

ALGERIA

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Algeria is the second largest country in Africa with a surface area of 2.4 million km². The country has a population of 30 million people, most of whom occupy the very northern coastal region, the southern 85% of the country being covered by the Sahara Desert. Only slightly more than 3% of the country is arable land. It shares borders with Libya, Mali, Mauritania, Morocco, Niger, Tunisia and Western Sahara.

Since multi-party elections in 1999, the country has enjoyed a greater semblance of stability, accompanied by a lessening of internal strife in the more remote areas, although some civil unrest is still evident in parts of the country, especially in the south. An executive Presidency is underpinned by a bicameral legislature comprising the National People's Assembly and the (upper) Council of Nations elected on universal franchise through a system of full proportional representation. The Cabinet of Ministers is appointed by the President. The next Presidential election is due in April 2004 and elections to the two branches of the legislature are due in 2003 (CN) and 2007 (NPA).

The country boasts one of the highest GDPs in Africa, based primarily on the production and export of petroleum and natural gas. In 2001, the GDP advanced by an estimated 3.8% and *per capita* GDP was an estimated US\$5,600.

The hydrocarbons sector is key to the country's economy, accounting for 30% of GDP and more than 95% of export earnings.

The downstream oil industry is well developed, with five refineries and a burgeoning petrochemicals industry centred primarily on Skikda, Arzew and Annaba. Algeria also has the fifth-largest reserves of natural gas in the world, estimated to be 3,200 billion m³. The country is the world's second-largest exporter of natural gas and MEDGAZ, a project for a gas pipeline between Algeria and Spain, has been listed as a priority programme by the European Union.

In terms of non-fuel minerals, Algeria produces substantial quantities of iron ore, phosphate, pozzolana, other industrial minerals and marble, as well as mercury and minor base metals.

Since the 1999 elections, Algeria has made substantial efforts to attract inward investment for exploration and mining activities, and for the establishment of support infrastructure for the extractive industries. The primary objective of the Ministry of Energy and Mines is to increase the importance of the role played by the mining sector within the national economy. As a key feature of this strategy, the Ministry incorporated two general principles that it considered central to the success of its plans. First,

mobilisation of significant resources to conduct mineral exploration, particularly in partnership with foreign mining companies. Second, working with partners to exploit mineral resources that have been partially mined or left undeveloped. The Ministry signalled its intention to revise existing mining legislation and provide a more favourable foreign environment for investment in the mining and hydrocarbons industries.

As a sign of its more direct support for mineral (and hydrocarbon) exploration, in recent years Algeria, through its Office National de Recherche Geologique et Miniere (ORGM) has accumulated extensive aeromagnetic, geophysical, aerial photographic (1:50 000), topographic and cartographic surveys, as well as an inventory of the minerals. In addition, some US\$1 billion has been spent on exploration and development in recent years. Substantial reserves have been identified for a number of minerals, including iron ore (3,500 Mt), phosphate (1,600 Mt), lead/zinc (1.6 Mt of metal), mercury (37 000 t metal), gold (110 t metal), wolfram ore (2.4 Mt), barite (9.5 Mt), celestite (6 Mt) and marble (24 million m³). Many of these deposits are being promoted by the Ministry of Energy and Mines in the search for investment.

Late in 2001, the Algerian Government succeeded in securing an US\$18 million loan from the International Bank for Reconstruction and Development to help develop its mining industry. Algeria's new mining legislation was enacted in July 2001 and provides clearly defined pathways for progression from prospecting to exploration and ultimately mining. Fiscal incentives are positive and include exemption from a wide range of taxes and customs duties. The French-language version, issued in late November on the Mines Ministry's website, is reported to provide a wide range of tax 'sweeteners' but international response has yet to be assessed.

Algeria's proximity to Europe, its low labour costs, excellent but untapped geological potential and its government's willingness to develop the mining industry, make the country a prospective target for the international mining community. ORGM has been made responsible for encouraging foreign investment in the Algerian mining sector.

Algeria's major mineral deposits include: the 3 Moz Tirek Amesmessa gold mine; the 2,400 Mt Djebel Onk phosphate mine; the 5,000 Mt Quenza and Bou Khrada iron-ore mines; plus several industrial mineral mines producing salt, bentonite and barite. There is limited diamond potential in the Reggane area, which has known alluvial deposits.

Base metals production is not a major factor in Algeria's mineral production. In recent years the government has been seeking investors to take on the Ghazaouet zinc mine and processing plant in the far northwest of Algeria. The complex is 25 years old, and its original 40,000 t/y capacity has been reduced in recent years to 31,000 t/y as a result of poor maintenance and the unavailability of spare parts.

The relatively minor base metals production in Algeria does not reflect the potential for future mining. The Oued Amizour lead-zinc deposit in northwest

Algeria, comprises brecciated, stockwork, and minor massive sulphides in felsic volcanic rocks of mid-Miocene age. The total resource is 30 Mt averaging 5.74% Zn and 1.39% Pb over an average thickness of 98 m, and a central core zone is estimated at 10.89% Zn and 3.04% Pb over an average thickness of 50 m. Following relinquishment of the property by Breakwater Resources, the government was seeking new investors during 2002 but it is not known if they have been successful.

An increase in **phosphate** production at the Djebel Onk phosphate mine from 2.5 Mt/y to 4.5 Mt/y and the production of 1 Mt/y of phosphoric acid, together with ammonia, were the subject of feasibility studies initiated early in 1999 as part of a proposed joint venture between the Algerian Government and Spanish fertiliser producer Fertiberia SL. Reserves at Djebel Onk are in the order of 2,400 Mt averaging 24% P₂O₅ and the infrastructure is reportedly good. The mine is located 300 km south of Annaba.

In addition to existing **salt** production, investment in three further projects in the north of the country is being sought; El Meghaier, El Outaya and Arbal, contain reserves of 1,500 Mt and potential of 2,000 Mt. Partners are sought to extend the capacity up to 1 Mt/y.

The bulk of the country's **iron ore** is extracted from the Ouenza and Bou Khadra mines near the Mediterranean coast of northern Algeria. The main haematite-rich orebody at Ouenza is reported to be 2 km long and 500 m wide. Production of hot briquetted iron is foreseen at Ouenza and Bou Khadra, and also at Gara Djebilet and Mecheri Abdelaziz in the west. Reserves in these two areas already total some 3,500 Mt. Ouenza and Bou Khadra have been estimated to contain about 5,000 Mt of high-grade haematite.

A number of gold prospects have been identified in the Hoggar region of southern Algeria by ORGM and the parastatal company, Enterprise D'Exploitation des Mines D'or (Enor). These prospects are now the focus of attention by foreign companies. Mostly hosted by major northerly trending structures in the Pan-African terrane of Hoggar, they appear to have significant potential.

The main focus is on the development of resources in the Tirek - Amessmessa area close to the border with Mali in southwest Algeria. At Tirek, 20 t of gold have been identified at an average grade of 17 g/t Au. The Tirek mine is owned by Enor and a substantial shareholder (34.12%) is the parastatal oil company Sonatrach. Mining of the deposit (consisting of a series of high-grade quartz veins) officially commenced in January 2002 using open-pit methods, although some mining commenced as early as July 2001. Development costs were US\$9 million, with the plant being designed and constructed by the South African company MDM. A series of pits are being exploited to depths of between 5 m and 40 m but underground mining is anticipated within about five years. During the first few months of production the ore grade averaged 12 g/t Au.

At Amessmessa, gold resources have been estimated at 70 t averaging 14 g/t Au. The Algerian Government is actively seeking partners to develop a mine that is expected to produce close on 100,000 oz/y by 2004. The mine was the subject of a feasibility study during the year. Investigation and possible exploitation of resources located between Tirek and Amessmessa is also under consideration by Enor.

At the Tiririne-Harane gold project, located near the Niger border 450 km east of the town of Tamanrasset, reserves are estimated at 481,000 t at a grade of 17.0 g/t Au. The various deposits comprise vein swarms hosted by metasediments. Also located in the Hoggar area, and some 300 km southwest of Tiririne, is the In Abegui goldfield, where stockworks and quartz-vein mineralisation occupy ten discrete zones. The project covers 20 km², and exploration has consisted of 7,800 m of drilling, some 220 m of pitting, about 6,300 m³ of trenching and 570 m of underground development. The probable and possible resources at In Abegui total 566,000 t averaging 6.02 g/t Au.

Elsewhere in the country, the authorities have indicated potential for the discovery of manganese and copper (Ougarta district), copper, molybdenum and gold in the Reguibat district, and also tin, tungsten, uranium and diamonds. At the end of 1999, De Beers reportedly expressed interest in the potential for diamondiferous kimberlites in the Saharan region of the country. ORGM has commenced a substantial and systematic exploration programme in the Hoggar and during 2002 reported the discovery of micro-diamonds and kimberlite indicator minerals near the village of Silet.

The Ministry of Mines and Energy and related agencies provide regular updates via an excellent website at www.mem-algeria.org.

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