

EQUATORIAL GUINEA

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The territory of Equatorial Guinea includes the islands of Bioko and Annobon, and the mainland enclave of Rio Muni, which is bordered to the north by Cameroon and to the south and east by Gabon. The total surface area of the country is 28,051 km², with mainland Rio Muni accounting for approximately 26,000 km². Rio Muni has a coastal plain and a mountainous interior, and the climate is tropical with four seasons (two wet and two dry). The population of the country is approximately one million, with growth around 3%. About two-fifths of the population live in the urban areas: the capital, Malabo, on the island of Bioko, and in Bata, the largest town, port and administrative centre on the mainland. Spanish is the official language and French is also widely spoken, English much less so.

Equatorial Guinea's economy traditionally has relied heavily upon agriculture (primarily cocoa, coffee and timber), but recent economic developments have been dominated by rapid growth in the country's oil sector. GDP growth maintains its impressive trend at 34%, once again the country with the world's highest growth rate, whilst consumer price inflation has averaged around 8% for the past few years. Hydrocarbon production includes oil, natural gas and condensate, most of which is exported. Fast track-development of Ceiba (discovered in 1999), plus field expansion in the Niger Delta province, has increased production rates to the 200,000 bbl/d mark in 2002. Revenues from hydrocarbons have led to major infrastructural improvements, including a new deep-water freeport, power stations, methanol processing facilities, and road improvement and electrification programmes throughout the country.

Equatorial Guinea is a Democratic Republic with 14 political parties and is governed by a Government of National Unity. There is one legislative house, the Chamber of Representatives of the People, which has 80 seats. Political diversity in the government has been encouraged by the appointment of members from eight different political parties. The current peace existing in the country and the harmony between the political parties make Equatorial Guinea the most stable country in the region.

Bioko and Annobon are volcanic islands of the Cameroon Volcanic Line, composed predominantly of Cenozoic basalts with little mineral potential. Mainland Rio Muni, however, comprises the Archaean terranes of the Ntem Complex and the Monts de Cristal Massif, both of which were partly reworked during the Proterozoic Eburnian and the Pan-African orogenies. Exploration in Rio Muni has indicated the presence of greenstone belts and major shear zones, including Eburnian terrane boundaries, which have significant gold potential. Pan African transpressional structures are suspected in the west and are associated with granitic intrusions and pegmatite bodies that also occur across the interior. Low-metamorphic-grade shales, dolomites and quartzites occur in the southwest, representing the northernmost extension of

the Niari foreland basin of the Pan-African-age West Congolian Orogeny. Higher-grade sedimentary packages, also attributed to the Pan-African, are found along the northern border of the country where they are associated with major strike-slip and thrust faults.

The coastal strip of Rio Muni comprises Cretaceous sands, shales and carbonates with basal conglomerates, developed during the rifting phase of Atlantic opening. The Fang and Bata Transatlantic Fracture Zones come onshore at Rio Muni, linking to major lineaments, at least one of which shows evidence of Cenozoic rifting (the Benito Rift).

Current minerals production is negligible other than aggregate quarrying and minor artisanal gold mining activities in Rio Muni. Nevertheless, several studies have demonstrated the potential for gold, columbo-tantalite and diamond deposits, with previous exploration highlighting several areas of immediate interest. There is also potential for platinoids, dimension stone, base metals, and bauxite amongst other commodities.

Gold exploration and artisanal workings have identified three main areas – Coro, Aconibe and Mongomo on the northern margins of the Monts de Cristal terrane, as well as several other occurrences. These are small alluvial prospects currently yielding coarse gold, including several nuggets that occur with vein-quartz and lateritic minerals, attesting to nearby primary and secondary gold sources. The bedrock sources of the alluvial gold have yet to be delineated. Records are incomplete, but at least 2.3 t of gold were produced from the Coro area alone in the mid-1970s. South of Rio Muni in Gabon, the Monts de Cristal, Du Chaillu and Ogooué terranes have numerous alluvial workings and have been actively explored by international gold mining companies, including the important prospects in the Etéké greenstone belt.

Diamond potential relates in part to post-Eburnian meta-kimberlite dykes that extend along strike from the Mitzic diamond deposits in Gabon into the Nsork area of Rio Muni, 50 km to the north and west. Heavy-mineral sampling results have identified zinc-rich chromites in the Nsork area, similar to those found in the diamondiferous meta-kimberlites in the Mitzic area. Ongoing exploration in Gabon by De Beers (to the east and southeast) and Southern Era Resources (to the south) has identified zinc-chromites and diamonds in alluvial samples right up to the southern borders of Rio Muni.

Colombo-tantalite mineralisation is known in at least two areas (Aconibe and Ayamiken) defined by Nb and Ta soil anomalies, and heavy minerals associated with Nb-Ta-rich pegmatites. Recent exploration in the Aconibe area has been halted, but other occurrences in Rio Muni remain untested.

Widespread lateritisation and indications of bauxitic laterite, with grades up to 58.3% Al₂O₃, and 2.1% to 5.3% SiO₂, indicate some potential for bauxite, particularly in the east of the country which lies on a wide, dissected plateau. Laterites have also been observed on the Cretaceous shales along the coastal strip. Anomalous values of base-metals, U, As, Ag, Mn and Mo have been detected in laterite above black shales which occur in the Noya Series

near Cogo. The Noya Series is part of the West Congolian Niari foreland basin, with known base metal deposits immediately to the south in Gabon, and is also equivalent in age to the Katangan sequences of the Democratic Republic of Congo and Zambia. Serpentinised ultramafics and other basic intrusives along the footwall of the Benito Rift constitute an untested exploration prospect with some potential for base metals and platinoid elements. Similar basic intrusives have also been reported in southern Rio Muni, which may be a northern extension of the Kinguéle ultrabasic trend of northern Gabon, where Ni-Cu-Au-PGM mineralisation is currently under evaluation by Southern Era Resources.

Between 1980 and 1986, BRGM of France and a Spanish exploration group undertook regional and follow-up stream-sediment surveys utilising heavy mineral separates and sediment geochemistry. These highlighted the potential for gold production from alluvial deposits at Coro, as well as the occurrences of colombo-tantalite, diamond indicator minerals, iron ore, radioactive minerals, rare earths and base metals in other areas. Other activities included a side-looking radar survey and an aeromagnetic survey of Rio Muni.

In the late 1990s, the exploration licence for all of Rio Muni was held by United Meridian Corp. (later named Ocean Energy) and BoMc Holdings Inc. These companies undertook a wide range of exploration activities, including regional and prospect geological mapping, reconnaissance evaluation of the gold and bauxite potential of laterites, sampling and prospect evaluation of the artisanal workings, stream sediment sampling, interpretation of high-resolution radar imagery, and the generation of a comprehensive GIS database. At the end of 2000, the licence lapsed and the entirety of Rio Muni became open for exploration. The GIS database and historical exploration archives are accessible for interested companies upon approval.

As of April 2003, only 1,000 km² of Rio Muni have been contracted for exploration, with a further 1,000 km² in the Coro gold area currently under negotiation. Promotional activity undertaken by the Ministry of Mines and Energy has led to ongoing discussion and negotiations with both junior and major exploration companies, mainly in the diamond and gold sectors. The Ministry is also undertaking technical projects with a view to improving the geological knowledge of the country. This includes a granites project to age-date a large suite of samples from across Rio Muni, in tandem with geochemistry and mapping to test and develop regional tectonic evolution models.

The Ministry of Mines and Energy is keen to develop an exploration-friendly environment, and to this end a redrafted Mining Law is in the process of proposal and ratification. Mining and Exploration is licensed by means of Contract, with model Exploration, Prospect and Exploitation Contracts available. Exploration Contracts permit large areas to be explored (up to 1,000 km²) over a one- to three-year period. The explorer may also opt for registration of smaller Prospect Areas (up to 100 ha) to permit detailed evaluation of individual prospects. Exploitation Contracts will be granted upon

submission of a mining programme that must include environmental management strategies and also meet acceptable health and safety standards in the workplace.