

GABON

*By Dr Kevin Leahy
Exploration Consultants Ltd, Henley-on-Thames, UK*

The Republic of Gabon borders the Atlantic Ocean, with a coastline 885 km in length, and has common borders with Equatorial Guinea, Cameroon and Congo (Brazzaville). It covers an area of approximately 268,000 km² and supports a population of 1.2 million. A narrow coastal strip rises to a series of plateaux, and 75% of the country is covered by tropical rain forest. Deep river valleys effectively divide the country into a number of smaller isolated areas.

Gabon has an equatorial tropical climate with high temperatures and considerable amounts of rainfall. The dry seasons are from May to September and from December to February. The largest cities are Libreville (the capital), Port Gentil and Franceville; major ports are Port Gentil, Owendo, Manyimba and Nyanga. French is the official language and indigenous languages of the Bantu tribes are Fang, Myene, Bateke, Bapounou/Eschira and Bandjabi.

Gabon is a republic with a universal franchise, a multi-party presidential regime, and a bicameral legislature consisting of a Senate and National Assembly. Ruled by just two autocratic presidents since independence from France in 1960, Gabon introduced a multiparty system and a new constitution in the early 1990s that allowed for a more transparent electoral process and for reforms of governmental institutions. The ruling party has won all the elections comfortably, all with accusations of fraud. President Omar Bongo, who took office in 1967 and is Africa's second longest serving leader, has effected an 'open government' after the December 2001 legislative elections were once again won by the Gabon Democratic Party. This has included members of opposition parties in cabinet posts and more power-sharing.

A small population, abundant natural resources, and foreign private investment have helped make Gabon one of the more prosperous black African countries. Gabon enjoys a per capita income four times that of most nations of sub-Saharan Africa. This has supported a sharp decline in extreme poverty, but income inequality persists across the general population. Export earnings were largely based on timber, manganese and uranium until oil production took off in the early 1970s. The oil sector now accounts for some 80% of all exports and almost 70% of GDP. Since its hey-day in the 1980s, however, production has gradually fallen, perhaps without Gabon fully realising the potential. The government is striving to move away from oil dependence; construction and services have picked up once again, and the timber industry looks to renew itself.

Gabon's main export commodities include crude oil, timber, manganese, palm oil, coffee and cocoa. Downstream industry related to oil is also firmly established, with an oil refinery at Port Gentil and a number of international oil companies contributing to the distribution and marketing of petroleum

products. Despite declining production from the Moanda mine, Gabon is still the world's third largest manganese dioxide producer, and also has the potential to produce up to 15% of global niobium from a developing mine near Mabounie. Gabon also produces minor artisanal gold and diamonds.

All useful mineral substances occurring under the surface are the property of the State. A new Mining Code was enacted in July 2000, under which exclusive rights are granted by the Ministry of Mines, Energy and Petroleum. There are four types of mining permit:

- i) Prospecting, for regional reconnaissance, valid for two years.
- ii) Exploration, for mining exploration and evaluation. A licence with concession is valid for three years and is renewable for two further periods of three years. Without a concession, the licence is valid for two years, renewable for one period of two years.
- iii) Mining (with concession) for mineral extraction, renewable as many times as required.
- iv) Mining (without a concession) for extraction of construction materials and related minerals.

In 2002, the Ministry of Mines published completely revised Geological and Mineralogical Maps of Gabon, with extensive explanatory notes, including details of currently active mines and exploration prospects.

The lively diamond exploration scene on the North Congo Craton, and in Gabon, continues apace this year. Diamonds have been produced in Gabon, with historical production of 38,000 ct mainly recovered in the 1940s. Most of this production came from Makongonio, in the south near the border with Congo. There are also well known metamorphosed kimberlites in the north of the country in the Mitzic region (trending into Equatorial Guinea), where a small amount of diamond is produced by local artisans. De Beers is actively exploring in a large permit area centred on the Mitzic region, and is currently generating targets having performed several regional surveys in the past few years. Southern Era has also been actively exploring for diamond deposits in Gabon over the past six years, and work continues on the company's three concessions in the north and northeast of Gabon to identify and sample the source area for the alluvial diamond mining area. Southern Era discovered two diamondiferous kimberlite pipes in 2001, although actual locations have not been released. BHP remains active further south, with exploration in the same region as the Makongonio placers. Southern Era also have active exploration in the north of Gabon on the Kinguéle Ultrabasic trend, where Cu-Ni-Au-PGM prospects are under assessment.

Gold production by artisanal miners is down to around 50 kg in the past year, according to Ministry of Mines officials. Total historical production from Gabon has been estimated at 55 - 60 t, of which 99% is of alluvial and eluvial origin. Production of gold from hard-rock deposits has not exceeded 0.5 t with most

of the production in the Etéké region. The Etéké group contains three high-grade gold resources within Birimian-age greenstone rocks of central Gabon. Interest in gold from the private sector has in recent years faded from its peak in 1997.

The demise of Australian-based junior Lafayette Mining Gabon Ltd in late 2001 has left only Canadian-based Searchgold Resources active on the Gabonese gold scene. Searchgold completed a pre-feasibility study in March 2003, performed by MET-CHEM Canada Inc, on its Bakoudou gold project in southeast Gabon. Located within Archean volcanic rocks of the du Chaillu Massif, 55 km south-west of Franceville, the Bakoudou deposit comprises a silicic shear zone in mafic gneisses and amphibolites weathered down to an average depth of 50 m. The study has revised preliminary resource estimates to measured and indicated resources of 2.1 Mt at an average grade of 2.45 g/t Au for the oxide ore of the A Zone, and of 570,000 t at 6.11 g/t Au for the primary ore of the A Zone – for a total of 8.6 t of contained gold. The A Zone is the south portion of the 2 km-long Bakoudou Structure in a 350 m by 305 m open pit, 93 m deep. This zone remains open in all directions. The two operational concepts proposed envisage rapid production over either a 2.5 or 5-year timeframe. The project is 90%-owned through Searchgold's subsidiary, Golden Gram Gabon SARL, with the remaining 10% represented by a Gabonese consortium, Sogecor.

Manganese is extracted from several separate pits containing bedded oxide deposits in the early Proterozoic Francevillian Basin of the Moanda region in the southeastern part of the country. The operations constitute the world's second largest production of manganese high-grade ore, and are controlled by Eramet-SLN through its subsidiary, Compagnie Minière de l'Ogooué SA (Comilog), with participation by the State of Gabon and Cie Generale des Matières Nucleaires. Production capacity is 2.5 Mt/y with reserves sufficient for more than a century, but the operation continues to under-produce, with 1.79 Mt in 2001, and similar figures in the 1990s. Completion of beneficiation and sinter plants was projected for the end of 2002, from which 600,000 t/y of high-grade sinter (56% Mn) were to be produced from fines accumulated since 1962. The majority of the sinter was to go to the SFPO smelter in France, another Eramet subsidiary, and the balance was to be exported to be converted to ferroalloys and manganese-based chemicals at plants in Europe, the US and China.

Kumba Resources of South Africa has been undertaking advanced feasibility studies of the Belinga group of iron ore deposits in northeast Gabon. These consist of ten ridges of Archean greenschist itabarites and argillaceous itabarites over a 30 km by 8 km zone. These are being considered for development along with nearby deposits at Boka Boka and Batoula. They possess a total estimated resource of 300 Mt of high-grade low P iron ore, with the same amount again of lower-grade or higher P. Development of this deposit would require substantial infrastructure expenditure, including the building of at least 40 km of new railway, upgrading hundreds of kilometres of existing track and upgrading port facilities.

Ore body exhaustion and tumbling prices led to the end of uranium production in 1999 after nearly 40 years of continuous operation at the famous Francevillian Basin deposits in Haut Ogooué Province.

The Mabounie niobium deposit, 200 km southeast of Libreville, has been the focus of much interest in the past few years. The high-grade pyrochlore-bearing carbonatite complex was originally discovered in 1986 by the Gabonese Directorate of Mines by means of an aerial geophysical survey, and explored by BRGM on behalf of the government of Gabon. It was recognised as a major carbonatite complex with several similarities to the Araxa niobium deposit in Brazil, the world's largest niobium mine. The Mabounie resource has been estimated from bulk sampling at 21.6 Mt averaging 1.6% Nb₂O₅ or 0.35 Mt of Nb, but awaits full feasibility studies. Cluff Mining became the largest shareholder and operator of the project in 2000, with a total of 35% indirect ownership, a share reported to have been sold back to the remaining partners in May 2002.