

# Gabon

Total population (July 2000 estimate): 1,208,000

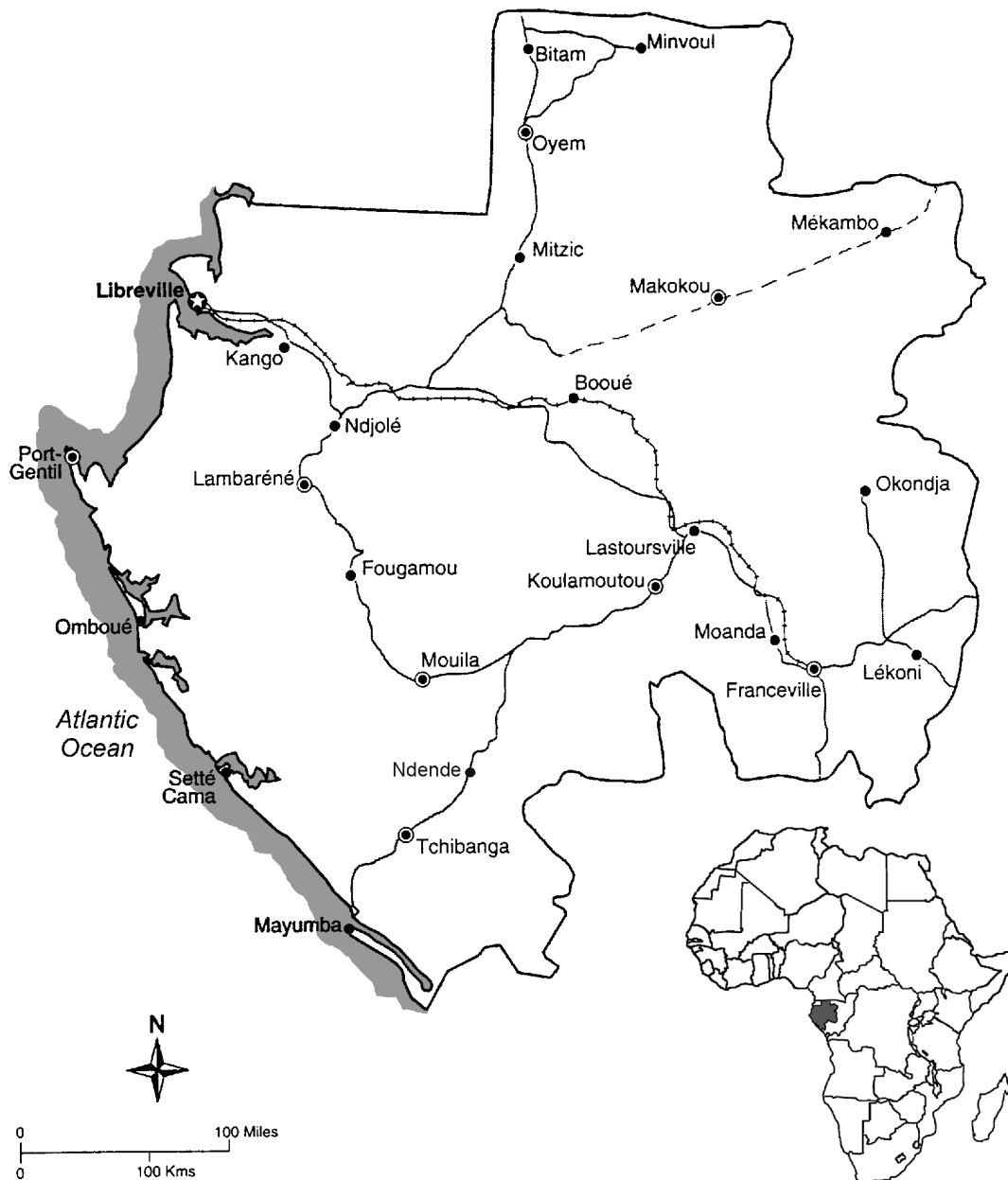
Area: 267,667 km<sup>2</sup>

Annual population growth rate (2000): 1.08%

Life expectancy at birth (1998): 52.4 years

People not expected to survive to age 40 (1998): 30.7% of total population

GDP per capita (1998): US \$6,353



Gabon consists of a plateau landscape that rises from a narrow coastal strip. Several mountain peaks reach 1,500 m. Tropical rainforest covers more than half of the country. The climate is hot and humid.

The economy of Gabon is largely based on the export of crude oil, which made up almost 50% of the GDP in 1999. Gabon is the third-largest oil producer in sub-Saharan Africa (after Nigeria and Angola) with 331,000 barrels per day produced in the year 2000. Gabon's proven oil reserves are 2.5 trillion barrels. The natural gas reserves of Gabon are 1.2 trillion cubic feet.

The main mineral resources of Gabon are manganese and uranium.

Agriculture accounted for only 8% of the GDP in 1999 although almost half of the population engage in agricultural production, mostly on a subsistence basis. The main food crops are cassava, maize and plantains. Gabon exports rubber, palm oil, cocoa beans and valuable timber.

The 1998 Gross Domestic Product per capita in Gabon was US \$ 6,353, making Gabon one of the richest countries in sub-Saharan Africa.

### **Geological outline**

Geologically, the country lies in the northwest part of the Congo Craton and more than two-thirds of the country is underlain by Precambrian rocks. The Chaillu and North Gabon granitic domains are of Archean age.

The Paleoproterozoic Francevillian Supergroup contains fluvio-deltaic sedimentary sequences deposited in intracratonic basins (Bertrand-Safarti and Potin 1994). The Francevillian Supergroup is well known for its mineral resources, especially manganese and uranium (Bonhomme *et al.* 1982; Thomas *et al.* 1999). The Mesoproterozoic is restricted to rocks of the Mayombe Supergroup (Thomas *et al.* 1999). The Neoproterozoic is part of the West Congo Basin and is largely made up of sandstones, shales and the calcareous sequence of the 'Schisto-Calcaire.'

The coastal Gabon basin consists of approximately 8,000 m thick Mesozoic-Tertiary marine sequences and upper Cretaceous evaporites.

### **AGROMINERALS**

#### **Phosphates**

Two types of phosphate deposits have been discovered in Gabon, sedimentary and igneous. Sedimentary phosphates were discovered during exploratory oil drilling. The best accumulations of phosphates, at the bottom of the Senonian (Coniacan) occur close to salt domes in the Wara na Yeno and Ikassa area at the coast approximately 110 km south-southeast of Port Gentil (Slansky 1986). The phosphate content in these sediments ranges from 8-32% P<sub>2</sub>O<sub>5</sub>. However, these phosphorites lie at considerable depths, beyond the range of economic extraction.

Late Cretaceous phosphatic lenticular sediments were reported from the southern coast of Gabon. Exposed on the coast and in lagoons, these frequently decalcified and silicified phosphate sediments occur in the striking continuation of the upper Cretaceous (Maastrichtian) Holle Series from the Republic of Congo (Giresse 1980). Only few data are available on this phosphate sequence.

Igneous phosphates were discovered during the construction of the Trans-Gabon railway in the early 1980s. A French – UNDP-assisted mineral inventory programme conducted side-scan radar, airborne

magnetics and radiometric surveys of the Precambrian basement and discovered a geophysical anomaly caused by a deeply weathered carbonatite ring complex. Detailed geological, geochemical surveys of the Mabounie ring complex (age  $660 \pm 3$  million years), located 40 km ESE of Lambarene, showed a complex residual phosphate/niobium deposit (Laval *et al.* 1988).

During a US \$12.5 million pre-feasibility study of the Mabounie complex, geologists delineated 140 million tonnes of ore at 24%  $P_2O_5$ . From this, 100 million tonnes could be excavated by open pit mining (Industrial Minerals 1996) and Niobium (from pyrochlore) could be obtained as by-product. It was estimated that the contained niobium resource could account for 15% of the world market share of niobium. Preliminary capital costs for the mine were estimated at US \$600 million.

A cost per tonne of phosphate concentrate (39%  $P_2O_5$ ) was approximately US \$25 per tonne (Industrial Minerals 1996).

### **Limestone/dolomite**

Limestone and dolomite occurrences are known from Precambrian sequences of Gabon and the Cretaceous of the coastal basin. At least four major dolomite occurrences have been recorded, two in the Paleoproterozoic Francevillian System (in the Mounana/Moanda area, and near Lastoursville), and two in the Schisto-Calcaire of the Neoproterozoic (Tchibanga and Ndende areas). The Francevillian dolomites form escarpments and cliffs up to 60-70 m thick, and the reserves of the Schisto-Calcaire are reportedly considerable (Gwosdz 1996).

The Cretaceous (Aptian-Albian) limestones in the coastal basin of Gabon are extensive and several hundred metres thick. The cement plant east of Libreville uses these limestones as source material (capacity 300,000 tonnes per year). The limestones are also used for road aggregate. Whether any of these limestones and dolomites are used for agricultural purposes is not known.

### **Agromineral potential**

The main phosphate deposit of Gabon (Mabounie) occurs in the weathered environment overlying the Mabounie carbonatite complex. The deposit is likely to be mined and processed on a large industrial scale only. The development of this deposit by small-scale mining techniques will be difficult due to the thick overburden of more than 20 m.

Liming materials, especially the dolomites in the Precambrian areas, form a major resource that could be developed by small-scale operations should they occur close to agricultural areas with soil acidity problems.

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