

# ALGERIA

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**A**lgeria, the second largest country in Africa with a surface area of 2.4 million km<sup>2</sup>, 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.

In 1999, Algeria's third multiparty parliamentary elections saw Mr Abdelaziz Bouteflika emerge as the new President. The executive Presidency is underpinned by a bicameral legislature comprising the National People's Assembly and the (upper) Council of the Nation, elected on universal franchise through a system of full proportional representation.

The country boasts one of the highest GDPs in Africa, based primarily on the production and export of petroleum and natural gas. The downstream oil industry is also well developed with five refineries and a burgeoning petrochemicals industry centred primarily on Skikda, Arzew, and Annaba. Algeria also has the world's largest known reserves of natural gas, estimated to be 3,200 billion m<sup>3</sup>. In terms of minerals, Algeria produces substantial quantities of iron ore, phosphate, pozzolana, other industrial minerals and marble, as well as mercury and minor base metals.

During the past two years, renewed efforts have been made to attract inward investment for exploration and mining activities and the establishment of support infrastructure for the extractive industries. The government is dealing with the issue of internal security as a priority and guerrilla activity does appear to be decreasing in response to various initiatives including increasing dialogue with the insurgents.

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, the mobilisation of significant resources to conduct mineral exploration, particularly in partnership with foreign mining companies, and second, working with partners to exploit mineral resources that have been partially mined or left undeveloped. The Ministry has flagged its intention to revise existing mining legislation and provide a more favourable foreign environment for investment in the mining and hydrocarbons industries. The Algerian Resource agency, Office National de la Recherche Géologique et Minière (ORGM), is responsible for promoting foreign investment in the Algerian mining sector, as well as for undertaking mining and exploration activities. State-owned companies such as ORGM now have to compete with private-sector companies and are encouraged to seek private-sector partners.

A draft law to reform the Algerian mining code was approved by the country's government during 2000. The overhaul of the mining sector has been flagged as a requirement to allow creation of new jobs and growth. The new law is

<b>Mineral Production</b> ( <b>'000t except where stated</b> )			
	<b>1997</b>	<b>1998</b>	<b>1999</b>
Iron ore	1,637	1,800	1,336
Phosphate	1,063	1,200	1,096
Pozzolana	397	450	394
Barite (t)	39,140	37,000	50,510
Bentonite (t)	17,657	16,000	15,491
Kaolin (t)	18,533	13,640	16,833
Domestic salt (t)	68,000	80,629	84,217
Industrial salt (t)	70,000	91,396	79,531
Marble (000 m <sup>3</sup> )	261	272	247
Calcium carbonate (t)	106,867	108,251	114,253
Mercury (flasks)	12,964	6,500	6,966
Lead (t)	1,342	1,200	1,215
Zinc (t)	6,964	8,600	9,808

expected to end the "discrimination between local and foreign investors in the mining sector" according to Algeria's official APS news agency. The legislation is designed to allow exploitation of known mineral deposits currently held by state-owned mining companies that cannot afford to develop them. A feature of the draft legislation is the creation of three agencies to produce a mining map of Algeria, to grant licences and to provide technical assistance to potential investors. In addition, a watchdog body has been proposed to ensure adherence to mining regulations.

Prior to the new legislation, Algeria had already signalled its more direct support for mineral (and hydrocarbon) exploration, having achieved a total coverage of its territory in terms of aeromagnetic, geophysical, aerial photographic (1:50,000), topographic, and cartographic surveys, as well as an inventory of minerals. In addition, some US\$1 billion has been spent on exploration and development in recent years. Substantial reserves have been identified among 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 (2.4 Mt), barite (9.5 Mt), celestite (6 Mt) and marble (24 million m<sup>3</sup>). Many of these deposits are being promoted by the Ministry of Energy & Mines in the search for investment.

### Phosphate

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 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% phosphorus pentoxide, and the infrastructure is reportedly good. The mine is located 300 km south of Annaba.

### Salt

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, which contain reserves of 1,500 Mt and potential of 2,000 Mt. Partners are being sought to extend the capacity up to 1 Mt/y.

### Iron Ore

The bulk of the country's iron ore is extracted from the Ouenza and Bou Khadra mines near the Mediterranean coast of northern Algeria. Resources at these two mines have been estimated to contain about 5,000 Mt of high-grade haematite. 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.

### Gold

A number of gold prospects have been identified in the Hoggar region of southern Algeria by ORGM and parastatal company ENOR (Enterprise D'Exploitation des Mines d'Or) and these are now the focus of attention of foreign

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companies. Mostly hosted by major northerly trending structures in the Pan-African terrane of Hoggar, these deposits appear to have significant potential. In the south-west near the Mali border, two prospects have been targeted. The resource at the Amessmessa gold project is estimated at 70 t at a grade of 14 g/t, with a proven reserve of 26.9 t gold at a grade of 8.7 g/t. Here, the Algerian Government is actively seeking partners to develop the mine that is expected to produce close on 100 000 oz/y by 2004.

Further north at the smaller deposit at Tirek, 20 t gold at a grade of 17 g/t has been identified, with a proven reserve of 11.3 t gold at a grade of 28.1 g/t. The Tirek mine is owned by ENOR and the deposit, consisting of a series of high grade quartz veins, will be exploited using open-pit methods. Commissioning was scheduled for late 2000, with start-up due in March 2001, to produce 52,000 oz/y gold.

At the Tiririne-Harane gold project, located near the Niger border 500 km south-east of the town of Tamanrasset, the probable and possible resource is estimated at 8.2 t gold at a grade of 17.0 g/t gold. The various deposits comprise vein swarms hosted by metasedimentary rocks.

Also located in the Hoggar area and some 300 km south-west of Tiririne, is the In Abegui goldfield, where stockworks and quartz-vein mineralisation occupy ten discrete zones. The project covers 20 km<sup>2</sup>, and exploration has consisted of 800 m of drilling, some 220 m of pitting, about 6,300 m<sup>3</sup> of trenching and 570 m of underground development. The probable and possible resource at In Abegui totals 566,000 t at a grade of 6.02 g/t.

### **Base Metals**

Base metal production is not prominent in Algeria's mineral output. However, Swiss-based company Glencore has signed an agreement with state-owned metals producer Metanof relating to the Ghazaouet zinc facility, located in northwest Algeria. Glencore sought an

unspecified stake in the complex in return for upgrading the equipment. 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 spares availability.

The relatively minor base metals production in Algeria does not reflect the potential for future mining. Breakwater Resources Ltd has signed a letter of intent with ORGM relating to the Oued Amizour zinc-lead property. The deposit is located 10 km from the port city of Bejaia on the Mediterranean coast, east of the capital city of Algiers. The deposit was discovered by the state about nine years ago and is estimated to contain resources of 30.2 Mt at a grade of 5.5% Zn and 1.4% Pb, with a higher-grade zone estimated to contain 11 Mt at a grade of 10.9% Zn and 3% Pb. The higher-grade zone comprises two separate bodies, and lies at about 200-400 m below surface.

The deposit comprises an irregular stockwork with minor intervals of massive mineralisation, within volcanic and sub-volcanic units. The hydrothermal alteration is thought to be widespread and the mineralisation is characterised principally by sphalerite, galena and pyrite. In order to earn a 90% interest, Breakwater is to complete a feasibility study, arrange financing, construct and bring the project into production and manage the operation. Breakwater will pay ORGM US\$5 million from net profits over five years from the start of operations. ORGM and the Algerian Government will also retain a joint 5% net smelter return royalty.

Elsewhere in the country the authorities have indicated potential for the discovery of manganese and copper (Ougarta district), copper, molybdenum, and gold (Reguibat district), and also tin, tungsten, uranium, and diamonds. De Beers is reportedly exploring for diamondiferous kimberlites in the eastern part of the Reguibat craton in southern Algeria.