



2008 Minerals Yearbook

THE GAMBIA, GUINEA-BISSAU, AND SENEGAL

THE MINERAL INDUSTRIES OF THE GAMBIA, GUINEA-BISSAU, AND SENEGAL

By Omayra Bermúdez-Lugo

THE GAMBIA

Mining in The Gambia was limited to the production of clay, laterite, silica sand, and zircon, and did not play a significant role in the country's economy. The Department of State for Trade, Industry, and Employment was the Government entity responsible for the administration of the mining sector. The country did not produce petroleum and depended upon imports to meet its domestic energy requirements.

Production

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

Titanium, Titanium Dioxide, and Zircon.—In January 2008, the Government of the Gambia announced the suspension of the mining license it had granted to Carnegie Minerals plc for the mining of mineral sands at the Batukunku, the Kartung, and the Sanyang deposits in Brufut. Carnegie Minerals was a subsidiary of Carnegie Corp. Ltd. of Australia, which in 2002 had acquired the rights to mine ilmenite, rutile, and zircon in joint venture with Astron Ltd., an Australian company based in Shenyang, China. The Government allegedly decided to suspend the company's mining license, stating that Carnegie Minerals was exporting minerals other than those outlined within its mining contract. Carnegie Minerals denied the allegations. No arbitration on the case was reported as of yearend (Allen, 2008; BBC News, 2008; U.S. Department of State, 2009).

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GUINEA-BISSAU

Mining in Guinea-Bissau was limited to small-scale production of construction materials, such as clay, granite, limestone, and sand and gravel, but information was inadequate to make reliable estimates of output. The country's prospective mineral resources included bauxite, diamond, gold, heavy minerals, petroleum, and phosphate rock. Guinea-Bissau did not produce petroleum and depended upon imports to meet its domestic energy requirements.

Commodity Review

Metals

Bauxite and Alumina.—Bauxite Angola S.A. (a company that was partly owned by the Government of Angola) planned to invest \$500 million to develop a bauxite mine in Guinea-Bissau. The company held under concession the Boe bauxite deposits, which are located in the region of Boe about 240 kilometers (km) from Bissau. Measured resources were estimated to be 113 million metric tons (Mt) at average grades of 44% Al_2O_3 and 3.7% SiO_2 . Once developed, the mine was expected to produce about 2 million metric tons per year (Mt/yr) of bauxite ore. The company, which paid an up-front fee of \$13 million to Guinea-Bissau, also planned to construct a deepwater port at Buba and a road to connect the mine to the port facilities. The company also was studying the possibility of constructing an alumina plant in Guinea-Bissau to process the ore. A pilot plant was expected to be operational by 2011 (Bauxite Angola S.A., 2008; Fletcher, 2008; Macaueh, 2008a, b).

Industrial Minerals

Phosphate Rock.—In September, the Government revoked GB Phosphate Mining Ltd.'s (GBPM) mining contract for the Farim phosphate rock deposit, which is located about 100 km northeast of the capital city of Bissau. The Government stated that the company had failed to meet its contractual obligations, including failing to notify the Directorate of Geology of the temporary suspension of the company's activities between December 2007 and February 2008, failing to provide a financial guarantee to the Government prior to engaging in mining activities, and conducting the unauthorized transfer of mining rights to GBPM's parent company, GB Mining Holding AG of Switzerland. GBPM had reportedly invested about \$15 million in the project and had completed a prefeasibility study for the Farim deposit (Africa 21, 2008; Dabo, 2008; Expresso Sojornal S.A., 2008).

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SENEGAL

Phosphate rock production, which was processed and converted to phosphoric acid, dominated Senegal's mining sector. Other mineral commodities produced in the country were basalt, cement, clays, gold, laterite, lime, limestone, natural gas, petroleum, salt, and sand.

Production

Data on mineral production are in table 1. Phosphoric acid production decreased by 23% to 180,000 metric tons (t) from 234,000 t in 2007.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Gold.—Most gold mining activities in Senegal were concentrated around the Sabodala gold district, which is located to the northeast of the country. AXMIN Inc. (AXMIN), IAMGOLD Corp. (IAMGOLD), and Oromin Explorations Ltd. (Oromin) of Canada; Mineral Deposits Ltd. (MDL) of Australia; and Randgold Resources Ltd. (Randgold) of the United Kingdom continued to explore for gold during the year.

MDL was in the process of developing the Sabodala open pit gold mine, which was expected to produce its first commercial gold in early 2009. Sabodala Mine was expected to produce about 5,300 kilograms per year (kg/yr) during the first year of operation and an average of about 4,700 kg/yr (reported as 150,000 troy ounces) for the remainder of the mine's life. The project would include a carbon-in-leach processing plant with a design throughput capacity of 2 Mt/yr. MDL, which planned to employ more than 500 Senegalese nationals at the mine, held a 90% interest in the project and the Senegalese

Government held the remaining 10% free-carried interest. As of November 18, 2008, measured and indicated resources at Sabodala were reported to be 42.1 Mt at a cutoff grade of 0.65 gram per metric ton (g/t) and an average grade of 1.84 g/t gold. During 2008, at least 2.1 Mt of waste and more than 500,000 metric tons of ore were mined and stockpiled at the crusher ready for plant startup. More than 1,200 kilograms of gold (reported as 40,000 troy ounces) was stockpiled. MDL anticipated that the processing plant would be completed by mid-January 2009 and that the rampup to commercial production rates would commence immediately thereafter. The company anticipated reaching full production levels by late February or March 2009 (Mineral Deposits Ltd., 2008a, p. 4-11; 2008b, c).

Randgold continued to explore for gold at its Massawa concession, which is located in southern Senegal. During the course of the year, a total of 58 diamond drill holes were drilled to evaluate the Massawa target further and delineate the geometry of gold mineralization. A scoping study was underway, and the company planned to conduct a prefeasibility study depending on the preliminary results obtained from the scoping study (Randgold Resources Ltd., 2009, p. 37-39).

Iron and Steel.—Luxembourg-based ArcelorMittal planned to invest more than \$2 billion for the construction of an iron ore mine in southeastern Senegal despite a court appeal from South Africa's Kumba Iron Ore Ltd. contesting the rights to the mine. ArcelorMittal planned to produce between 15 Mt/yr and 25 Mt/yr of iron ore beginning in 2011 and to build port facilities near Dakar and a 750-km railway line to link the mine to the port facilities (Magnowski, 2008; Roelf, 2008).

Titanium, Titanium Mineral Concentrates, and Zircon.—MDL continued to work on the development of the Grande Côte Mineral Sands Project (GCMSP). The GCMSP consisted of a series of deposits within a 2-km-wide and 80-km-long sand dune system that runs along Senegal's coastline about 50 km northeast of the capital city of Dakar. Inferred mineral resources were estimated to be 1.33 billion metric tons at an average grade of 2% heavy minerals. The deposits are composed of free-flowing sand with little to no slimes and are considered suitable for mining by low-cost dredging methods. MDL planned to produce about 650,000 metric tons per year (t/yr) of ilmenite, 85,000 t/yr of zircon, and smaller amounts of leucoxene and rutile. The company completed a drilling program during the first half of the year and planned to complete a new resource and reserve estimate for the GCMSP by the second quarter of 2009. A detailed engineering and construction plan for the mine was also underway, and a mine dredge pump was expected to be delivered at the mine site in early 2009 (Mineral Deposits Ltd., 2008a, p. 7, 12-14; 2008d).

Industrial Minerals

Phosphate Rock.—Industries Chimiques du Sénégal (ICS) was Senegal's phosphate rock mining and processing company. The Government of India, through Indian Farmers Fertilizer Cooperative Ltd. (IFFCO), and Senegal were equity partners in ICS (table 2). Phosphate ore was mined from the Keur Mor Fall and the Tobene deposits within the Taiba Mine. Part of

the marketable phosphate rock was sent to ICS's phosphoric acid plants in Darou Khoudoss, and the remaining was sent to the Dakar Port for export. The facilities at Darou consisted of two adjacent phosphoric acid production plants that had a combined production capacity of 660,000 t/yr of P₂O₅. Most of the phosphoric acid produced was exported to India (Industries Chimiques du Sénégal, 2008).

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TABLE 1
THE GAMBIA AND SENEGAL: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Country and commodity		2004 ^e	2005 ^e	2006 ^e	2007	2008
THE GAMBIA ²						
Clay ³	metric tons	13,655 ^{4,5}	13,700	13,700	6,713 ^{r,4}	NA ⁴
Ilmenite		--	--	--	672 ^{r,4}	-- ⁴
Laterite ³		245 ^{4,5}	250	250	187 ^{r,4}	115 ⁴
Silica sand ³		1,389 ^{4,5}	1,390	1,390	712 ^{r,4}	1,065 ⁴
Zircon/rutile concentrate	metric tons	-- ^{4,5}	--	410 ^{5,6}	355 ^{r,4}	-- ⁴
SENEGAL ^{7,8}						
Basalt ³	metric tons	360	360	360	400 ^e	979 ^p
Cement, hydraulic		2,391 ⁵	2,623 ⁵	2,884 ⁵	3,152	3,084
Clay ³	metric tons	20	20	20	--	--
Clays, fuller's earth (attapulgitite)		200	127 ⁵	140 ⁵	150 ^e	167
Gold, mine output, Au content ^{e,9}	kilograms	600	600	600	600	600
Laterite ³	metric tons	300	300	300	300 ^e	63 ^p
Lime		NA	NA	NA	NA	82
Limestone ³	metric tons	1,600	1,600	1,600	1,600 ^e	1,006 ^p
Natural gas ^c	thousand cubic meters	12,600	12,600	12,600	12,600	12,600
Petroleum: ¹⁰						
Crude oil	thousand 42-gallon barrels	202 ⁵	374 ⁵	388 ⁵	317	99 ^p
Refinery products	thousand metric tons	1,106 ⁵	870 ⁵	313 ⁵	648	896
Phosphate rock and related products: ¹¹						
Calcium phosphate-based fertilizers ¹²		210 ⁵	186 ⁵	33 ⁵	82	50
Crude rock:						
Aluminum phosphate		4	4	4	4 ^e	4
Calcium phosphate ¹²		1,576 ⁵	1,451 ⁵	584 ⁵	691	645
Phosphoric acid, P ₂ O ₅ content		570 ⁵	504	180 ⁵	234	180
Salt		168 ⁵	134 ⁵	199 ⁵	212	241
Sand ³	metric tons	2,170	2,170	2,170	2,200 ^e	6,421

^eEstimated; estimated data are rounded to no more than three significant digits. ^pPreliminary. ^rRevised. NA Not available. -- Zero.

¹Table includes data available through October 6, 2009.

²In addition to the commodities listed, The Gambia also produced a variety of construction materials (laterite, sand, and shell), but information is inadequate to make reliable estimates of output.

³Values converted from cubic meters to metric tons. Specific gravity, in grams per cubic meter—basalt, 2.8; clay, 2.55; laterites, 2.55; limestone, 2.6; and sand, 2.6.

⁴Source: Geology Department of the Republic of The Gambia.

⁵Reported figure.

⁶From sales.

⁷In addition to the commodities listed, Senegal also produced sand and gravel, and stone for local construction purposes, but information is inadequate to make reliable estimates of output.

⁸Source: Direction des Mines et de la Géologie, Republic of Senegal. The major source of information for the Senegal 2006 figures is Agence National de la Statistique et de la Démographie.

⁹Government estimate of unreported production of artisanal gold.

¹⁰Crude 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.

¹¹Industries Chimiques du Sénégal was the main producer of phosphate rock in Senegal. Phosphate rock production excludes about 200,000 metric tons per year, which is estimated to be produced from other Senegalese sources.

¹²Source: Industries Chimiques du Sénégal.

TABLE 2
THE GAMBIA AND SENEGAL: STRUCTURE OF THE MINERAL INDUSTRIES IN 2008

(Thousand metric tons)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
THE GAMBIA			
Zircon/rutile concentrate ¹	Carnegie Minerals plc and Astron Ltd.	Sanyang district	20.
SENEGAL			
Attapulgit	Senegal Mines (Government, 49%, and private, 51%)	240 kilometers south of Dakar	100.
Do.	Société Senegalaise de Phosphates de Thies SA (private, 100%)	Lam Lam	NA.
Cement	Les Ciments du Sahel S.A. (private, 100%)	Kirene plant	600.
Do.	Société Ouest Africaine des Ciments (private 100%)	Rufisque plant	2,000.
Petroleum products	Total S.A. (54%), Royal Dutch Shell plc (23%), Exxon Mobil Corp. (13%), Government (10%)	Refinery, 23 kilometers from Dakar	1,226.
Phosphate rock, calcium	Industries Chimiques du Sénégal Group (ICS) (Archean Group, Government of India, and Indian Farmers Fertilizer Cooperative Ltd., (IFFCO), 85%, and Government of Senegal, 15%)	Taiba Mine, 50 kilometers from Dakar	2,000.
Do.	Société Senegalaise de Phosphates de Thies SA (private, 100%)	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, Darou Khoudoss	660 P ₂ O ₅ .

Do. Ditto. NA Not available.

¹Mine under development.

