve estimate was expected to support an open pit operation with a capacity to produce an average of about 3,700 kilograms per year (reported as 119,000 troy ounces per year) for the first 6 years of operation. The New Liberty Mine, which was to be located about 90 km north of the capital city of Monrovia, would be Liberia's first commercial gold mine (Aureus Mining Inc., 2014, p. 6–7).

In November, AMC Consultants (UK) Ltd. of the United Kingdom completed a National Instrument 43–101 resource estimate for AMI's Ndablama and Weaju gold projects in Liberia. Inferred mineral resources were estimated to be 6.8 Mt at a grade of 2.1 g/t gold for Ndablama and 2.7 Mt at a grade of 2.1 g/t gold for Weaju. Exploration was to continue in 2014. The Ndablama and the Weaju projects are located within AMI's Bea Mountain mining concession area in northwestern Liberia [AMC Consultants (UK) Ltd., 2013, p. 10].

**Iron Ore.**—ArcelorMittal produced about 4.7 Mt of iron ore in 2013, which included direct-shipping ore from its WRP and stockpiled material. The company planned to further increase production capacity to 15 million metric tons per year (Mt/yr) by replacing the current production of direct-shipping ore (60% Fe content) with that of sinter fines (62% Fe content) by the end of 2015. The WRP consisted of three iron ore deposits located about 300 km northeast of the capital city of Monrovia along Nimba County's mountain range. Some deposits within the WRP had been mined during the 1980s and the beginning of the

1990s, but production had ceased in 1992 following the onset of the Liberian civil war. The WRP deposits consist of a highly weathered 250- to 450-meter (m)-thick itabirite iron formation. ArcelorMittal held a 70% interest in the project (ArcelorMittal, 2013, p. 23, 207, 211–212; 2014a, p. 104, 144; 2014b, 211).

The commissioning of the first phase of the development of the Bong Mines took place on July 30, 2013, at Fuama District in lower Bong County. Phase 1 would consist of the setting up of the mining camp and processing facilities and the refurbishing of the railroad between the Bong Mines and Monrovia. Upon completion, Wuhan Iron and Steel (Group) Corp. (WISCO) of Hong Kong, through its subsidiary China Union Mining Co. Ltd., planned to produce about 1 Mt/yr of iron ore and to ramp up production to 10 Mt/yr by 2016 (Executive Mansion of the Government of Liberia, 2013).

Vedanta Resources plc. of India continued to advance its Western Cluster Iron Ore project (WCL). As of June 30, 2013, a total of 91,500 m of drilling had been completed for the project. The company expected to deliver its first shipment of iron ore by March 2014 and to produce 2 Mt/yr of iron ore by December 2014. Vedanta held 100% interest in the WCL through its subsidiary Sesa Goa Ltd. The WCL included the Bea Mountain, the Bomi Hills, and the Mano River iron ore deposits, which are located between 70 and 140 km northwest of Monrovia. A Joint Ore Reserves Committee (JORC)-compliant study completed in 2012 confirmed reserves of 966 Mt of iron ore (Vedanta Resources plc., 2013, p. 61).

### Mineral Fuels

**Petroleum.**—Liberia did not produce or refine petroleum 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 are within the continental shelf to water depths of between 2,500 to 4,000 m, and 13 are ultra-deep blocks with water depths of as much as 4,500 m. Most of these blocks were open for exploration in 2013, and eight were under exploration contracts (National Oil Company of Liberia, 2013b, p. 16–17).

Concessionary areas under contract included Blocks LB–08 and LB–09, which were awarded to European Hydrocarbons Ltd. of the United Kingdom (100%) in 2008; Block LB–10, which was awarded to a consortium of Anadarko Petroleum Corp. of the United States (80%), Mitsubishi Corp. of Japan (10%), and Repsol S.A. of Spain (10%) in 2009; and Blocks LB–11 and LB–12, which were awarded to United States-based Chevron Corp. (45%) in joint venture with Oranto Petroleum Ltd. of Nigeria (30%), and Eni S.p.A. of Italy (25%) in 2007. Block LB–14 was also awarded to Chevron (45%), Oranto Petroleum Ltd. of Nigeria (30%) and Eni (25%) in 2009. Block LB–15 was awarded to the consortium of Anadarko (47.5%), Repsol (27.5%), and Tullow Oil plc of the United Kingdom (25%) in 2008 (National Oil Company of Liberia, 2013a).

In March, 2013, Exxon Mobil Corp. of the United States (80%) in joint venture with Canadian Overseas Petroleum Ltd. (20%) signed a production-sharing contract with the Government for the exploration rights to Block LB–13 offshore Liberia. The joint venture paid \$50 million as a signature bonus to the Government for the rights to the block, which were previously owned by Peppercoast Petroleum Ltd. of the United Kingdom (National Oil Company of Liberia, 2013a).

## Outlook

Iron ore production in Liberia is expected to increase threefold to 15 Mt by 2015 and then to almost double again to 25 Mt by 2016. This upsurge in iron ore output will not only have the potential to further increase Government proceeds from the mineral sector, but could also benefit Liberia's economy as a whole as the iron ore industry could become a new source of direct and indirect employment. Although the development of the petroleum industry is still in its infant stage, the recent interest by multinational petroleum corporations in the sector suggests that a profitable hydrocarbon sector could be developed. The Government's decision to review the country's existing mining laws may cause uncertainty among investors and deter foreign direct investment in the mining sector in the short term. Ongoing projects to rehabilitate much of the country's dilapidated infrastructure and electrical power grid, however, are likely to enhance existing mineral sector projects and could serve as a catalyst to attract mining investment to the country once a sound legislative framework for minerals is in place.

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TABLE 1  
LIBERIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity		2009	2010	2011	2012	2013
Cement, hydraulic <sup>2</sup>		70,584	71,733	80,594	121,592 <sup>r</sup>	181,829
Diamond <sup>3,4</sup>	carats	28,368	26,591	41,932	41,985 <sup>r</sup>	44,334 <sup>2</sup>
Gold, mine output, Au content <sup>2,5</sup>	kilograms	524	666	448	641	600 <sup>e</sup>
Iron ore: <sup>6</sup>						
Gross weight	thousand metric tons	--	--	1,300	3,300	4,698 <sup>2</sup>
Fe content <sup>e</sup>	do.	--	--	780	1,980	2,800
Sand		120,000	110,000	103,000	201,800 <sup>r</sup>	200,000 <sup>e</sup>
Stone, crushed <sup>e,7</sup>		3,000	3,000	2,600	4,400	7,300

<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. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through June 30, 2014.

<sup>2</sup>Reported by the Central Bank of Liberia.

<sup>3</sup>Production estimated to be approximately 60% gem quality.

<sup>4</sup>Reported by the Kimberley Process Certification Scheme.

<sup>5</sup>Production of gold in Liberia was by artisanal miners.

<sup>6</sup>Direct-shipping ore.

<sup>7</sup>Estimated based on cement production.

TABLE 2  
LIBERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Liberia Cement Corp. Ltd. (Scancem International ANS, 62%, and Government, 29%)	Monrovia	220
Diamond	Artisanal and small-scale mining	Various counties	NA
Gold	do.	do.	NA
Iron ore	ArcelorMittal (Liberia) Ltd. (ArcelorMittal, 70%)	Western Range Project, 300 kilometers northeast of Monrovia	4,100

do. Ditto. NA Not available.