

THE MINERAL INDUSTRY OF GABON

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The equatorial African republic of Gabon is located on the Atlantic Ocean coast between Congo (Brazzaville) to the south and Cameroon and Equatorial Guinea to the north. The country's estimated 1.35 million inhabitants share a total land area of about 258,000 square kilometers (km²) (U.S. Central Intelligence Agency, 2005§¹). Gabon's mineral industry was dominated by crude petroleum and manganese production. Crude petroleum accounted for about 45% of the country's gross domestic product (GDP), 80% of its exports, and more than 50% of Government revenues; petroleum production, however, has been on a declining trend since 1997 (International Monetary Fund, 2005§). According to the U.S. Energy Information Administration (2004§), Gabon's proven petroleum reserves were estimated to be 2.5 billion barrels. At a current extraction rate of about 87 million barrels per year (table 1), reserves could last for another 25 to 30 years. Government efforts to attract new foreign investors by increasing the number of production-sharing agreements and exploration permits available have not been successful in recent years; new discoveries by petroleum companies operating in the country during 2004, however, could reverse this trend.

Gabon ranks among the world's five leading producers of manganese (Corathers, 2005). Other nonfuel mineral commodities produced in the country included cement, diamond, and gold. Other identified resources were columbium (niobium) and tantalum, iron ore, and phosphate. In 2004, the country's GDP based on purchasing power parity was estimated to be \$9.2 billion (International Monetary Fund, 2005§).

Government Policy and Legislation

The Ministry of Mines, Energy, and Petroleum [Ministère des Mines, de l'Énergie et du Pétrole] is responsible for the administration of the minerals sector in Gabon. A new Mining Code was enacted in July 2000. Under the new Code, mining rights include a fixed fee, a surface occupation fee, and a value-added tax that varies between 0.5% and 5% per year. Fiscal charges vary according to the permit type and the stage of the operation. The corporate tax rate is 35% (MBendi, 2004d§).

Commodity Review

Metals

Columbium (Niobium) and Tantalum.—Cluff Mining plc of the United Kingdom held the rights to the Mabounié phosphate and niobium-bearing carbonatite deposit in central Gabon. The mineral resource at Mabounié was estimated to be 16.72 million metric tons (Mt) of carbonatite ore at a grade of

1.75% niobium pentoxide (Nb₂O₅) that contains 292,600 metric tons (t) of niobium oxide (Coakley, 2004). No additional work was reported at Mabounié in 2004.

Gold.—In 2003, SearchGold Resources Inc. of Canada through its 90% owned subsidiary Ressources Golden Gram Gabon, S.A.R.L. conducted a scoping study to evaluate the possibility of developing an open pit mine at Bakoudou in southeastern Gabon. Preliminary measured and indicated oxide resources at Bakoudou were estimated to be 2.1 Mt at a grade of 2.45 grams per metric ton (g/t) gold, and 570,000 t of measured and indicated sulfide ore at a grade of 6.11 g/t gold. In 2004, the company was completing an in-fill drilling program to enable a final evaluation of the project. The study was expected to be completed by May 2005 (SearchGold Resources Inc., 2005, p. 3).

Iron Ore.—Representatives from the China Metallurgical Equipment Importation and Exportation Company (CMIEC) visited Gabon in late December 2004 to conduct preliminary studies (not described) at the Belinga iron ore deposit in northwestern Gabon. The envisioned iron ore project was to include the construction of railway lines that would link Belinga-Booue and Ntoum-Santa Clara to the Transgabonais railway, the construction of a deepwater port at Santa Clara, and the building of a hydroelectric dam on the Invindo River (Africa Mining Intelligence, 2005; MBendi, 2004b§).

Manganese.—Manganese ore was produced at the Moanda Mine in Franceville and shipped 600 kilometers (km) via the Transgabonais railway to the Owenda minerals port in Libreville. A track upgrade performed during 2003 to increase train frequency was completed in 2004. As a result, manganese ore production at Moanda, including sinter, increased to 2.46 Mt from 1.95 Mt in 2003 (Eramet Group, 2004§). Compagnie Minière de l'Ogooue S.A. (Comilog), which was a 67% owned subsidiary of Eramet Group of France owned the Moanda mine. Most of the sinter produced at Moanda was shipped to a smelter in France, which was operated by Société du Ferromanganèse de Paris-Outreau (SFPO) (a subsidiary of Eramet Group). Comilog planned to increase production capacity to 3 million metric tons per year (Mt/yr) by 2006 (Eramet Group, 2005, p. 3; MBendi, 2004c§).

Companhia Vale do Rio Doce (CVRD) of Brazil through its subsidiary Compagnie Minière Trois Rivières explored for manganese in the Franceville and Okondjá regions of southeastern Gabon. CVRD planned to invest \$5 million in exploration during 2004; to conduct an economic feasibility study for mining operations; and to construct a branch railway that will connect the Okondjá region to the Transgabonais railway, an export terminal at the Owenda port, and a hydroelectric plant (Mining Review Africa, 2004, p. 28).

Platinum-Group Metals.—In 2003, SouthernEra was granted an exclusive exploration permit for the Monts de Cristal project to explore for platinum-group metals. Monts de Cristal was located about 65 km east of Libreville. In 2004, the company announced that a preliminary assessment of stream samples collected at Monts de Cristal yielded positive results.

¹References that include a section mark (§) are found in the Internet References Cited section.

SouthernEra planned to complete reconnaissance sampling at the property and to assess the nickel and copper potential of the complex during the year. Future work included the design of a followup program once all reconnaissance results are interpreted, including grid mapping and geophysical surveys, soil grid sampling, drilling, and geologic modeling. SouthernEra's permit was valid for 3 years and covered a 9,409 km² area (SouthernEra Resources Ltd., 2004d).

Industrial Minerals

Diamond.—SouthernEra Resources Ltd. (SouthernEra) of Canada held four exclusive diamond exploration permits in Gabon. In October 2004, the company announced the discovery of eight meta-kimberlite bodies at its Makongonio exploration project in southern Gabon. In November, the company announced the discovery of five additional meta-kimberlite intersections at Makongonio. In December, the company announced the recovery of microdiamonds from the two 200-kilogram (kg) samples that it had sent to Canada for analysis. The microdiamond analysis was conducted by SGS Lakefield Research Limited. The Makongonio project, which comprised an area of 1,837 km², was a joint venture between SouthernEra (60%) and the Gabonese mining companies Cogemat Inc. (32.5%) and Geoscan (7.5%). Future work at Makongonio included diamond core-drilling, ground geophysics, pitting, stream and soil sampling, and trenching (SouthernEra Resources Ltd., 2004a-c). In addition to the Makongonio project, SouthernEra held 100% interest in the Kango and Sud projects and 95% interest in the M'bigou project (SouthernEra Resources Ltd., 2004a).

Artisanal miners produced small quantities of diamond in the Mitzi region in northern Gabon. DeBeers had conducted aeromagnetic, alluvial, and geochemical surveys in the area during the past 5 years (Mining Annual Review, 2004; MBendi, 2004a§).

Mineral Fuels

Petroleum.—According to the U.S. Energy Information Administration (2004§), Gabon, whose proven oil reserves were estimated to be 2.5 billion barrels in 2004, was the third leading oil producer in Sub-Saharan Africa. In early 2004, China's President, Hu Jintao, visited Gabon for the purpose of securing a steady supply of Gabonese petroleum. Following the President's visit, the two countries signed an agreement on economic and technological cooperation, which included the supply of 20,000 barrels per day (bbl/d) of Gabonese crude petroleum to China. In addition, China's Government-owned China Petroleum and Chemical Corporation (Sinopec) was examining the possibility of conducting onshore and offshore exploration in Gabon in partnership with Total Gabon S.A. [a joint venture between the Government of Gabon and Total S.A. of France (formerly TotalFinaElf)], and of building an oil refinery in the country (ANN News, 2004§; Embassy of the People's Republic of China in Ireland, 2004§; Energy Security, 2004§; People's Daily Online, 2004§).

Shell Gabon S.A. (50%) and its partner PanOcean Energy Corporation Ltd. (PanOcean) of Canada (50%) announced the discovery of petroleum in the two wells drilled during 2004. The first discovery was made in September at the Awokou-1 well located within the Koula prospect, and the second discovery was made in October at the Awodam-001 well located within the Damier prospect. Both prospects were part of the company's Awoun concession, which is located about 8 km north of the producing Avocette field. The partners planned to conduct additional evaluation and development of the prospects during 2005 (Royal Dutch/Shell Group, 2004; Alexander's Gas & Oil Connections, 2004§).

In 2004, the joint-venture partners PanAfrican Energy Gabon (a subsidiary of PanOcean) (31.36%), VAALCO Gabon Etame Inc. (VAALCO) (a subsidiary of VAALCO Energy Inc. of United States) (28.07%), Sasol Petroleum West Africa Limited (27.75%), Energy Africa Gabon S.A. (a subsidiary of Tullow Oil plc of the United Kingdom) (7.5%), Energy Resources Japan Etame (Gabon) Limited (2.98%), and PetroEnergy Resources Corp. (2.34%) announced two new oilfield discoveries at the VAALCO-operated Etame Block. The first discovery was made in January at the Ebouri No. 1 well offshore Gabon about 11 km northwest of the Etame oilfield, which produces an average of 15,000 bbl/d. The second discovery was made in June 2004 at the Avouma prospect. Drill-stem tests conducted at Avouma yielded an oil flow rate of 6,600 bbl/d. The Avouma oilfield is located about 20 km southeast of the Etame oilfield. In October 2004, the partners announced the completion of an additional production well (Etame 5-H), which increased gross petroleum production from 15,000 bbl/d to 20,000 bbl/d. The full development of the new discoveries was estimated to cost about \$100 million. Among the plans for 2005 were the appraisal and development of the Avouma and Ebouri discoveries, the drilling of two additional exploration wells at Ebouri, and engineering studies to optimize production from the Etame oilfield (Sasol Ltd. 2004a, b; 2005, p. 39; PanOcean Energy Corporation Ltd., 2005, p. 8).

The Sogara oil refinery, which is located to the south of Libreville in the town of Port Gentil, was Gabon's only refinery. In 2004, the refinery operated at about 82% of its 21,000 bbl/d nameplate capacity (U.S. Energy Information Administration, 2004§).

Uranium.—Reclamation work at the Mounana uranium mine was completed in July 2004. The mine, which had been in operation for nearly 40 years, closed in 1999 following the depletion of ore reserves (Antenna, 2004§).

Outlook

Gabon's economy is likely to be dominated by the petroleum sector in the near future following a successful 2004 petroleum exploration program, which included several new petroleum discoveries, and increased production at existing oilfields. Growth in the sector will depend, however, on the successful development of these discoveries and on ongoing onshore and offshore exploration activities. Manganese ore production, which is expected to increase by 50% in 2006, will continue to be an important component of the minerals sector.

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TABLE 1
GABON: PRODUCTION OF MINERAL COMMODITIES¹

Commodity ²	2000	2001	2002	2003	2004 ^e
Cement:					
Clinker ^e metric tons	210,000 ³	300,000	350,000	350,000	350,000
Hydraulic ^{e, 4} do.	210,000	210,000	210,000	350,000	350,000
Diamond, gem and industrial ^e carats	500	500	500	500	500
Gold, mine output, Au content ^{e, 5} kilograms	70	70	70	70	70
Manganese:					
Metallurgical-grade ore, gross weight (50% to 53% Mn) thousand metric tons	1,706	1,758	1,816	1,950 ^e	2,400
Pellets, battery- and chemical-grade, gross weight (82% to 85% MnO ₂) do.	37	33	40	50 ^e	60
Total do.	1,743	1,791	1,856	2,000	2,460 ³
Natural gas, gross ^e million cubic meters	99	99	80	79	80
Petroleum:					
Crude thousand 42-gallon barrels	118,625	98,550	91,980	87,965 ^r	87,235 ³
Refinery products do.	4,354	6,672	6,500	6,500 ^e	6,300

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised.

¹Table includes data available through April 2005.

²In addition to the commodities listed, a variety of crude construction materials (clays, sand and gravel, and stone) is also produced, but output is not reported and available information is inadequate to make reliable estimates of output levels.

³Reported figure.

⁴Includes cement produced from imported clinker.

⁵Gold production figures do not include production smuggled out of the country which, in recent years, was estimated to exceed 400 kilograms per year.