

# SENEGAL

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Located at the western extremity of Africa's tropical zone, Senegal is bounded to the north by the Senegal River which separates it from Mauritania, to the east by Mali, to the south by Guinea and Guinea Bissau, and to the west the Atlantic Ocean; it surrounds Gambia on three sides. French is the official language, with Wolof the most widely spoken Senegalese language. The capital city of Dakar is located on the westernmost point of Africa, and is referred to by many as the 'Paris' of West Africa. Senegal is a gateway to the continent; it has some of the best commercial facilities in West Africa, including advanced internet facilities and good international and domestic transportation links, and many companies use Senegal as a regional centre for West African operations.

Senegal has high eastern and southern borderlands, but otherwise consists of relatively fertile coastal and alluvial plains, with the north-central plains suffering from encroaching desertification. There are two main seasons: a hot, humid rainy season from May to November, and a dry season from December to April, dominated by the hot, dry, Harmattan winds.

The domestic economy remains heavily dependent on agriculture, currently being affected by a series of droughts. Other major exports are phosphates and cotton. Senegal has phased out most quantitative restrictions on imports, reduced tariffs, dismantled monopolies, liberalised the labour market, and is slowly privatising state-owned industries to re-establish the conditions for sustained growth and increased private investment. Mineral resources consist primarily of phosphates, but with recent renewed interest in gold, iron and hydrocarbon resources.

Senegal is also known as one of Africa's most politically stable countries - a functioning multi-party democracy has evolved since independence from France in 1960. The country's veteran opposition leader, Abdoulaye Wade, was sworn in as President in April 2000, ending 40 years of *de facto* one-party rule. Three years on, President Wade has been forced to sack his recently-elected Prime Minister in the wake of a ferry disaster that claimed over 1,000 lives. A peace deal signed in 2001 between the government and the Casamance Movement of Democratic Forces (MFDC) almost immediately collapsed, with ongoing violence in the southern region that has seen civil war for over two decades. These hostilities, the drought and the general global downturn have yet to have any effect on the Senegalese economy, with continued steady growth (5% GDP) and low inflation (2.5%) in 2002.

The mining industry is regulated by the Ministry of Mines, with Macky Sall at its head. Under Senegal's mining code, general prospecting requires a simple authorisation by the Director of Mines. Exploration licences are granted for four years and can be renewed twice, with each renewal lasting for three

years. Agreements are negotiated between the parties to define the basic conditions of exploration and the key terms for exploitation. After minerals are discovered through exploration, the holder of the research permit has absolute priority when applying for an exploitation permit or a mining concession. Exploitation licences last five years and can be renewed every five years. A mining concession has a duration of 25 years and is renewable for 25 years. There has recently been an initiative to standardise the mining-tax arrangements of a number of francophone West African States. This means that Senegal, which is not currently a prime exploration destination, will offer the same fiscal exploration package as more established countries like Mali.

Senegal's geology is marked by a large coastal basin of mid-Jurassic to recent age, where important reserves of alumina phosphate and calcium phosphate are found. In the higher land to the south and east of the country, the Archaean basement and Proterozoic supracrustals (mainly Birimian volcanics) outcrop. This Proterozoic arc-accretionary complex contains several major shear zones, and hosts the bulk of the country's gold, copper, iron and diamond occurrences.

The phosphates production sector dominates the mining industry in Senegal with 1.8 Mt of phosphate produced in 2002. Phosphate production has declined by about one-third since the early 1990s and export levels remained very low. Value addition takes place with almost all of the phosphate production converted to phosphoric acid and fertiliser within Senegal. A new phosphoric acid plant was completed in 2001, with a doubling of acid production since. This has substantially increased local rock requirements, and Industries Chimiques du Senegal (ICS) is planning a new US\$100 million phosphate mine in the Matam area, which hosts a 40.5 Mt deposit of dry phosphates. This will eventually replace the existing Taiba operation and support the new phosphoric acid plant. Further ahead, ICS is looking at the possibility of increasing rock export levels once the domestic chemical demand is met.

Gold is mined in very minor amounts but, in common with Mali, has had a long and important history in the commerce of the region. The area of greatest interest for gold is the extreme south-east of the country bordering Mali and Guinea, where a large inlier of Precambrian (Birimian) metamorphosed arc, back-arc and accretionary rocks are exposed. The Senegalo-Malian fault zone, which runs through the Sadiola Hill permit in Mali, trends north-south through several permits on the Senegalese side of the border, and the Loula deposit in Mali lies only 10 km north of the Bambadji concession.

Gold exploration in Senegal is at a lower level than at its peak in the mid-1990s but, with elevated gold prices, is gradually picking-up again. Previous explorers that have withdrawn from projects in Senegal include Avgold, Anglogold, Barrick, Ashanti, Etruscan Resources, Prospector International Resources, Sengold Mining and the unfortunate Australian junior, Paget Mining, now defunct, which lost its costly legal battle over mining rights in the Sabodala concession.

Randgold Resources re-entered the country in November 2001 after a three-year absence, taking an exploration permit in the Kanoumering area of the Sabodala belt. Randgold recently acquired two new contiguous permits, and now holds a block of 1,200 km<sup>2</sup>, hosting a variety of targets including five with significant gold intersections, multiple gold in soil anomalies and grassroots areas in favourable geological settings. Field programmes are focused on target definition and include detailed mapping and trenching of the Tomboronkoto target where a shear-hosted quartz-vein stockwork is located in a granodiorite. This target was previously operated by the IAMGOLD-Ashanti alliance which outlined an inferred resource of 150,000 oz at an average grade of 2.0 g/t.

IAMGOLD is currently drilling on the Bambadji and Daorala-Boto claims, where the search for both typical Birimian greenstone gold, and Olympic Dam type deposits continues. Combined, these properties have an exploration budget of US\$0.7 million to June 2003. Two other concessions adjacent to these claims are under application.

Canadian-listed AXMIN is now actively exploring the Sonkounkou and Sabodala northwest permits in the same region as Randgold and IAMGOLD. Both permits represent grassroots targets adjacent to granitic intrusives. An estimated US\$0.5 million has been spent by Axmin in 2002, focussed mainly on reconnaissance soil sampling on key targets. On both permits, these initial surveys have identified substantial anomalies that will require more detailed follow up sampling and mapping prior to reconnaissance drill testing.

In the iron-ore sector, Kumba Resources is actively evaluating the Faleme iron-ore project, including feasibility studies. The total available iron-ore reserves at the Faleme iron-ore project are estimated at 350 Mt, sufficient for mining over 30 years at the planned production rate of 12 Mt/y of marketable products. In addition, there are further reserves of about 250 Mt in the Farangalia and Goto deposits. Development of the Faleme deposit would require substantial infrastructure expenditure, including the building a new section of railway, upgrading existing track and upgrading port facilities.