

# THE MINERAL INDUSTRIES OF 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. Other mineral resources include ilmenite, rutile, tin, and zircon. The Gambian economy, which had a gross domestic product (GDP) of \$2.34 billion based on 2001 purchasing power parity data was dominated by agriculture and tourism (International Monetary Fund, 2002<sup>1</sup>). The Gambia's population in 2000 was estimated at about 1.3 million (World Bank, 2001c §).

The Geological Unit of the Department of State for Trade, Industry, and Employment is responsible for the administration of the mining sector. The Government has encouraged onshore exploration for gold and offshore exploration for oil. A new mineral and mining act is being developed. The existing mining laws allow for 1-year (yr) exploration permits with 1-yr renewals and 25-yr mining leases with 25-yr renewals (Resource Information Unit, 2002, p. 303; Mbendi Information Services (Pty.) Ltd., 2001§).

In May 2001, Carnegie Corporation Ltd. of Australia announced that results from new tests on the mineral sands stockpile at Brufut indicated higher resources of zircon than previously estimated. Carnegie holds a 51% interest in the deposit with the Gambia Government owning the remaining 49% (Africa Mining Intelligence, 2001). In addition to zircon, Carnegie also has resources of ilmenite, rutile, and silica sand (Carnegie Corp. Ltd., undated§). The Gambia Government was also seeking interested investors to exploit other quartz sand deposits at Abuko, Bakendik, Darsilami, Kaiaf, and Mbankam.

In September 2001, the African Development Bank Group approved a \$12.35 million loan to The Gambia to mitigate beach erosion along the coastline and sedimentation at the Barra Ferry Terminal. Economic goals of this work were to improve accessibility to tourist centers, increase availability of hotel and restaurant facilities, and increase income to locals (African Development Bank Group, 2001c§).

## GUINEA-BISSAU

Mineral production in Guinea-Bissau was not significant in 2001. 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

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<sup>1</sup>References that include a section twist (§) are found in the Internet References Cited section.

were among the most promising minerals in the country owing to their potential for economic development. Agriculture accounted for about 60% of Guinea-Bissau's GDP which was \$1.26 billion based on 2001 purchasing power parity data (International Monetary Fund, 2002§). Guinea-Bissau's population in 2000 was estimated at about 1.2 million (World Bank, 2001a§).

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. The Ministry of Natural Resources and Energy is responsible for the administration of the mining sector. In November 1999, the Government of Guinea-Bissau passed a new mining law to reform mineral exploration and mine development and production. The 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-yr periods with unlimited renewals.

In April 2001, Champion Resources, Inc., of Canada (CRI) announced that it had commenced a diamond exploration program after results of a baseline sampling program conducted in 2000 yielded positive results; 2 out of 8 samples collected from streams in eastern Guinea-Bissau contained kimberlites with orthopyroxenes and garnets. Company officials also noted that an additional 120 samples were being evaluated (African Mining Bulletin, 2001).

CRI announced in March 2001 that negotiations for the sale of its Farim deposit with an unnamed phosphoric acid producer had broken down. CRI, which acquired the Farim deposit in 1997, was reported to be seeking a buyer in India or in the Middle East. The Farim deposit had a phosphate resource of 166 Mt at a grade of about 29% P<sub>2</sub>O<sub>5</sub> with an estimated mine life of 25 years (Industrial Minerals, 2001).

In July 2001, Premier Oil plc of the United Kingdom announced an agreement with Petrobank Ltd. of Canada and Petroguin, the national oil company of Guinea-Bissau, to explore for oil on Guinea-Bissau's Block 2, Block 4A, and Block 5A. The three blocks are each located about 130 kilometers (km) offshore in water depths ranging up to 1 km. In return for paying for the operation, Premier obtained a 55% ownership with Petrobank controlling 15% and Petroguin controlling 30% (Africa Energy Intelligence, 2001a). Other foreign oil companies with interests in Guinea-Bissau were Fortesa Oil Exploration Co. of the United States and Fusion Oil and Gas plc of Australia.

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.

In March 2001, the African Development Bank Group approved a \$1.21 million grant to finance a study on how to improve the road connecting the cities of Boke, Guinea and Quebo, Guinea-Bissau. Work expected to be accomplished as part of the study include an economic and feasibility analysis, an socio-economic analysis, an environmental impact assessment, an engineering analysis, and a preparation of tender documents (African Development Bank Group, 2001a§).

## SENEGAL

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. Other mineral resources include clays, iron ore, marble, peat, salt, and titanium. The Senegal economy, which had a GDP of \$20.61 billion based on 2001 purchasing power parity data was dominated by agriculture and fish processing (International Monetary Fund, 2002§). The population of Senegal in 2000 was estimated at about 9.5 million (World Bank, 2001b§).

In 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). The Ministère des Mines, de l'Énergie et de l'Hydraulique is responsible for the administration over natural resources; the Direction des Mines et de la Géologie is responsible for the mining sector; the Direction de l'Énergie is responsible for the energy sector.

The Government estimates that annual production of gold was 550 kilograms, all of which was artisanal production. The Société Minière 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 Géologie, 2000a§). Avgold Ltd. of South Africa, Cluff Mining plc of the United Kingdom, IAMGOLD Corporation of Canada, and Randgold Resources Ltd. of South Africa were among the companies that had active exploration permits in Senegal in 2001.

In November 2001, Randgold Resources announced that they signed an exploration convention with the Senegal Government. The company noted that preliminary work had identified several promising areas for gold deposits in the Kanoumering region in eastern Senegal (Mining Journal, 2001).

Significant iron ore reserves have been estimated in the Faleme deposit and in the Farangalia and the Goto deposits. Societe des Mines de Fer du Senegal Oriental

(MIFERSO), which was 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 from these deposits. 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 Géologie, 2000b§; U.S. Department of State, 2001§).

Ciments du Sahel S.A. of Senegal continued to plan for the construction of a 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. The project was being financed by the Danish Export Credit Fund, the World Bank's International Finance Corporation, and other international and regional development banks (F.L.Smith Group, 2001§).

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), 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§). Companies that were exploring for oil in 2001 were Roc Oil Ltd. of Australia, Shell Exploration of the United Kingdom, Vanco Energy Co. of the United States, and Woodside Petroleum Ltd. of Australia. In November 2001, PETROSEN was expected to pursue a major onshore seismic oil program covering northeast Senegal with the help of a \$65 million loan from the World Bank (Africa Energy Intelligence, 2001b).

In March 2001, Fortesa International plc. of the United States signed a production-sharing agreement with PETROSEN for the Thies gas permit. The permit comprises 1 million acres along the west coast of Senegal. The agreement grants Fortesa a 7-yr exploration period; Fortesa was expected to invest \$16.3 million on collecting data, drilling wells, and constructing a pipeline (Alexander's Gas and Oil Connections, 2001§). The country's natural gas reserves, which were estimated to be 3 billion cubic meters, were located primarily onshore (Mbendi Information Service (Pty.) Ltd., 2000§).

Senegal's petroleum refining company, Société 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 (Pty.) Ltd., 2000§).

In 2000, Senegal signed a memorandum of understanding with 13 countries for the establishment of the West African Power Pool (WAPP). WAPP will be created in two phases and fully implemented by 2005 (Guardian, 2000§).

In November 2001, the struggle to privatize Senegal's state-

owned Societe Nationale d'Electricite, which was responsible for generating, transmitting, and distributing the majority of Senegal's electricity, ended with the acceptance of a bid from Vivendi of France. Vivendi was also involved with utilities in Niger and was seeking energy investment opportunities in Mauritania (Africa Energy Intelligence, 2001c).

In July 2001, the African Development Bank Group approved a \$18.68 million loan to help finance the 148-km Diamniadio-Mbour-Kaolack road project in Senegal. The loan only represents 60% of the total cost of the project, which is estimated at \$33.38 million. The 25-month project is expected to rehabilitate the existing road and revitalize economic growth in the region (African Development Bank Group, 2001b§).

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## Major Sources of Information

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### Ministry of Natural Resources and Energy

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### State Commissioner of Natural Resources

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

(Thousand metric tons unless otherwise specified)

	1997	1998	1999	2000	2001
THE GAMBIA 3/					
Clay metric tons	1,200 4/	1,200	1,520 r/ 4/	1,960 r/ 4/	2,000
Silica sand	303 4/	270 4/	173 r/ 4/	170 r/ 4/	170
SENEGAL 5/					
Cement, hydraulic	854 4/	1,000	1,000 4/	1,000 4/	1,000
Clays, fuller's earth (attapulgitite)	80	80	136 4/	131 4/	130
Gold 6/ kilograms	550	550	550	550	550
Petroleum:					
Natural gas thousand cubic meters	56,000	56,000	56,000	56,000	56,000
Crude oil thousand 42-gallon barrels	1	1	1	1	1
Refinery products do.	6,000	6,000	6,000	6,000	6,000
Phosphate rock and related products:					
Calcium phosphate-based fertilizers	160	160	160 4/	160 4/	160
Crude rock:					
Aluminum phosphate	20	20	31 4/	182 4/	190
Calcium phosphate	1,565 4/	1,478 4/	2,000 4/	2,000 4/	1,700
Phosphoric acid	300	300	300 4/	300 4/	300
Salt	120	139	130 4/	130 4/	130

r/ Revised.

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

2/ Includes data available through June 2002.

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.

TABLE 2  
SENEGAL: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons, unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Les Ciments du Sahel S.A. of Senegal (private, 100%)	Kirène plant	600
Do.	Société Ouest Africaine des Ciments (private, 100%)	Rufisque plant	1,600
Phosphate	Compagnie Senegalaise des Phosphates de Taïba (Government, 100%)	Taïba mine	2,000
Petroleum products	Société Africaine de Raffinage (private, 100%)	Dakar refinery	1,000