

## 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 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, with 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 crises in both of the most important sectors, peanuts and fishing. 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. Significant mineral reserves include oil discovered off the Casamance coast, and iron ore in the upper Faleme Valley.

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. Two years on, and with an expanded parliamentary powerbase, President Wade has continued the steady economic growth of recent years. A peace deal signed last year between the government and the Casamance Movement of Democratic Forces (MFDC) appears to be all but over, with renewed violence in the southern region that has seen civil war for over two decades.

The mining industry is regulated by the Ministry of Mines, now led by Macky Sall, after the stepping-down of long-time Minister, Prof. Abdoulaye Dia. 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 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 volcanoclastics) outcrop. This Proterozoic back-arc terrane 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; 1.8 Mt of phosphate was produced in 2000, accounting for up to 17% of export earnings. Value addition takes place with a large quantity of phosphate production converted to phosphoric acid and fertiliser within Senegal. Phosphate production has declined by about one-third since the early 1990s and export levels remain restricted as a result of increased domestic conversion of rock into phosphoric acid for export. A new phosphoric acid plant was completed in 2001, substantially increasing local rock requirements. Industries Chimiquet 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, again in conjunction with the expansion planned in mine capacity when its new chemicals expansion takes place.

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 and back-arc 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 significantly lower level than at its peak in the mid-1990s,

with current explorers reporting much-increased availability of ground. Previous explorers that have either recently withdrawn or mothballed Senegalese projects include Avgold, Anglogold, Barrick, 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. The exploration properties operated by Etruscan Resources have remained inactive throughout 2001 and to date.

Bucking the trend, 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. The project inherited a great deal of exploration data from previous campaigns and is currently at a review and target generation stage, concentrating on three known gold occurrences. The company intends to spend US\$7-10 million annually on exploration over the next four years. Randgold had previously explored in the Souroumdou permit on the Sabodala belt, but dropped it in 1998.

Ashanti Goldfields and IAMGOLD have a joint venture project on the Mako concessions. Drilling on the Tomboronkoto anomaly within the Mako concession outlined an inferred resource of 150,000 oz at an average grade of 2.0 g/t. The Ashanti-IAMGOLD Alliance was looking for a joint venture partner to develop the project, and has also applied for another concession at Soukouta, near Mako. On the Bambadji claim, where the search for Olympic Dam type deposits continues, a 1,560 m drill programme was completed last year. The best results were from the Boto 5 prospect, with 21.5 m averaging 17.7 g/t of gold in a diamond drill intersection which was 50 m below a trench which had cut a zone of 17 m averaging 33.2 g/t. Further high-resolution geophysics are planned as well as more drilling in June-July 2002.

Ashanti Goldfields also owns the Daloto-Toundifara concession, originally owned by Samax Gold. Exploration was focussed on the

two large artisanal fields and drilling confirmed potential for economic grades and mineralisation. IAMGOLD continued exploration work on the Daorala-Boto property, once part of the Ashanti-IAMGOLD Bambadji agreement, but now solely owned by IAMGOLD since mid-1998. Work was concentrated close to the Senegalo-Malian fault, from which a splay-fault is believed to be an important control on the gold mineralisation at Mali's Sadiola mine.

The licence for the Madina-Foulbe permit, previously held by the Anglogold-Barrick Consortium, was granted in mid-1999 to

Takoradi Gold of Ghana and the Australian company, Tarcoola Ltd. The latter also has an interest in the Moura concession, owned by Prospector International Resources Inc. and Sengold Mining NL, although a second phase of trenching work is still on hold because of market conditions.

In the iron ore sector, the total available iron ore reserves at the Faleme iron ore project are estimated at 391 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.