

THE GAMBIA, GUINEA-BISSAU, AND SENEGAL

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THE GAMBIA

The mineral industry of The Gambia was a minor component of the national economy, with some oil exploration and production of clays for brick, laterite, sand and gravel, and silica sand. The Gambian economy was dominated by agriculture and tourism.

Fusion Oil and Gas plc of Australia signed a 6-year oil exploration/production license for a 5,000-square-kilometer (km²) offshore tract (World Oil, 2000, p. 91). Other companies with oil interests in The Gambia were Planet Oil International plc (a subsidiary of Hardman Resources NL of Australia) and Balmain Resources Pty Ltd. of Australia.

Carnegie Corporation Ltd. of Australia announced positive results of a test for zircon in a high-grade stockpile within their license area in The Gambia; the company noted that arranging efficient and low-cost operations to produce a commercially salable zircon product was possible (Carnegie Corporation Ltd., September 30, 2000, Review of operations, accessed March 7, 2001, at URL <http://www.carnegiecorp.com.au/reports/qtr30sept00.htm>).

Two additional mineral deposits under examination were the Abuko quartz sand deposit and the Sanyang heavy minerals deposit. The Abuko deposit contains more than 5 million metric tons (Mt) of quartz sand that may be used in the production of glass products. The estimated investment for further development was \$225,000 (Mines '98, 1998, Abuko quartz sand—The Gambia, accessed June 12, 2001, at URL <http://www.mines98.com/projects/20.htm>). The Sanyang deposit contains 1 Mt of heavy minerals at a 1% cutoff grade. An investment of \$252,000 would be needed for geologic exploration, chemical analysis, and bulk sample and pilot plant testing (Mines '98, 1998, Sanyang heavy minerals deposit—The Gambia, accessed June 12, 2001, at URL <http://www.mines98.com/projects/21.htm>).

GUINEA-BISSAU

In 2000, a new Government was elected in Guinea-Bissau; the election was seen as another step toward ending military conflicts that followed a military coup in June 1998. Barring that of the construction industry, mineral production was not significant during the year. Agriculture accounted for more than 60% of Guinea-Bissau's gross domestic product. Mining activities in the country were limited to small-scale production of construction materials, such as clay, granite, limestone, and sand. Bauxite, diamonds, gold, and phosphate were among the most promising minerals in the country owing to their potential

for economic development.

In November 1999, the Government of Guinea-Bissau passed a new mining law to reform mineral exploration and mine development and production. The new Mines and Minerals Act allows a maximum lease size of 10,000 hectares (ha) for exploration and mining, an unlimited area for prospecting licenses, and 1 to 4 ha (contiguous) for artisanal mining. Mining leases are valid for 25 years and can be automatically renewed upon application. Prospecting licenses are granted for 2-year periods with unlimited renewals.

The country's proven mineral reserves consisted of 110 Mt of bauxite at an average grade of 44% Al₂O₃ and 4% SiO₂ and 100 Mt of phosphate rock that contains 30% P₂O₅ (U.S. Agency for International Development, 1998, Guinea-Bissau investing—Location specific mining and offshore drilling, accessed November 3, 1998, at URL <http://www.investgb.com/engv/emine.html>). Phosphate deposits are located in the Farim area 75 kilometers (km) northeast of the capital of Bissau, and bauxite deposits are located in the Boe region approximately 150 km east of Bissau.

Champion Resources, Inc. (CRI), of Canada announced an increase in the future productivity at its Farim deposit of phosphate from 1.8 to 2.1 Mt at a grade of 32.3% P₂O₅. In November 2000, CRI reported that it was seeking a partner from either India or the Middle East to help develop the Farim Mine. Production of phosphate rock was scheduled to begin in 2002 with an anticipated life of 25 years (Africa Mining Intelligence, 2000, p. 4). CRI also announced positive results from a diamond baseline sampling program conducted in 2000. Their results indicated that two out of eight samples collected from streams in the eastern portion of Guinea-Bissau contained diamond indicator minerals (Champion Resources Inc., April 19, 2001, Diamonds in Guinea-Bissau, accessed October 25, 2001, at URL <http://www.championresources.com/s/NewsReleases.asp?ReportID=24298>).

In 1995, a border dispute between Guinea-Bissau and Senegal was settled, and joint oil exploitation was permitted by the ratification of a treaty in which 85% of the proceeds from the activities in the area was to go to Senegal and 15%, to Guinea-Bissau. The offshore region of Guinea-Bissau was divided into four blocks. The oil and gas industry in Guinea-Bissau is regulated by the Ministry of Natural Resources and Industry. The national oil company of Guinea-Bissau was Petroguin. Foreign oil companies with interests in Guinea-Bissau were Fortesa Oil Exploration Company of the United States, Fusion Oil and Gas plc, Petrobank Energy and Resources Ltd. of Canada, and Tullow Oil plc of Ireland.

Refined petroleum products are imported. Fuel products were

distributed by Distribudora de Combustiveis e Lubrificantes and Petrogal, which was a Portuguese oil company that operated in Bissau. The organization responsible for the generation and transmission of electricity was the state-owned Instituto Nacional de Energia.

SENEGAL

In April 2000, a new Government was elected in Senegal. Among a number of priorities outlined by the President were the increase of agricultural production and the development of the country's inadequate infrastructure by improving the highway system, modernizing the railroads, and constructing a new airport (Craig, 2000). Senegal's mineral sector activity was dominated by phosphate rock production and gold and petroleum exploration. Most of the phosphate rock produced by the country was processed domestically and converted to fertilizers and phosphoric acid. Gold was produced in minor amounts, although many foreign companies had active exploration permits in the southeastern part of the country where Precambrian (Birimian) metamorphic rocks are exposed.

The Direction des Mines et de la Geologie reported that annual production of artisanal gold was estimated to be 550 kilograms. The Societe Miniere de Sabodala continued to search for partners for its gold operations at Sabodala where significant reserves of gold have been reported (Direction des Mines et de la Geologie, 2000, Gold of Sabodala, accessed May 25, 2001, at URL

<http://www.energie.gouv.sn/DMG/Framdmg.htm>). Ashanti Goldfields Co. Ltd. of Ghana, Avgold Ltd. of South Africa, Cluff Mining plc of the United Kingdom, Durban Roodepoort Deep Ltd. of South Africa, Etruscan Resources, Inc., of Canada, and IAMGOLD Corp. of Canada were among the companies that had active exploration permits in Senegal in 2000.

IAMGOLD reported positive results from its trenching and drilling program for its Bambadji Group properties in eastern Senegal. In addition, it continued exploration work on the Daorala-Boto concession, which the company has solely owned since 1998 when Ashanti relinquished its participation in the project. IAMGOLD and Ashanti continued exploration on the Mako concession. Cluff Mining was awarded the 380-km² Niokolo gold and base-metal permit in the eastern greenstone belt of Senegal. Etruscan Resources, which had acquired a 90% equity interest in Secor Geomin Mining and Development Corp. in 1998, held the Bousankouba permit in eastern Senegal. Exploration activities had identified a regional gold-arsenic anomaly in the area. The property, however, remained inactive during 2000 as the company focused on the development of its Samira Hill gold project in Niger (Etruscan Resources Ltd., 2000, p. 10).

In 1999, Hargraves Resources NL of Australia was taken over by Durban Roodepoort Deep. The company was granted a gold exploration license in 1999 that was valid for 4 years in the Tambakounda region of eastern Senegal. Avgold continued exploration on the Sonkounkou permit in southeastern Senegal. The joint venture of Prospector International Resources Inc. of Canada, Sengold Mining NL of Senegal, and Tarcoola Ltd. of Australia continued exploration work on the Maura property in southeastern Senegal.

Significant iron ore reserves have been estimated in the

Faleme deposit and in the Farangalia and the Goto deposits. Société des Mines de Fer du Senegal Oriental (MIFERSO) [a joint venture between the Government of Senegal (28%), the Bureau de Recherches Geologiques et Minières of France (24%), AGEM Ltd. of Canada (24%), and ThyssenKrupp of Germany (24%)] forecast production of 12 million metric tons per year (Mt/yr) of iron ore. An estimated \$800 million is needed for development of the mines and the construction of a railway and mineral port (Direction des Mines et de la Geologie, 2000, MIFERSO, accessed May 25, 2001, at URL <http://www.energie.gouv.sn/DMG/miferso.htm>; U.S. Department of State, July 2001, Dakar, Senegal Country Commercial Guide, accessed October 31, 2001, at URL <http://www.dakarcom.com/CCG/ccg2001.htm>).

Ciments du Sahel S.A. of Senegal continued to plan for the construction of a second cement plant. The plant will have a capacity of 600,000 metric tons per year (t/yr) of cement and will be located about 50 km southeast of Dakar (F.L.Smidth, March 21, 2001, F.L.Smidth wins 30m euro contract in Senegal, accessed October 25, 2001, at URL <http://www.flsmidth.dk/news/c72.htm>).

Phosphate was produced at the Taiba Mine, which was operated by Compagnie Senegalaise des Phosphates de Taiba. Other phosphate deposits exist in the country. The Matam deposit, which contained reserves of 40.5 Mt, was among the country's future targets for exploitation. Industries Chimiques du Senegal planned to invest \$1 million in the construction of a new phosphate mine in the Matam area. Overall, phosphate production contributes about 17% of Senegal's export earnings (Mining Journal, 2000).

Senegal's oil industry was regulated by the Ministry of Energy, Mines and Industries. The Société des Petroles du Senegal (PETROSEN), which is the national oil company, was responsible for all hydrocarbon exploration activities. Hydrocarbon exploration and production in Senegal were regulated by law No. 98-05 of January 5, 1998 (PETROSEN, 1998, Petroleum legislation, accessed June 14, 2001, at URL <http://www.petroesen.com/legal.htm>).

In 2000, natural gas was produced from the Diam Niadio East Field by Tullow Oil plc in association with PETROSEN and SAIM. By the end of the year, Tullow Oil decided not to renew its Sebikhotane license and ceased all activities in the country (Tullow Oil, April 12, 2001, Senegal report, accessed June 11, 2001, at URL <http://www.tullowoil.ie/ver4/explore/sngl/1.html>). The country's natural gas reserves, which are estimated to be 3 billion cubic meters, are located primarily onshore (Mbendi Information Service (Pty.) Ltd., September 29, 2000, Senegal oil and gas industry, accessed November 28, 2000, at URL <http://mbendi.co.za/indy/oilg/af/sn/p0005.htm>).

Companies involved in offshore exploration were Fusion Oil and Gas plc, Roc Oil Co. Ltd. of Australia, Vanco Energy Co. of the United States, and Woodside Petroleum Ltd. of Australia. In October 2000, Roc Oil executed an agreement with Woodside Petroleum to acquire a 46.25% interest in Roc's three Casamance exploration blocks, offshore Senegal (Roc Oil Co. Ltd., October 2000, Senegal operations, accessed March 27, 2001, at URL http://www.rocoil.com.au/Pages/ASX_Releases/2000_Releases/October-2000.html). Vanco Energy began exploration on its Dakar Offshore Profond block; this 32,108-km² area, which stretches from its offshore boundary with

Gambia to Mauritania, is considered to be the largest Senegalese oil license to date. Vanco Energy was the operator of the concession that held a 90% interest; the remaining 10% was held by PETROSEN (Vanco Energy Co., January 3, 2000, Vanco completes 2d survey offshore Senegal, accessed June 12, 2001, at URL http://www.vancoenergy.com/press/press_copy_latest-010300.html). Fusion Oil and Gas was also awarded exploration permits offshore Senegal—a 92% operating interest in Croix du Sud deepwater license offshore Senegal/Guinea Bissau and a 10% operating interest in Cheval Marin deepwater license offshore Senegal/Guinea Bissau. After completing oil exploration activities in the Dome Flore field in 2000, Benton Oil and Gas Co. of the United States decided to cease activities in Senegal (Alexander's Gas and Oil Connections, February 7, 2000, Benton in lol with Schlumberger to develop South Monagas in Venezuela, accessed October 31, 2001, at URL <http://www.gasandoil.com/goc/company/cnl00655.htm>).

Senegal's petroleum refining company Societe Africaine de Raffinage, which was located in Dakar, processed about 770,000 t/yr of imported crude oil. The refinery's capacity was about 1 Mt/yr of oil (Mbendi Information Services, September 29, 2000, Senegal oil and gas industry, accessed November 28, 2000, at URL <http://mbendi.co.za/indy/oilg/af/sn/p0005.htm>).

In October 2000, Senegal signed a memorandum of understanding with 13 countries for the establishment of the West African Power Pool (WAPP). The WAPP will be created in two phases and fully implemented by 2005 (Guardian, October 6, 2000, 13 ECOWAS states sign energy pact, accessed October 6, 2000, at URL <http://www.ngrguardiannews.com/news2/nn799303.html>).

Societe Nationale d'Electricite (SENELEC) was responsible for generating, transmitting, and distributing the majority of Senegal's electricity. In 2000, the Government announced that a concession contract that involved SENELEC and a consortium of Hydro Quebec of Canada and Lyonnaise de Eaux of France was broken off.

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Major Source of Information

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TABLE 1
THE GAMBIA AND SENEGAL: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Thousand metric tons unless otherwise specified)

	1996	1997	1998	1999	2000
THE GAMBIA 3/					
Clay metric tons	1,000	1,200 4/	1,200	1,200	1,200
Silica sand	452 4/	303 4/	270 4/	250	250
SENEGAL 5/					
Cement, hydraulic	811 4/	854 4/	1,000	1,000	1,000
Clays, fuller's earth (attapulgitic)	100	80	80	136 r/	131
Gold 6/ kilograms	550	550	550	550	550
Petroleum:					
Natural gas thousand cubic meters	56,600	56,000	56,000	56,000	56,000
Crude oil thousand 42-gallon barrels	1	1	1	1	1
Refinery products do.	2,500	6,000	6,000	6,000	6,000
Phosphate rock and related products:					
Calcium phosphate-based fertilizers	160	160	160	160	160
Crude rock:					
Aluminum phosphate	30	20	20	31 r/	182
Calcium phosphate	1,340	1,565 4/	1,478 4/	2,000 r/	2,000
Phosphoric acid	300	300	300	300 r/	300
Salt	120	120	139	130 r/	130

r/ Revised.

1/ Estimated data are rounded to no more than three significant digits.

2/ Includes data available through June 2001.

3/ In 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 levels.

4/ Reported figure.

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

6/ Government estimate of unreported production of artisanal gold.