

BENIN

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A small and poor country on the Gulf of Guinea, Benin survives on an agriculture-based economy with only a couple of mineral products worth noting: crude petroleum (an estimated 150,000 t/y from off-shore blocks) and cement (reserves of limestone near the cement facility at Onigbolo have been sufficient to supply the plant at design capacity for more than a century).

As part of an uneven process of economic liberalisation and privatisation begun in the late 1980s, the ministerial mining department and the Office Beninois de Recherches Geologiques et Minières (Obemines) - in charge of technical activity - have been devising a new Mining Code. A set of standard agreements has been established for exploration and mining projects to speed up the allocation of mining titles. Under the new terms, the mining licence is granted as a right to the holder of the survey licence who furnishes proof that a deposit exists within the boundaries of the survey licence.

Benin's strategy to attract foreign mineral-related investment has borne some fruit in the cement industry (with France's Lafarge group becoming involved in cement production there) but it is the glitter of gold which has sparked more interest. Almost a ton of alluvial and eluvial gold was reportedly extracted in the area of the Perma River between 1939 and 1955. BRGM of France ceased its exploration work there in about 1962, and formal mining also stopped.

According to CIMC, a private company prospecting one of the Perma River's Natitingou concessions, most alluvial mining in these licences since 1960 has been carried out by illegal artisanal miners, although three attempts at industrial-scale operations have been made. In the 1970s, a mining agency

from the Soviet Union built a camp and installed mining equipment; in 1982-3, the United Nations Development Programme (UNDP) set up a pilot operation and reportedly recovered 2,965 kg of gold from 3156 m³ of gravel at an average recovery of 0.94 g/m³. In 1987, Obemines launched its own project to exploit the Perma alluvial deposits; it lasted for three months and was profitable in the final week when a recovered grade of about 1.3 g/m³ was achieved.

CIMC cites results from UNDP exploration on incomplete coverage of river terraces which indicate almost 400 kg (12,807 oz) of gold at an average grade of 1.11 g/m³. The company asserts that the terraces on which these reserves are calculated can be followed discontinuously along the Perma River for tens of kilometres, promising an alluvial resource several times greater than the presently proven reserves. While CIMC puts the alluvial reserves on its concessions at about 13,000 oz, the inferred alluvial resources are estimated at between 50,000 oz and 100,000 oz.

Obemines' prospecting work around the Atacora gold province is hoped to encourage a gold industry on the basis of investment from the private sector. Gold exploration agreements have been signed with mining companies from South Africa, Germany, Australia, Canada, Ghana, the UK and Nigeria.

Its prospecting has also led to the discovery of a 12.5 Mt peat deposit near Cotonou, as well as deposits in the Toho Lake area and at Kpakpatan in Mono region.

Other mineral resources identified by Obemines included a number of deposits of brick and china clay along the coast; feldspar at Idadjo and Tchaourou-Waria;

marble deposits at Idadjo, Atomè-Lonkly (Mono) and Lanta (Couffo); peat deposits adjacent to the Togo border; silica sand along the coast south of Porto Novo; the Loumbou-Loumbou iron-bearing deposit; the Mékrou phosphate deposit; and a

number of potential ornamental stone quarrying sites. Obemines has also documented occurrences of columbo-tantalite industrial diamonds, gypsum, mica, rare earths, rutile, tungsten and zircon.