



2015 Minerals Yearbook

SENEGAL [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF SENEGAL

By Philip A. Szczesniak

In 2015, Senegal was the fourth-ranked country in the world in the production of attapulgite (fuller's earth). The mineral sector accounted for only 2.0% of the country's gross domestic product (GDP), and although real GDP growth in 2015 was 6.5%, the mineral industry's growth was flat at 0.0%. Mineral commodities produced in the country included basalt, cement, clays, gold, gravel, laterite, lead (refined), lime, limestone, mineral sands (titanium minerals), natural gas, petroleum (crude), petroleum refinery products, phosphate rock, salt, sand, and silver. Senegal's mineral sector was regulated by law No. 2003–36 of February 2004 (table 1; International Institute for Sustainable Development, 2016, p. 7-8; United Nations Economic Commission for Africa, 2016, p. 285; Flanagan, 2017).

Production

In 2015, the largest changes in Senegal's mineral commodity production were a 701% increase in leucoxene and rutile concentrate production to 5,311 metric tons (t); a 401% increase in zircon concentrate production to 45,248 t; and a 325% increase in ilmenite concentrate production to 427,690 t. These increases were owing to the continued rampup of the Grand Côte Mineral Sands Mine, which was commissioned in 2014. Output of refined petroleum products increased by 105% to 8.3 million barrels owing to an increase in exports, especially to the United States. Other mineral commodities that had significant increases in production were phosphate rock, by 32% to 1,062,000 t; phosphoric acid, by 32% to 263,000 t; phosphate-based fertilizers, by 30% to 108,000 t; and limestone, by 18% to an estimated 2 million metric tons (Mt). Minerals that had significant decreases in production were lime, by 88% to 1,300 t; silver, by 53% to 540 kilograms (kg); laterite, by 50% to an estimated 350,000 t; sand, by 20% to an estimated 1.2 Mt; and crude petroleum, by 12% to 169,000 barrels (bbl). Data on mineral production are in table 1 (U.S. Census Bureau, 2017).

Structure of the Mineral Industry

The majority of mining operations in Senegal were privately owned, although the Government held a minority participating interest in many operations. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Gold.—Teranga Gold Corp. of Canada, through its subsidiary Sabodala Gold Operations S.A., mined gold from the Sabodala, Gora, and Masato Mines. In 2015, Teranga produced 5,670 kg of gold, which was a 13.9% decrease from the 6,588 kg produced in 2014. The decrease in production was partly attributable to lower mining rates by artisanal miners at the Gora Mine, and a rock fall at the Masato Mine. In March 2015, Teranga received

environmental approval to develop the high-grade Gora Mine and production began in July 2015; annual production was expected to be between about 1,500 and about 2,300 kilograms per year of gold during a 4-year mine life. Teranga's total proven and probable reserves of gold at the end of 2015 were estimated to be 59.3 Mt at an average grade of 1.38 grams per metric ton gold, or 81,800 kg of contained gold (Teranga Gold Corp., 2015; 2016, p. 9–10, 17, 20).

Several other companies explored for gold in Senegal in 2015. These companies included Bassari Resources Ltd. and Erin Resources Ltd. of Australia; and IAMGOLD Corp., Randgold Resources Ltd., Stratex International plc., and Toro Gold Ltd. of the United Kingdom.

Titanium and Zirconium.—In 2015, the Grande Côte Mineral Sands (GCO) Mine produced 427,690 t of ilmenite concentrate, 45,248 t of zircon concentrate, and 5,311 t of leucoxene and rutile concentrate. The GCO Mine (construction completed in 2014) was operated by Mineral Deposits Ltd. (MDL) of Australia and ERAMET Group of France through their joint-venture company TiZir Ltd. The GCO operation consisted of a coastal mobile dune system that stretches more than 100 kilometers (km) along Senegal's coast line, about 50 km northeast of the capital city of Dakar. MDL had expected operations to ramp up to full nameplate capacity during the third quarter of 2015; however, production was affected during the year by unplanned electrical outages, tailings management, and other routine maintenance issues. At nameplate capacity, the mine was expected to produce an average of 575,000 metric tons per year (t/yr) of ilmenite concentrate; 85,000 t/yr of zircon concentrate; 10,000 t/yr of leucoxene concentrate; and 6,000 t/yr of rutile concentrate. As of December 31, 2015, the GCO Mine employed a total of 822 people (Mineral Deposits Ltd., 2015, p. 4; 2016, p. 6, 9).

Industrial Minerals

Cement.—Senegal's production of hydraulic cement in 2015 decreased by 5.8% to 4.6 Mt from 4.9 Mt in 2014. In 2014, Dangote Cement plc of Nigeria, through its subsidiary Dangote Cement Senegal S.A., had commissioned a 1.5-million-metric-ton-per-year (Mt/yr) cement plant in the town of Pout, which is located about 29 km from Dakar. The Pout cement plant was built at a cost of \$310 million and started commercial production in January 2015. Other significant cement plants in Senegal were the Rufisque cement plant, which was owned by the Vicat Group of France and had an estimated capacity of 3.5 Mt/yr, and the Kirene cement plant, which was owned by Les Ciments du Sahel of Senegal and had an estimated capacity of 2.4 Mt/yr of cement (table 2; Dangote Cement plc, 2015, p. 17, 31, 37).

Mineral Fuels

Petroleum.—Based on monthly data reported by the Senegalese National Statistics Agency, Senegal's production of crude petroleum in 2015 decreased 11.6% to 169,000 bbl from 192,000 bbl in 2014. Available information, however, was inadequate to determine the source of such production, as reported data from the Société des Pétroles du Sénégal (Petrosen) indicated that crude petroleum production from the Diam Nadio hydrocarbon field had ceased in 1999. Petrosen was Senegal's national petroleum company (Société des Pétroles du Sénégal, 2015).

During 2014, Scotland-based Cairn Energy plc announced the discovery of petroleum in the FAN-1 exploration well, which is located within the Sangomar Deep Block about 100 km offshore Senegal, and in the SNE-1 exploration well, which is located within the Sangomar Offshore Block about 24 km southeast of FAN-1. Cairn noted that these were the first wells drilled offshore Senegal in 20 years and the first ever deepwater wells. In November 2015, Cairn received a 3-year extension to its production-sharing contract; the extension was needed to conduct further evaluations of the discoveries that had preliminary estimates of more than 1 billion barrels of crude petroleum (Cairn Energy plc, 2016, p. 13–15, 27–28).

In addition to Cairn Energy and its partnership in Senegal with ConocoPhillips Co. of the United States, FAR Ltd. of Australia, and Petrosen, several other companies were actively engaged in both crude petroleum and natural gas exploration in Senegal in 2015. These companies included African Petroleum Corp. Ltd. of Australia and Kosmos Energy Ltd. of the United States.

References Cited

- Cairn Energy plc, 2016, Annual report and accounts 2015: Edinburgh, Scotland, Cairn Energy plc, 160 p. (Accessed February 13, 2017, at http://www.cairnenergy.com/assets/files/cms/Annual_Report_2015.pdf.)
- Dangote Cement plc, 2015, Annual report 2014: Lagos, Nigeria, Dangote Cement plc, 158 p. (Accessed February 13, 2017, at <http://www.dangote.com/Investorrelations/annualreport.aspx>.)
- Flanagan, D.M., 2017, Clays: U.S. Geological Survey Mineral Commodity Summaries 2017, p. 50–51.
- International Institute for Sustainable Development, 2016, IGF mining policy framework assessment—Senegal, December 2016: Winnipeg, Manitoba, Canada, International Institute for Sustainable Development, 39 p. (Accessed May 1, 2017, at <https://www.iisd.org/sites/default/files/publications/senegal-mining-policy-framework-assessment-en.pdf>.)
- Mineral Deposits Ltd., 2015, Annual report 2014: Melbourne, Victoria, Australia, Mineral Deposits Ltd., 76 p. (Accessed February 13, 2017, at <http://www.mineraldeposits.com.au/wp-content/uploads/2015/02/MDL-Annual-Report-2014.pdf>.)
- Mineral Deposits Ltd., 2016, Annual report 2015: Melbourne, Victoria, Australia, Mineral Deposits Ltd., 76 p. (Accessed February 13, 2017, at <http://www.mineraldeposits.com.au/wp-content/uploads/2016/02/MDLAnnualReport2015.pdf>.)
- Société des Pétroles du Sénégal, 2015, Senegal basin—Petroleum exploration opportunities: Société des Pétroles du Sénégal. (Accessed November 30, 2015, at http://www.petrosen.sn/index.php?option=com_content&view=article&id=15&Itemid=65&lang=en.)
- Teranga Gold Corp., 2015, Teranga Gold announces receipt of environmental approval for high-grade Gora deposit: Toronto, Ontario, Canada, Teranga Gold Corp., March 16. (Accessed February 13, 2016, at <http://www.terangagold.com/English/investors/news/newsreleasedetails/2015/Teranga-Gold-Announces-Receipt-of-Environmental-Approval-for-High-Grade-Gora-Deposit/default.aspx>.)
- Teranga Gold Corp., 2016, 2015 annual report: Toronto, Ontario, Canada, Teranga Gold Corp., February 25, 97 p. (Accessed February 10, 2016, at https://s1.q4cdn.com/851853033/files/doc_AR%20RR/Teranga-Gold-2015-Annual-Report-WEB.pdf.)
- United Nations Economic Commission for Africa, 2016, African statistical yearbook: Addis Ababa, Ethiopia, United Nations Economic Commission for Africa, 353 p. (Accessed February 10, 2017, at <http://www.uneca.org/publications/african-statistical-yearbook-2016>.)
- U.S. Census Bureau, 2017, U.S. imports from Senegal by 5-digit end-use code 2007–2016: Washington DC, U.S. Census Bureau. (Accessed November 2, 2017, at <https://www.census.gov/foreign-trade/statistics/product/enduse/imports/c7440.html>.)

TABLE 1
SENEGAL: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ^{2,3}	2011	2012	2013	2014	2015
Basalt ^{e,4}	1,400 ^r	2,300 ^r	3,800 ^r	3,800	3,800
Cement, hydraulic	4,677	4,689	5,191	4,899	4,615
Clay, fuller's earth (attapulgitite)	181	180 ^e	235	191	188
Gold, mine output, Au content kilograms	4,089	6,666	6,445	6,588	5,670
Laterite ^{e,4}	1,000 ^r	2,400 ^r	680 ^r	700	350
Lead, secondary ⁵ metric tons	--	2,385	2,607	2,187	1,857
Lime	26	36	15	11	1
Limestone ^{e,4}	1,100 ^r	2,400 ^r	1,700 ^r	1,700	2,000
Natural gas ^e thousand cubic meters	36,000	--	--	--	--
Petroleum:					
Crude petroleum ⁶ thousand 42-gallon barrels	403	57	117	192	169
Refinery products ⁷ do.	5,890 ^r	6,530 ^r	5,990	4,040 ^r	8,260
Phosphate rock and related products:					
Phosphate rock	1,411	1,381	882	806	1,062
Phosphoric acid, P ₂ O ₅ content	362	363	259	199	263
Phosphate-based fertilizers	37	36	26	83	108
Salt	258	237	243	245	266
Sand ^{e,4}	1,700 ^r	1,500 ^r	1,500	1,500	1,200
Silver kilograms	539	670	898	1,150 ^r	540
Titanium minerals:					
Ilmenite concentrate metric tons	--	--	--	100,590	427,690
Leucoxene and rutile concentrate do.	--	--	--	663	5,311
Zirconium concentrate do.	--	--	--	9,040	45,248

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through November 3, 2017.

²In addition to the commodities listed, Senegal also produced gravel and stone for local construction purposes, but available information was inadequate to make reliable estimates of output.

³Major source of information: Agence National de la Statistique et de la Démographie.

⁴Values converted from cubic meters to metric tons. Specific gravity, in grams per cubic centimeter—basalt, 2.8; laterite, 2.55; limestone, 2.6; and sand, 2.6.

⁵Reported data are for fiscal year beginning on March 31 of the year indicated.

⁶Crude petroleum values have been converted from metric tons to 42-gallon barrels using a conversion factor of 7.4 barrels of crude petroleum per metric ton.

⁷Refinery products values have been converted from metric tons to 42-gallon barrels using a conversion factor of 7.98 barrels of refinery products per metric ton.

TABLE 2
SENEGAL: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of mine facilities	Annual capacity
Cement		Les Ciments du Sahel S.A.	Kirene plant, Kirene, east of Dakar	2,400.
Do.		Sococim Industries (Vicat Group 100%)	Rufisque cement plant, east of Dakar	3,500.
Do.		Dangote Cement Senegal S.A. (Dangote Cement plc, 90%)	City of Pout, 29 kilometers from Dakar	1,500.
Clay (attapulgitic)		Senegal Mines SA (Sepiol SA, 51%, and Government, 49%)	240 kilometers south of Dakar	100.
Do.		Société Senegalaise de Phosphates de Thies S.A.	Lam Lam, Thies region	NA.
Gold	kilograms	Sabodala Gold Operations S.A. (Teranga Gold Corp., 90%, and Government, 10%)	Sabodala Mine, 650 kilometers east of Dakar	6,500.
Do.	do.	Oromin Joint Venture Group, 90% (Teranga Gold Corp., 90%, and Government, 10%)	Masato deposit, 600 kilometers southeast of Dakar	500.
Lead	metric tons	Gravita Senegal SAU (Gravita India Ltd., 100%)	Recycling lead-acid battery plant, Dakar	3,800.
Petroleum products	42-gallon barrels per day	Société Africaine de Raffinage (Société des Petroles du Senegal, 46%; Saudi Binladin Group, 34%; Total S.A., 20%)	SAR refinery, 23 kilometers from Dakar	26,000.
Phosphate rock		Industries Chimiques du Sénégal Group (Archean Group, Government of India, and Indian Farmers Fertilizer Cooperative Ltd., 85%; and Government of Senegal, 15%)	Taiba Mine, 100 kilometers from Dakar	2,000.
Phosphate rock, aluminum		Société Senegalaise de Phosphates de Thies SA	Lam Lam, Sebikhotane, and Allou-Kagne	NA.
Phosphoric acid		Industries Chimiques du Sénégal Group (Indian Farmers Fertilizer Cooperative Ltd., 85%, and Government, 15%)	Darou I plant and Darou II plant, 100 kilometers from Dakar	660 P ₂ O ₅ .
Salt		Société des Salins du Sine Saloum	Salt marshes, Saloum River	230.
Stone, basalt		Various quarries	Ngoundiane, Thies region	NA.
Titanium minerals:				
Ilmenite concentrate		TiZir Ltd., 90% (Mineral Deposits Ltd., 50%, and Eramet Group, 50%), and Government, 10%	Grande Côte Mine, 50 kilometers northeast of Dakar	575.
Leucosene and rutile concentrate		do.	do.	16.
Zirconium, zircon concentrate		do.	do.	85.

Do., do. Ditto. NA Not available.