

BENIN

By Paul Crankshaw

The West African state of Benin, an independent republic since 1960, is flanked by Nigeria and Togo to the east and west, and bordered by Burkina Faso and Niger to the north, with a limited coastline of some 120 km on the Bight of Benin in the south. The population of some seven million is mainly engaged in subsistence agriculture, cotton and regional trade. Mining plays a minor role in the economy. The formal sector is more or less limited to the production of construction material and cement for local consumption. Cement producers include Soc. des Ciments d'Onigbolo (for which limestone is quarried at Pobe) and the clinker-grinders Cimenterie du Bénin SA and Soc. des Ciments du Bénin. In 2000, production capacity was estimated at about 875,000 t/y in a domestic market that consumed 450,000 t. Soc. Benino-Libyen des Mines (Belimines) has been quarrying marble deposits at Dadjo since the mid-1980s.

Gold is mined by artisanal methods. Gold exploration has been concentrated in two areas: Natitingou-Perma and Djougou/Alédjo-Koura in the Atacora gold zone in northwestern Benin. The government is revising the mining laws with a view to attracting mineral investment, but thus far no significant new discoveries have been reported to give much impetus to these efforts.

The mining sector was estimated to produce about 5.5% of gross domestic product (1998), and at that stage employed 3% of the workforce. By comparison, the agricultural sector contributed 38% to GDP in 1999, and employed about 65% of the labour force.

Geologically, most of Benin is underlain by migmatites, gneisses and granites. In the far north-west there is a clastic sedimentary sequence that is exposed mainly in neighbouring Togo and Ghana, and in the south there is a thick sequence of sediments.

Benin's iron-ore potential is substantial and well known. Resources at Loumbou-Loumbou and Madekali in the district of Borgou are estimated at up to 500 Mt with an iron content of 46-52%. One of the key requirements to exploiting these reserves would be the provision of electricity, and the state-owned electricity provider Soc. d'Eau et d'Electricite (SBEE) has a programme under way to investigate a dam at Arjarala with a 900 MW hydroelectric power station at an estimated cost of US\$150 million.

Phosphates have been the subject of substantial exploration efforts by the United Nations (through both the UN Development Programme and the UN Revolving Fund for Natural Resources Exploration), by Shell and by Benin's own Direction des Mines de la Géologie et des Hydrocarbures. This work has uncovered two types of sedimentary phosphates: northern deposits of Eocene

age (similar to those in neighbouring Togo) and southern deposits of NeoProterozoic age (like those in Niger).

Early evaluation in the 1970s, however, indicated that the southern deposits were too small to compete with the extensive Hahotoe phosphate deposit in Togo. The northern deposits at Mekrou were also considered uneconomic for large-scale mining and processing techniques, but consultants suggested that small-scale extraction was worth investigation. The provision of hydroelectric power at Arjarala could also improve the viability of phosphate deposits at Mekrou.

Over 12 Mt of peat occur in deposits near Cotonou; there are also peat deposits in the Tono Lake area east of Lokossa and at Kpakpatan in the Mono region.

In terms of hydrocarbon resources, there are an estimated 5,500 Mbbl of oil reserves in the coastal sedimentary basin. Production has declined since 1999 owing to the closure of the Seme offshore oilfield which produced 8,000 bbl/d from two wells. Zetah Oil Co was given a licence to redevelop the oilfield and feasibility studies were set in motion in 2000.

Mineral resource ownership in Benin is vested in the state, which grants exclusive rights for exploration and development through the Ministère des Mines, de l'Energie, et de l'Hydraulique. The Benin Mining Code (Act No.83-003 of May 1983) is regulated by Decree 89-296, and Act No. 83-004 addresses fiscal policy that affects mineral development. The Beninese Agency for the Environment is responsible for national environmental responsibilities, in terms of Law No. 98-030 of February 1999. The administration of mineral development applications and procedures is controlled by the Office Béninois de Recherches Géologiques et Minières.