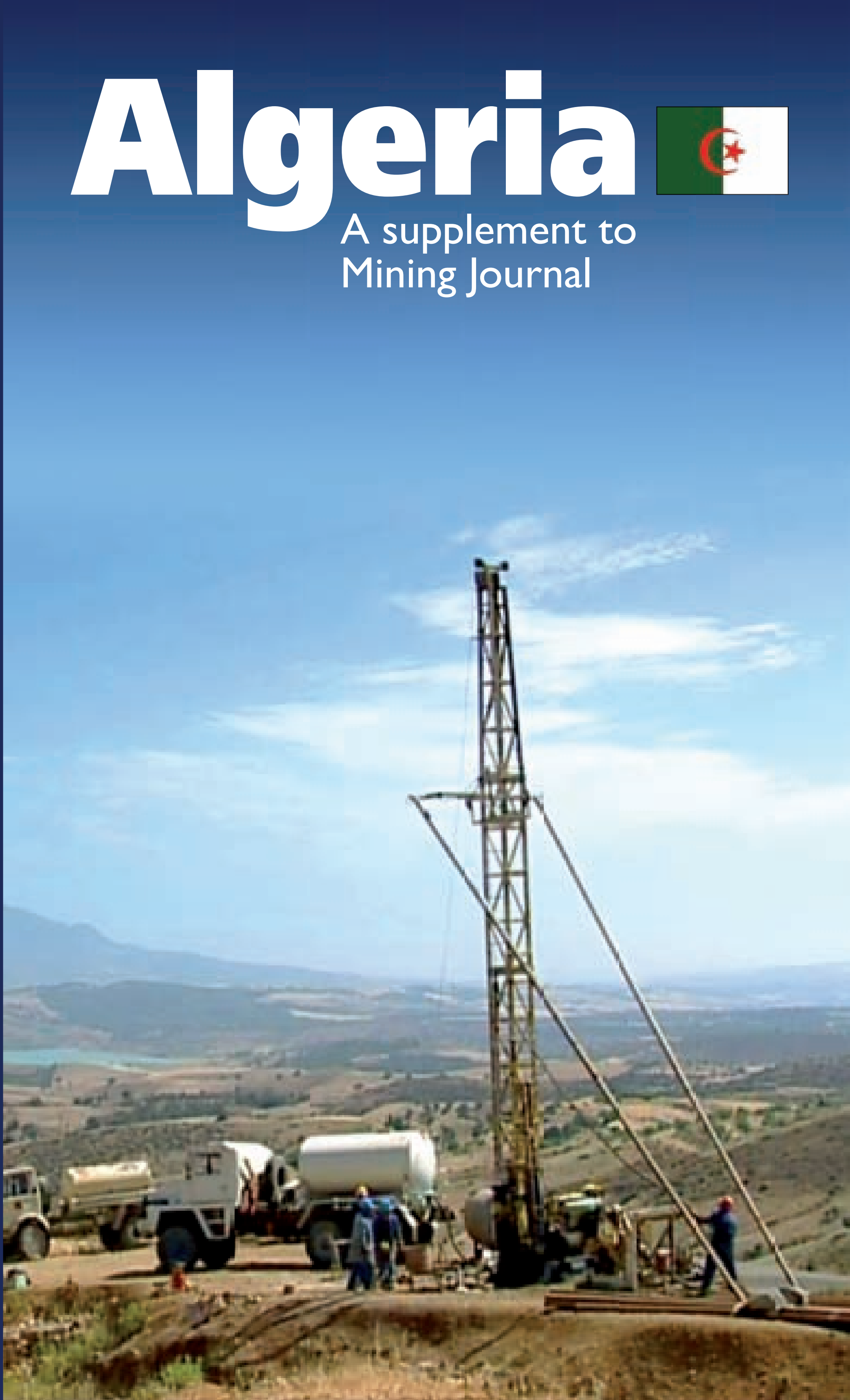



Algeria

A supplement to Mining Journal



MESSAGE FROM THE MINISTER

This is a great opportunity for me to introduce this special supplement of *Mining Journal* dedicated to Algeria. Welcome to our country, and let s have a glance at some major achievements in our promising mining sector: the reforms undertaken in this field, the first obtained results and the prospects for encouraging a greater contribution of this sector to the economy s growth.

Algeria benefits from a huge geological surface area hosting various mineral substances such as gold, iron ore, zinc, lead, phosphates, salt, industrial minerals, and precious and semi-precious stones.

Despite the efforts made over the past decades by public companies in charge of geological mapping and mineral research, most resources remain largely untapped and the country s mining patrimony is still under-explored.

The legal and institutional framework, inspired by modern best practices, has been in place since 2001, and aims to boost and develop the mining sector at the level it deserves, according to its potential.

The main reform principles are: transparency, clarity and equity in the management of the mining domain; security of mining rights; a stabilised fiscal system; and encouraging the private sector to invest in mining, particularly at the exploration stage, in accordance with environmental guidelines and the best technical mining methods.

The Ministry of Energy and Mines is in charge of the formulation of mining policy, and the two agencies that have been set up are endowed with adequate financial and human resources, benefiting from suitable and flexible organisation.

This reform has proven successful the mining sector was given a new impulse, which had a positive effect. Foreign investors from Australia, Canada, France, Egypt, India, China and Saudi Arabia, amongst others, have shown their confidence in Algeria by investing in this sector.

As a matter of fact, encouraging results were recorded last year, such as: a significant growth in production; the opening of new plants; and the organisation of regular licensing rounds, enabling the award of 434 new mining titles. This has generated income of US$135 million, US$54 million of which was for local governments, and an increase in the mining workforce, mainly in remote areas.

Foreign partnerships account for more than 80 projects across the national territory and involve many different minerals, including gold, zinc, lead, manganese, copper, wolfram-tin and diamonds.

In order to support the mining sector, the Ministry of Energy and Mines initiated a training programme, leading to the creation of the El Abed School, for training workers, and The Algerian Mines Institute of Tamanrasset in the southern part of Algeria for training engineers.

Dr Chakib Khelil
Minister Of Energy & Mines

Welcome to Algeria

CONTENTS

ALGERIA stretches across an area of 2,381,741km^2 and ranks as the tenth-largest country in the world, and the second-largest in Africa after Sudan. Algeria benefits from a strategic location and a 1,200km-long Mediterranean coastline.

According to the recent population census conducted in April 2008, the country has 34.8 million inhabitants.

Three areas hold the vast wealth of Algeria s resources: the mountainous coastal area in the north of the country, which includes the Tellian Chain; the oil/gas-rich Saharan province; and the far south, which comprises the Archean shield.

The country is serviced by a large network of roads, totalling 108,300km (of which more than 76,000km are paved), and railway lines covering a distance of 4,200km, with some electrical sections.

Algeria is also endowed with 40 ports and 36 airports (13 international). Every city is connected to power lines and the electrical network extends to the rural areas.

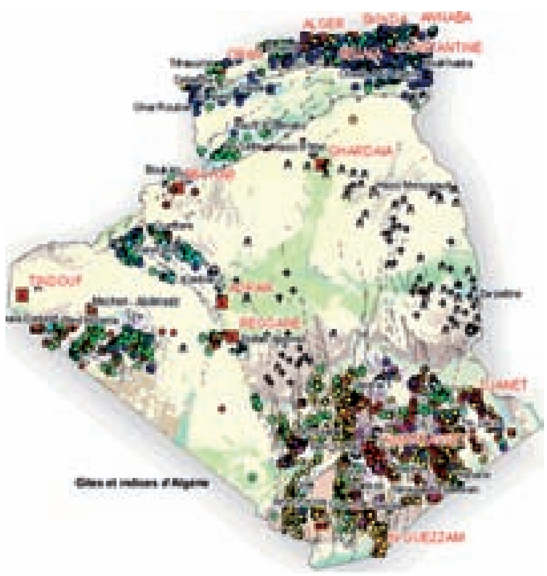
The state mining entities have basic geological infrastructures of quality and interested investors can gain information easily.

GEOLOGY

Algeria lies in northwest Africa and has undergone the main geological, structural and geodynamic features that have affected the history of Africa and the Mediterranean basin.

Algeria consists of the following geological and structural units, from north to south, separated from each other by a complex system of faults.

■ The **Tellian Chain** (Tell) of the tertiary period is part of the peri-mediterranean alpine, which resulted from the collision between Africa and Europe, and comprises nappes and mountain basins, and is subdivided into internal flysches and external domains. The mineralisation, mainly polymetallic, is related to deposits of MVT, filonian polymetallic epithermal, mesothermal and porphyry or peri-granitic in the shield. The minerals are lead, zinc, copper, barite, fluorine, gold and wolfram-stain.



■ The **high plateaus**, forming large plains such as Oran Meseta in the west and A n M lila in the east, represent the foreland of the Alpine chain bearing a Jurassic sedimentary cover; the distension enables the formation of basins. The mineralisations comprise lead-zinc, MVT-type deposits such as El-Abed in the west and Kherzet Youcef in the east, and the main mineralisations of phosphates, iron ore and fluorine in the eastern part of the country.

■ The **Saharan atlas** consists of the latter structures, highly folded and accidented. Mineral occurrences consist of MVT deposits, and copper in sandstones (red beds) and carbonates. This type can also host uranium, nickel and platinum group elements (PGEs).

■ The **Saharan platform** is a Precambrian basement unconformably overlain by transgressive phanerozoic deposits. It is a flat part, formed by synclines in places, in the Ougarta range. Copper, gold, silver, iron ore, manganese, lead, zinc and barite can be found.

■ The **Hoggar shield and Eglabs** are polycyclic cristalline shields, stable since the Precambrian age, which host gold, tin, molybdenum, copper, wolfram, niobium, tantale and rare earth mineralisations. Diamond occurrences have been recognised in the Hoggar and Eglab areas, and in the Reggane Basin.

PRINCIPAL ECONOMIC INDICATORS 2007-08

Indicators	Units	2007	2008	08/07 (%)
Gross domestic product (PIB)	10^9 AD	9,372	10,994	17.3
Foreign direct investment	106 US$	1,370	2,310	68.6
Foreign exchange reserves		110,180	143,100	29.9
Imports		27,631	39,156	41.7
Exports		60,529	79,139	30.7
Exports (of which hydrocarbons)		59,197	77,246	30.5
Trade balance		32,898	39,983	21.5
Inflation rate (sliding annual)	%	3.9	5.8	
Rate of average change AD/US$	AD/US$	39.4	64.6	64.1
Rate of average change AD/euro	AD/euro	95.0	94.9	-0.2
Growth rate (PIB)	%	3.0	2.4	
Growth rate (PIB outside hydrocarbons)		6.3	6.1	

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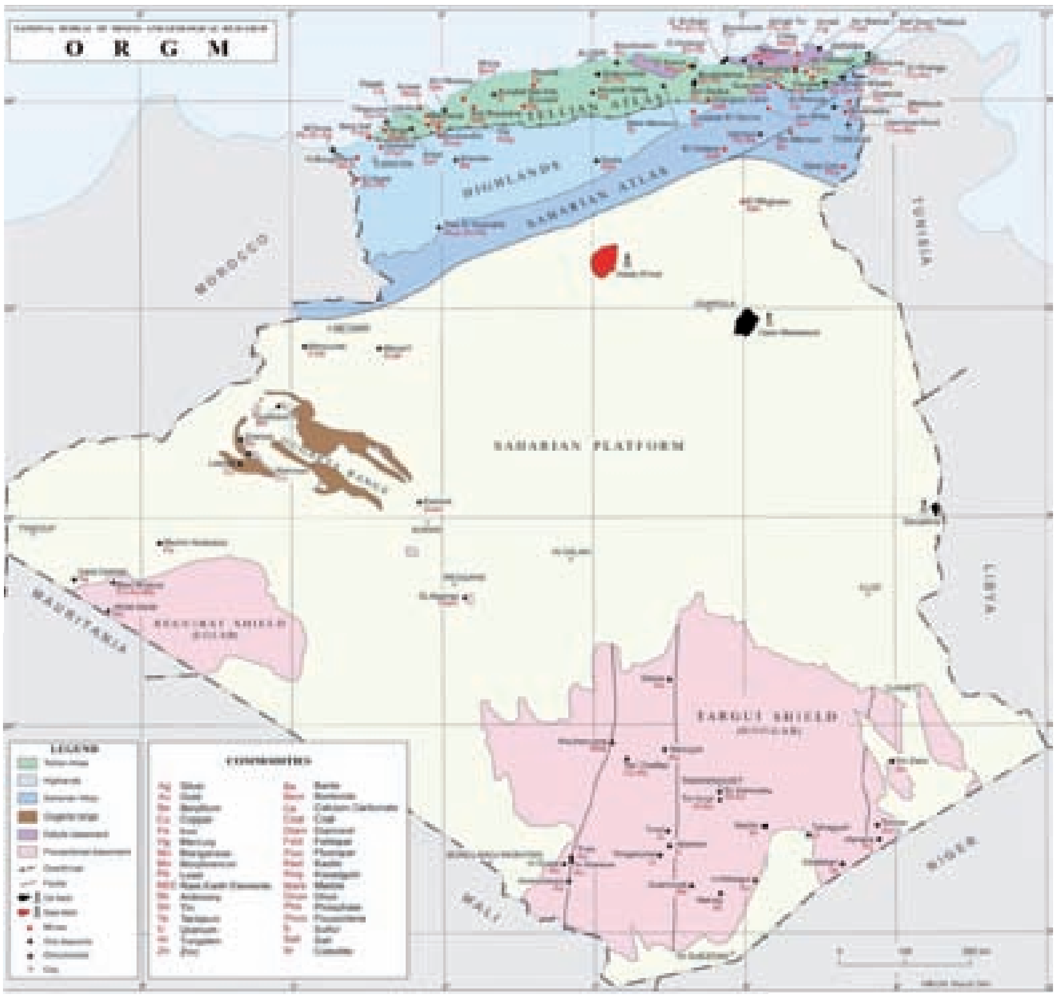
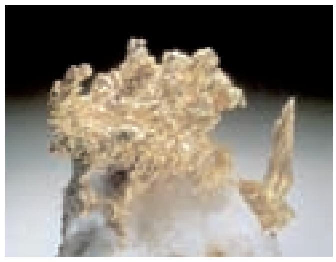
MINERALPO TENTIALO F ALGERIA

Product	Reserves (t)	Location
Gold	121 (metal)	Hoggar (Tirek, Amesmessa, Hanane, Tiririne, Tin Felki, Tekouyet)
Diamonds	1,500 grains (discovered)	Adrar-Reggane
Iron ore	3.5 billion	Gara Djebilet et Mechri Abdelaziz
	189 million	Ouenza-Boukhadra, A n Temouchent (T□bessa), Bouma za (Annaba), Sidi Ma rouf (Jijel), Djebel Anini (S□tif)
Manganese	1.41 million	Guettara (B□char)
Lead/zinc/copper	115 million	El-Abed (Tlemcen), Oued Amizour (B□jà a), Chaabet El Hamra (S□tif), Oued El-Kebir (Jijel), Boudoukha (Jijel), Achab Tiri (Jijel), Kherzet Youcef (S□tif)
Wolfram	23,461	Nahda, El-Karoussa, Tin Amzi, Bachir, Almeda (Hoggar), Djilouet (Illizi), Bellilita, Edough (Annaba)
Rare earths	71 million	Abelekan, Guerioun (Hoggar)
Uranium	26 million	Timgaouine, Abankor, Tinef, Tahaggart (Hoggar)
Barite	28.5 million	Draïssa (Béchar), Koudiat Safia (Médéa), Aïn Mimoun (Khenchela), Boucaid (Tissemsilt)
Pozzolan	73 million	Ilmaten (B□jà a), Tfardjoun (A n Temouchent), El-Kseur (B□jà a), Cap de Cheta bi (Annaba)
Phosphates	2 billion	Djebel Onk (T□bessa)
Diatomite	6.5 million	Sig (Mascara)
Celestine	6.3 million	B□di Mansour (Bouira)
Bentonite	10 million	Hammam Boughrara, Maghnia (Tlemcen), M zila (Mostaganem), Sidi Bouchaour (Skikda),
Salt	2.5 billion	Guergour El-Amri (S□tif), Arbal (Oran), A n Nouissi (Mostaganem), El-Outaya (Biskra)
Calcium carbonate	88 million	Oggaz (Mascara), B□di Saf (A n Temouchent), Bouadnane (Tizi Ouzou), M sa d (A n Temouchent)
Feldspar	7.3 million	A n Barbar (Annaba), Abouda Bouada (Tizi Ouzou)
Fluorine	4.2 million	Ras El-Guenatis (Na ma), Hamimet Nord (Tebbessa)
Perlite	402,000	Maghnia (Tlemcen)
Marble	49 million m^3	Filfila (Skikda), Agoulmine (Tizi Ouzou), Kristel (Oran), Silet (Tamanrasset)
Onyx	1.2 million m^3	Guelma, Debbagh (Guelma), Bouhanifia (Mascara)
Travertine	587,000 m^3	Miliana (Aïn Defla), Maghnia (Tlemcen)
Dolomie	20 million	T□buelt (Oum El-Bouagui), Misserghin (Oran), Arzew (Oran)
Kaolin	15 million	El Milia (Jijel), Djebel Debbagh (Guelma)





Incentives for foreign investors

A NEW mining law has been promulgated that signified the Algerian government s intent to attract foreign entrepreneurs into the domestic sector and exploit its potential. All interested parties have the same legal position and opportunity to participate in developing new, strategic projects. Investors can apply for a mining licence by participating in bidding rounds launched periodically by the Ministry of Energy and Mines. Alternatively, by participating with existing national companies.

This new law does the following: guarantees equal treatment for all investors; allows for the separation of surface and underground mine ownership; enshrines the right of appeal to international arbitration in the event of dispute; offers incentives to investors importing equipment required for operations; and provides advantages concerning the transfer of invested revenues, exemption from custom tax and royalties, amortisation and rebates on mineral extraction royalties.

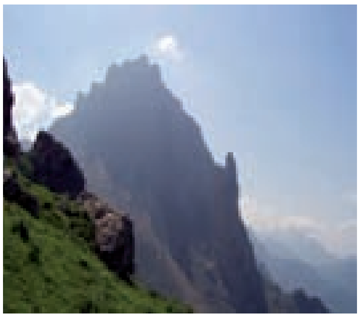
Mining activity is regulated by a licensing system. Research activity requires a prospecting licence and exploration permit. Development comprises the mining concession, small to medium-scale mining exploitation permit, and artisanal mining licence. The mining title has legal value, is transferable and assignable.

The results obtained since the promulgation of the mining law and organisation of periodic tenders have allowed mining projects to be granted in Algeria to foreign partnerships, including: ENOR with Gold Mines of Algeria for development of the Tirek and Amesmessa gold deposits; and Terramin Australia with ENOF and ORGM for development of the Oued Amizour (Béjaïa) zinc-lead deposit. The challenge of this new process is the participation of Sonatrach, the state-owned entity, in the development of mining projects.

MAIN RECORDED RESULTS

The number of mining titles reached 2,206 at the end of 2008, of which 82% were in the private sector, and covered 46 minerals. The majority of products will be used in the manufacture of construction materials: 1,300 permits concern limestone; 268 clays; 199 sand; 110 gypsum; 39 tuff and 35 sandstone. Among these titles, 84 were granted in partnership, of which:

- Ten titles were for prospecting gold, gold-copper, gold-silver, molybdenum and copper. These projects are located in the south and southeast of Algeria in the Hoggar and Eglab areas. The prospecting licences are held by Canadian and Chinese companies – Cancor Mines (Canada), China Geo-engineering Corp and Shaolin Mines (China).
- 43 mining titles were for exploring gold, gold-copper, gold-silver, zinc-lead, lead, sandstone, copper, manganese, wolfram, limestone and clays for construction materials. The titles are held by the following companies: Cecomines (China); Socom (China); Adwan Chemicals (Saudi Arabia); Cancor Mines (Canada); Shaolin Mines (China); Algerian Cement Co (France); Abed M aden (China) and Terramin Australia (Australia).
- 31 titles were for the exploitation of lead-zinc, gold, iron ore, manganese, limestone, clays, kaolin, gypsum and sandstone. The titles are held by Algerian Cement Co (France), Enor, Shaolin Mines (China), Abed Maaden (China), Arcelor-Mittal (Netherlands, India), Soalka (Canada, Lebanon) and Asec Cement Group (Egypt).



Many projects were formalised by the privatisation of public companies, and the sharing of the capital of national gold company ENOR (*see page 10 for example*) with GMA (Australia) and Sonatrach for the development of the Tirek and Amesmessa gold deposits, and with Italian company Buzzi Unicem for the development of two cement plants – Haddjar Essoud and Sour El Ghozlane.

Other foreign companies have also participated in the development of cement and plaster plants, such as Lafarge (France), ASEC (Egypt), Pharaon (Saudi Arabia) and Knauf (Germany).

The challenge of this new process is the participation of Sonatrach (the national company for the research, development and commercialisation of hydrocarbons) in the development of mining projects. Sonatrach is in charge of the development of:

- Two cement plants in west and southwest Algeria;
- A project to reopen El-Abed in western Algeria – a lead-zinc mine partnership with Cecomines Co (China)
- The exploration of lead-zinc in the Guergour area (eastern Algeria) in partnership with Shaolin (China) and Goldim (Algeria);
- The exploration of gold (Isselfene, Idereksi and Sildrar) in the Hoggar area;
- The development of the Tirek and Amesmessa gold deposits in partnership with Sonatrach and ENOR.

Other downstream projects regard the development of simple phosphates SSP (150,000t/y) and compound fertilisers NPK in the west (Bab El Assa, Tlemcen) of Algeria in partnership with FERPHOS and Getax (Australia); the second project concerns an industrial pole of fertilisers in the eastern part of Algeria in partnership with Engro (Pakistan).

Agence Nationale du Patrimoine Minier

WITH THE aim of making mining one of the main levers of economic development, ongoing reforms have been made since 2000 with the aim of creating a modern and transparent legislative and regulatory framework, and the establishment of a stable fiscal regime, with incentives and competition. A new mining law (No 01-10) was enacted on 3 July 2001.

An institutional system has been established with the creation of a regulatory authority, the Agence Nationale du Patrimoine Minier (ANPM). The ANPM is responsible for granting mining titles, managing the mining cadastre, helping investors to implement their projects and promoting Algeria s mining potential.

Algeria has a very high mineral potential, which is largely under-exploited. It has a wide variety of minerals such as phosphates, iron ore, zinc, uranium, gold, tungsten, tin, molybdenum, rare earths, diamonds and precious stones, etc. More than 30 substances have been identified.

Under the promotion of mineral potential, the ANPM holds regular, transparent auctions of mine sites that are open to all investors. For example, auctions for aggregates and raw materials intended for construction materials are held each quarter. Until now, 29 auction sessions were conducted, allowing the assignment of 1,031 titles, of which 623 were for mining exploration.

These auctions have enabled the strengthening of the supply of aggregates and other products to the large infrastructure and housing projects initiated by the government (motorways, railways, housing, etc).

In the long term, all national needs will be met, while also working towards the objective of fulfilling the requirements of international markets such as the north shore of the Mediterranean, which is a potential market that should be taken into account.

Another effort is being directed towards metals with the aim of opening new mines and helping to develop Algeria s minerals in partnerships based on the principles of transparency and profit sharing.

Since 2007, ANPM has launched three calls for tender internationally, which resulted in the granting of 34 mining perimeters, 10 sites for prospecting and 24 sites for exploration. Several foreign companies have participated in these tenders – Australia, Austria, Canada, China, South Korea, France, Japan, Jordan, South Africa and Turkey.

Mining rights were granted for gold (13 sites), polymetallic (13), tin-tungsten (three), diamonds (two) and salt (three).

The encouragement of partnerships between Algerian and foreign companies has led to the creation of joint ventures such as:

- Enor with Gold Mines of Algeria (GMA) (*see page 6*) and Sonatrach for the exploration of gold at Tirek-Amesmessa, Hoggar;

Agence Nationale de la Geologie et du Controle Minier

Under the mining act (Law No 01-10, July 3, 2001), the ANCGM has been given two main tasks; namely, the setting up of the geological survey and the monitoring of mining activities. In this scope, the capacities are building progressively in order to accomplish the agency's tasks.

Concerning the set-up of the National Geological survey:

- The establishment of a National Bank of Geological Data to manage all of the data acquired in the work of geological research and mining, and to make that information publicly available.
- The realisation of the National Geological Mapping Programme. The state of mapping at different scales showed a significant delay in coverage, as well as a lack of homogeneity. Faced with this situation, and increasing demand for information on subsoil (following renewed activity in the mining sector due to legal reform), it became necessary to respond by establishing reliable geological mapping. This coverage will involve mapping the country systematicaly to 1/200,000 and 1/500,000.
- The creation of a national register of mineral inventory.
- The construction of a centre for conservation, preservation and dissemination of information at the National Geological Museum.
- The organisation of national seminars on topics related to geological sciences.

For the management audits of mining activities:
The second task in monitoring mining activity is expected to develop information systems and management, involving:

- The control of mining, including the application of technical rules on mining and mine safety, and
- The environment, including the impact of mining research and exploitation.

- WMZ – Terramin Australia with ENOF and ORGM (see *page 5*) for the operation of the zinc deposit at Oued Amizour in northeast Algeria;

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- Abed Maaden – Office of Exploration and Mining Research of the Chinese province of Henan and Sonatrach for the deposit of Zn-Pb at El Abed in northwest Algeria.

Other possibilities are available in Algeria for other mineral substances such as uranium, phosphates and gold.

ENOF proves its quality and technical ability

SPECIALISED in underground and open-pit mining for the production of non-ferrous ores and non-metallic substances, ENOF Group's main activities involve the production, marketing and development of mining products.

Thanks to the diversity and quality of its products, ENOF Group is a main partner for many national and international industries.

Organised into three subsidiaries – Somibar, Bental and Algran – the group operates 16 mines and quarries, and produces a variety of minerals such as zinc concentrate, barite, bentonite, diatomite, feldspar, calcium carbonate and aggregates.

SOMIBAR

Somibar operates three barite deposits: the Boucaid mine in Tissemsilt; Ain Mimoun in Khenchella, and the Mellal mine in Tlemcen.

The production capacity of these three units is about 100,000t/y of barite, which is used by oil drillers and for achieving API standards.

The subsidiary's potential is significant as the Draissa deposit contains over 6Mt and is in an advanced stage of exploration.

BENTAL

Bental operates two bentonite deposits: Maghnia in Tlemcen and M'Zila in Mostaganem. The production capacity of these two units is 50,000t/y of bentonite drilling, foundry, loading and bleaching earth.

Bental is also working calcium carbonate from two large deposits in Beni Saf (Tlemcen) and M'Said (Ain Témouchent). These two deposits contain more than 20Mt of mineable reserves.

To reach its development goals, Bental has initiated a technical and economic feasibility study for the construction of two new bentonite-production plants. Output is sold mainly in the domestic market and the other part is exported.

ALGRAN

Algran operates nine quarries spread across the national territory. Current production is about 6Mt/y and scheduled to reach 11Mt/y in 2011. Algran aims to establish itself in new areas, and increase its market share and profitability, thanks to its mining expertise and the quality of its product.

Working in partnerships, ENOF Group is also engaged in the development of:

- Zinc of Oued Amizour (Béjaia) with Terramin Australia through a joint venture called Western Mediterranean Zinc (WMZ), which was established in February 2006;
- Kaolin of El Milia (Jijel) with Canadian Federal White Cement, which took a stake in the capital of the league of kaolin from Algeria (SOALKA) in May 2007.

FACTS

Established	July 1983
Activity	Mining
Capital	1.1 billion AD
Workforce	2,000 employees

The group's other activities include:

- The zinc concentrate at the Chaabet El Hamra mine (Sétif);
- The diatomite of Sig (Mascara);
- The calcium carbonate of Oggaz (Mascara); and
- The feldspar of Ain barbar (Annaba).

Other projects that the group intends to conduct in the short to medium-term, in partnership with other investors specialised in mining, are aimed at the recovery and development of the following deposits:

- Barite of Draissa (Béchar);
- Diatomite of Sig (Mascara);
- Calcium carbonate of Béni Saf (Tlemcen), M'Said (Ain Témouchent) and Oggaz (Mascara);
- Bentonite of Maghnia (Tlemcen) and M'Zila (Mostaganem); and
- Feldspar of Ain Barbar (Annaba).

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Sonatrach seeks partners for Gara Djebilet project

THE integrated Gara Djebilet project that Sonatrach wants to develop in partnership includes the development of the iron-ore deposit and the construction of a 800km-long railway for transporting the ore, as well as an integrated steel complex in the northwest of the country. Reserves at Gara Djebilet are estimated at 1,000Mt of magnetic ore, 57% Fe, whose investment is estimated at approximately US$15 billion.

This huge deposit in southwest Algeria is located 130km from the town of Tindouf, 380km from the Atlantic Ocean and 1,600km from the Mediterranean coast. It is composed of three oolitic ore lenses (West Gara, Gara Center and East) and extends over a distance of 50km for a total area of 130km^2, of which 100km^2 is in outcrop.

The power of the ironstone formation ranges from 15-30m, and the orebody is sub-horizontal, inclined gently and regularly 1.5-2°north, which promotes the use of open-pit mining.

The deposit, discovered in 1952, has been studied for over 30 years by international companies such as SERMI, NSC, LKAB, Fried Krupp Rohstoffe, GE/TEMPO, IRSID, Kaiser Engineers & Constructors and HYLSA. They conducted many exploration and technical studies, and an economic feasibility study, which makes it possible to affirm today that the degree of knowledge of the deposit and iron ore at Gara Djebilet is very high.

The major conclusion of this work and, in particular, pilot testing enrichment and metallurgical processing of ores, is that the optimal solution for the development of the Gara Djebilet deposit lies in its integration into a major steelworks.

Thus, Sonatrach, which was appointed in January 2007 as a promoter of the project, does not want to stop with the exploitation of the iron-ore mine at Gara Djebilet, but wants to go further and create an integrated, mega-project outputting 20-40Mt/y of iron ore, which will be transformed into a steel complex producing 5-10Mt/y of steel.

With this new dimension, the project is a strategic one for Algeria. In addition to creating a strong momentum of development in the mining and steel sectors, it will substantially reduce the country s dependence on oil revenues and contribute to the reduction of unemployment through the creation of tens of thousands of jobs.

Sonatrach is committed to this project, which will enable it to position itself as a major player in Africa s coal and steel industry. In this context, the company is in discussions with major international companies and hopes to attract a larger number of companies with the technical, technological and financial resources to be a good partner for a project of this scale.

Project Gara represents an exceptional investment opportunity in Algeria as it is has unparalleled advantages: large reserves, including 250Mt at 58.3%; the existence of other large deposits of iron in the vicinity (including Mecheri Abdelaziz to 250km); a low cost of discovery, at a depth that substantially reduces operating costs; zero exploration risk due to the work already carried out (nearly 400 holes); a very advanced level of knowledge of the deposit and the ore; the existence of a water table; the existence of significant gas reserves at a cost to extract that is competitive; the low cost of production (energy, labour, water, etc); the strategic geographical position of Algeria, which guarantees very competitive freight costs; a big international partner (Sonatrach) that is committed to the project; strong support from the Algerian government; plus good economic growth, coupled with strong demand for steel in Algeria and the region.

The technical challenges facing the project include the high content of mineral phosphorus (0.8%) and transportation to the coast. Sonatrach requires a partner that is ready to face and overcome these challenges. Without a doubt, Gara Djebilet is the largest steel and mining project of this century for Algeria.

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Ferphos consolidates on strategy of sustainable growth

THE state-owned Ferphos group aims to manage the portfolio of shareholdings and strategic control of phosphates, iron ore, pozzolan, and the foundry, production and road transport of minerals. The group s strategy is based on the deployment of a sustainable growth model, the consolidation of its position in its traditional markets, such as phosphates, and the conquest of new markets including fertiliser.

Thus, by positioning itself as part of the mining industry in Algeria, the group aims to be an industrial partner in the operation and development of its mining products.

Ferphos Group is made up of six subsidiaries:

- Somiphos: phosphates mining company;
- Somifer: iron ore company of Algeria;
- SPMC: pozzolan & building materials company;
- SFO: the foundry of ouenza;
- Sotramine: mining products transport company;
- Ferbat: real estate company.

With a long mining tradition, and an important mining heritage, the group operates in three basic sectors: phosphates, iron ore and pozzolan.

PHOSPHATES

With more than 2,000Mt of reserves in the Djebel Onk phosphate basin, Ferphos aims to consolidate its position among the major producers and exporters of phosphates.

Following long experience in the export of raw phosphate, the group is now determined to transform by developing a fertilizer-production industry.

This transformation plan at Djebel Onk foresees the realisation of industrial platforms including:

- P le Industriel des Engrais de Bouchegouf (Wilaya of Guelma). Three modules comprising: phosphoric acid P_2O_5 at 1,500t/d; sulfuric acid at 4,500t/d and DAP at 3,000t/d.

The partnership:
Engro Chemical Pakistan: 49%
Ferphos group: 26%
Sonatrach (IEA): 25%

- Babel-Assa (Wilaya of Tlemcen) industrial platform for the manufacture of SSP and compound fertilizers with a capacity of 300,000t/y.

The partnership:
Getax Australia: 49%
Ferphos group: 29%
Sonatrach (IEA): 22%

These joint ventures represent an important step in the group s strategy and its transition into the chemical industry. It intends to combine growth and profitability over the long term.

BASIN PHOSPHATIER DJEBEL ONK RESERVES

Layer	Unit	Reserves (t)
Djemidjema	10^3	618,150
Kef Essenoun	10^3	517,000
Bled El Hadba	10^3	799,690
Tarfaya		14,000
Djebel Onk North	10^3	92,000
Bl t		175,000
Reserves all categories combined	10^3	2,215,840

DJEBEL ONK PHOSPHATE

	2005	2006	2007	2008
Production (t)	911,000	1,512,965	1,802,382	1,800,000
Export (t)	818,000	1,515,000	1,686,000	16,850,000

IRON ORE

Mines	Geological reserves (t)
Anini	3,895,429
Rouina	2,650,000
Khanguet	1,260,000
El Chaabet Ballout	3,648,261
Sidi Ma rouf	21,237,000
Tissimiran	8,000,000
Total	40,690,699

IRON ORE

Currently, the group develops and operates four iron mines (Anini, Rouina, Sidi Ma rouf and Khanguet) with a potential 40Mt, mainly for the cement industry. The group also holds strategic equity stakes, including 6.44% in Soci t des Mines de Fer de Guin e (Mifergui-Nimba) and 30% in iron-ore miner Arcelor Mittal Tebessa, and equity in Ouenza Boukhadra.

POZZOLAN

With pozzolan reserves estimated at 16Mt from two deposits in the west, Ferphos has a target of producing 1Mt of pozzolan for export and the local market, while consolidating its position as the leader and provider of the cement industry in Algeria. Studies and trials are under way to expand the range of its use, such as in the manufacture of light construction materials.

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WMZ advances Tala Hamza

WESTERN Mediterranean Zinc (WMZ) was formed in February 2006 to evaluate and develop the Tala Hamza base-metal resource (in the Oued Amizour project area), located 10km from the city of Béjaia in northeast Algeria.

The shareholders of WMZ are Terramin Australia (65%), Algerian government-owned ENOF (32.5%) and ORGM (2.5%). WMZ s head office is located close to the project site near Béjaia.

Terramin Australia has agreed to manage and finance the development of the project to a decision to mine with a minimum expenditure commitment of US$6.6 million.

Up until the end of December 2008, Terramin had spent US$22.7 million, and WMZ had completed 34,000m of diamond core drilling and advanced the project to the feasibility stage.

The company currently employs up to 95 nationals at its Bejaia headquarters in roles that include geological activities, drilling support, logistics and administration. Algerian activities are complemented by technical support from Terramin s Australian office, and external consultants with extensive international design and operating experience.

When WMZ began work on the project, previous drilling by the Algerian Geological Survey had defined a resource of 30Mt at 5.7% zinc and 1.4% lead. Work has increased confidence in the resource, which has almost doubled in size.

The most recent indicated and inferred resource estimate of 58.6Mt at 5.2% zinc and 1.3% lead was made in accordance with the Australian JORC Code requirements. It was released in October 2008 and based on data from 78 drill holes. A significant portion of the higher grade part of the deposit was classified as indicated resource, with 53% of the contained metal in this category.

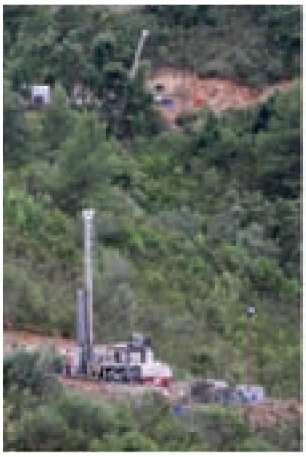
A prefeasibility study based on the initial indicated resource has been conducted by an independent, internationally-accredited engineering group and has confirmed the project s technical viability. Further studies are well advanced that will allow the completion of a feasibility study and application for a mining licence this year. The design criteria incorporates best practice in environment, safety and sustainability.

The orebody boasts thick mineralised sections, including substantial higher-grade intervals, and is expected to ultimately support a long-life mine development that could rank among the world s top five zinc producers. The geometry and grade of the orebody, coupled with favourable infrastructure and logistics, places the Tala Hamza deposit in the lowest quartile of the zinc cost curve.

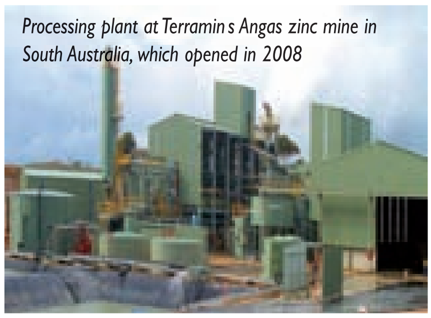
The project continues to attract international interest, with the company hosting more frequent visits from potential financiers and equity investors based in Toronto, London and Sydney, and beyond.

WMZ is rapidly advancing the feasibility study, which includes additional hydrogeology, geotechnical drilling and environmental factors, with the aim of finalising them during the first half of 2010 to enable an early decision to mine. Terramin s recent experience in bringing the Angas zinc mine in South Australia into production on time and budget in 2008 will be of great assistance to the company in achieving this outcome.

Location of Tala Hamza project and Oued Amizour exploration permit

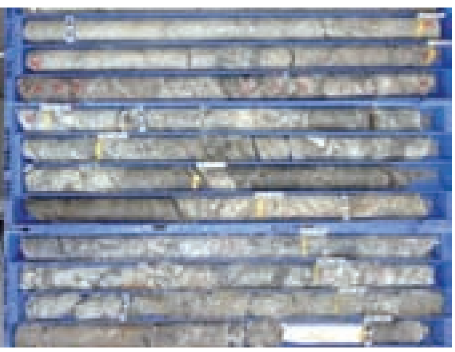


Diamond drill rigs at work at Tala Hamza



Processing plant at Terramin s Angas zinc mine in South Australia, which opened in 2008

Core-logging facility at WMZ s headquarters near Bejaia and high-grade mineralised core from Tala Hamza



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ENG boosts production capacity

THE National Company of Aggregates (ENG) was created on January 1, 1987, following the restructure of the national building material company, SNMC. The company s share capital rose from AD112 million in 1990 to AD3 billion in 2007. Its head office is located in Gu□de Constantine, Algiers.

ENG is in charge of managing the production, marketing and aggregates development of calcium carbonate and ornamental stones or marbles.

The company consists of:

- Nine aggregate quarries in the national territory;
- One calcium carbonate factory;
- One branch, ROCaAl, in charge of ornamental stones and marble development;
- One central laboratory for quality control.

ENG s programme of development for the coming years consists of increasing the production capacity of all existing units and settling down in new sites.

NEW PRODUCTION CAPACITY

- **Extensions of production realised**

1 Si Mustapha Wilaya of Boumerdes at which production capacity is over 800,000t/y to 2Mt/y (January 2007);

2 El Maleh Wilaya of Ain Temouchent or a new station of 1Mt/y to substitute the old one (July 2007).

- **Extensions of production under start-up**

El Hachimia Wilaya of Bouira at which production capacity goes through 750,000t/y to 1.5Mt/y, of which half is sand (2008).

- **Extensions of production (2009)**

1 Elma Labiod Wilaya of Tebessa at which production capacity is over 750,000t/y to 1.5Mt/y, of which 200,000t/y is sand and 500,000t/y gravel;

2 Sidi Abdelli Wilaya of Tlemcen at which production capacity is over 750,000t/y to 1Mt/y, of which 350,000t/y is sand.

NEW PRODUCTS

- To comply with the Algerian new norm NA 5043, ENG substitutes the sands 0/3mm and gravels 3/8mm, 8/15mm, 15/25mm and 25/40mm by sands 0/2 mm and 0/4 mm, and gravels 4/8mm, 8/16mm, 16/25mm and 25/50mm.
- To meet the market needs of ENG products and marketing the natural or recomposed gravels (untreated) 0/16 mm, 0/25mm, 0/50mm and 0/70mm.
- To offer products of quality that comply with Algerian and European norms respecting the requirements of SNTF, the production of ENG of Ballast 25/50 mm (and in future 31, 5/50mm or 31, 5/63mm) of under-ballast 0/25mm of concrete.
- To satisfy the needs of concrete companies with regard to roller compaction (BCR) on highways (basic layer and runway), ENG started to produce fillers on several sites.

To conclude, ENG follows up by paying attention to the evolutionary needs and market requirements of certain customers to commence the development of the following products:

- Boulders and TVC for shipping works and big industrial projects (Sonatrach-Sonalgaz);
- Untreated gravels and gravels with the highest mechanic performance (LA+MDE inferior to 45%, 40% and 35%) necessary for roadworks (highways and bypasses, etc).
- Products for compact, granular railroads such as gravels 2/4mm, 4/6,3mm, 6,3/10mm, 14/20mm and 20/31, 5mm, or spread granular railroad such as 2/8mm, 4/16mm, 4/25mm and 8/31mm.
- ENG s production of aggregate should achieve 10Mt in 2008 by expanding the nine units: Elma Labiod (Tebessa), Ain Touta (Batna), El Khroub (Constantine), Ben Azouz (Skikda), El Hachimia (Bouira), Si Mustapha (Boumerdes), Sidi Abedelli (Tlemcen), Sidi Benyoub (Sidi Bel Abbes) and Chaabat/El Maleh (Ain Temouchnet);
- ENG should set up the production of G35 in EL Kheroub to satisfy water-desalination equipment manufacturers.
- ENG will start developing calcium carbonate products, which will allow the products:

1 Alcal UF5 untreated (capacity extension) and treated (new product); and

2 Alcal UF3 untreated and treated (new product).

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ENOR strikes first gold in Algeria

ENOR is the first mining company to produce gold in Algeria, from its Tirek and Amesmessa mines. Both facilities are located 400km southwest of the town of Tamanrasset, the regional centre of the Ahaggar. From a geological point of view, these deposits are associated with the northerly-trending Ouzzal deformation, described as a regional, milonitic shear zone separating Archaen basement from Proterozoic gneisses.

ENOR s share capital is 52%-owned by GMA (Gold Mines of Algeria), with Sonatrach holding the remainder.

ENOR s concession measures 1,418km , which covers a regional shear zone in the Archaen basement (also called In Ouzzal). This concession contains two gold deposits (Tirek and Amesmessa), as well as many other interesting occurrences.

Since 2001, gold has been produced from the Tirek deposit, located north of the concession, at a small CIL process plant.

Amesmessa, ENOR s second deposit, is located south of the concession, and its reserves and resources are much more important. This deposit began producing gold in January 2008, following its inauguration by Dr Chakib Khelil, the minister of energy and mines. At Amesmessa, gold is produced using heap-leaching the first time that the process has been used in Algeria.

Gold production at this mine in 2008 reached 646kg (20,838 oz) and 114kg (3,677oz) of silver. The end of 2008 was also marked by the completion of the construction of service installations, such as an underground water pipeline, across an area of more than 110km, the drilling of a second water well in the Tanezrouft Basin and the start of the exploitation of the new explosive magazines.

Gold production during the first five months of this year has increased to 491kg (15,830oz).

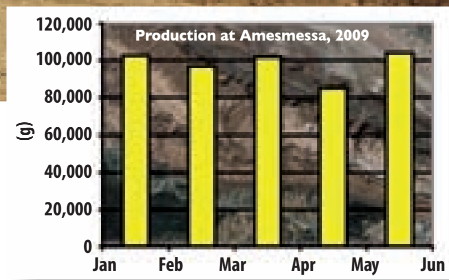
Thanks to the experience acquired in the construction of mining infrastructure in a difficult desert environment, ENOR intends to increase its production capacity by opening a new mine in the coming years.

This new development plan will be supported by an important programme of RC and core drilling. The latter will start in the third quarter of this year.

Prior to starting gold production, an environmental impact statement (EIS) has been prepared, which includes an assessment of the potential impact of the project on the physical, biological and social environment. Follow-up of the EIS will be carried out by regulatory bodies in charge of this aspect.

In addition to the creation of thousands of direct and indirect jobs, ENOR is helping to improve the living conditions of the local population by:

- Supplying them with drinking water (permanent fountains and watering places) through the water pipe built by ENOR;
- Providing medical care and evacuating ill people;
- Installation of a mobile phone antenna in the area.



In conclusion, despite the difficulties encountered during the commissioning of the Amesmessa gold mine, ENOR has met the challenge of mining a deposit in a remote area lacking any infrastructure. The organisation wishes success to its neighbours who have decided to invest in gold exploration in this area of the In Ouzzal basement.

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ENA-MARBRE seeks out

ENA-MARBRE, a producer and distributor of marble, is active in the north of Algeria. The two main areas for marble lie to the east in the region of Thread-spun (Skikda), 500km from Algiers, and to the west in the region of Krystel (Oran), 420km from Algiers.

Marble factories have been built in Skikda, Guelma, Sig and Oran, and marble derivatives works are situated in Skikda, Tizi Ouzou, Chlef and Tlemcen.

ENA-MARBRE benefits from good infrastructure, production facilities and skilled staff, along with 30 years experience in the marble industry.

For companies/customers seeking an efficient partner in Algeria, ENA-MARBRE offers serious opportunities. It develops production capacities and promotes marble products on the international market.

Present on the market for decades, Algerian marbles enjoy a good reputation for quality among the range of products available for coating surfaces and ornamentation.

FACTBOX

Social capital	AD251 million
Established	July 1983
Subsidiaries	SOMASK/Skikda SIDMA/Skikda MAOSIG/Sig
Staff	586 (December 2008)
Business	AD 546 million

ORGM enhances its field expertise

THE National Office of Geological and Mining Research (ORGM) is heir to a long tradition in the field of mineral exploration stretching back more than 40 years.

Until the enactment of the Mining Law of 2001, the office was entrusted by the state to establish the geological and geophysical infrastructure of Algeria, design and implement exploration programmes, evaluate discovered deposits and promote action that could contribute to the development of mining.

Thus, during this phase of its existence, ORGM managed to uncover many deposits of gold, iron, tungsten, uranium and polymetallics, along with non-metallic substances such as diamonds and industrial minerals. The office also increased the prospects of mining regions across the country and found new districts conducive to the development of mineralisation types yet undiscovered.

During this period, ORGM was completely dependent on the revenue provided by the state, but it could also accumulate knowledge on Algeria s soil and subsoil, and its resources.

With the recent decision by the authorities not to invest in mining research and to open up the mining sector to public and private investment, both domestic and foreign, ORGM had to adjust to the new economic landscape by refocusing on its core business and becoming more flexible.

The hydrogeological drilling subsidiary, created in partnership with companies in the oil sector, is FORAQUA. A subsidiary, GOLDIM spa, was created for the exploitation and marketing of various minerals and the acquisition of stakes in other companies.

Expertise in the field of mineral exploration has been enhanced through training and personal development, and new niches such as environmental studies have received investment.

Drilling equipment, transport, laboratory facilities, computing, geophysics and topography have been either renovated, modernised or expanded. Significant investments have been made to increase the park significantly and gain accreditation for the laboratories.

Currently, ORGM, certified ISO 9001/2000, can provide high-quality services over the long-term to carry out all types of exploration programmes, from project development to environmental impact studies through to surface and deep sampling, and the analysis of rocks and minerals.

Contributing to the office s success are:

- ORGM s experienced teams;
- Its modern geophysical and topographical equipment (magnetics, gravity, electrical and electro-magnetic exploration, seismic refraction, logging);
- Its coring drills that can reach depths of 1,200m;
- Two laboratories equipped with modern analytical technology (x-rays, x-ray fluorescence, plasma gun,

atomic absorption, chemistry, mineralogy, petrology, geotechnical testing);
- A building for the valorisation of ores with sections for mechanical preparation, gravimetric and magnetic separation, flotation, calcination and leaching;
- Its fleet of light and heavy vehicles.

In addition, ORGM can provide logistical support anywhere in the country (transport, lodging, restoration) thanks to its presence throughout the national territory. To date, the office s partners include almost all operators, domestic and foreign, that own shares in Algerian mineral prospecting, exploration and/or exploitation.

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the highest quality marble

Anxious to offer the best products, ENA-MARBRE can satisfy the most demanding customers with a large variety of natural marbles for the coating of surfaces and interior/exterior decoration:

- Onyx;
- White, gray marbles, R□s□da of Thread-spun;
- Travertin;
- Red marbles, rose, and Yellow of Krystel;
- Granulats and gunpowder of marble.

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ENA-MARBRE

Cancor shows world-class potential

CANCOR Mine s exploration and development activities are progressing, focused on Canada and Algeria. With proven resources, large properties in established mining camps, and increasingly excellent indications for the identification of major new deposits, debt-free Cancor is positioned for substantial growth.

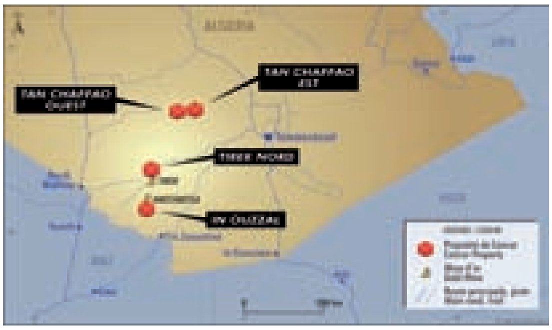
Cancor is a Canadian, publicly-traded junior mining company (CNSX-KCR) whose main focus is the acquisition, exploration and development of large properties with a high probability of containing significant amounts of gold and base metals, such as copper and zinc. Its world-class management team is led by Cancor president Kamil Khobzi, former VP of the Association of Prospectors and Developers of Quebec, and a winner of the Prospector of the Year award.

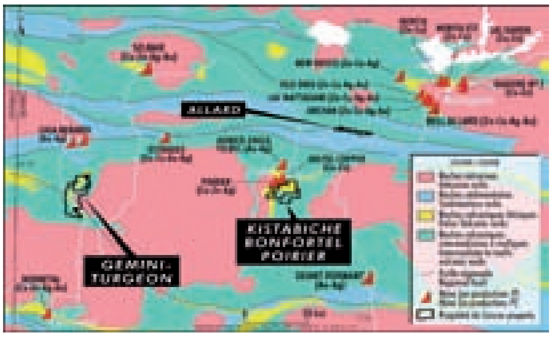
Cancor has built up a mass of projects in gold and base metals in an era of rapidly-expanding global demand for minerals. Its projects are located in the Abitibi region of Quebec and the gold-rich area of south Algeria called the Hoggar. Cancor s main mission remains exploration. Accordingly, the firm continually evaluates high-potential properties in Canada and abroad, and aims to get involved in other projects via claim-staking, buyout, acquisition or joint venture.

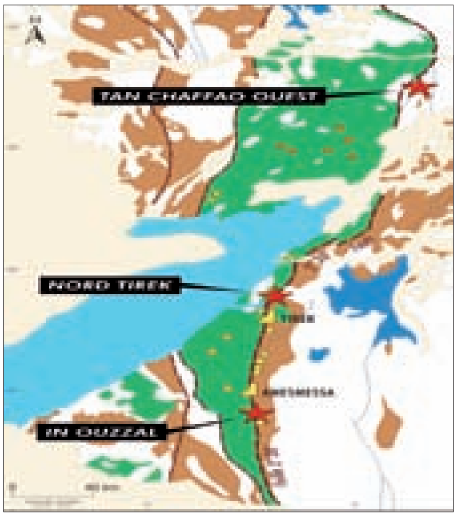
ALGERIAN PROPERTIES

Its high-quality assets combined with world-class management has set Cancor on a successful path to become a leader in quality exploration. In Quebec, Cancor controls five significant base and precious metal properties in established mining camps.

Cancor holds exploration rights on four gold-bearing properties in south Algeria, covering 1,894km^2. Two properties (In Ouzzal North and Tirek North) straddle 70km of a major gold-bearing shear zone and are near a proven gold mine (Amessmessa), which is being mined by Australia s GMA Resources. GMA holds a second gold deposit (Tirek), which is very close to Cancor s Tirek North property. Early samples have shown excellent indications of near-surface gold. Exploration will continue to determine the gold potential of all Cancor s properties.







Key:
- Quaternary
- Cretaceous formations
- Tassili Proterozoic formations
- Pharusien Volcano sedimentary and magmatic formations
- Proterozoic Metamorphic formations
- In Ouzzal granulitic formations (Archean)
- Shear zone
- Fault
- Gold deposit
- Gold showing
- Gold-iron showing
- Cancor property

■ In Ouzzal North

Cancor s exploration permit at In Ouzzal North is located adjacent to GMA s gold-producing Amessmessa mine. Cancor s permit covers an area of 258km^2, with a 30km exposure to the major gold-bearing structure that hosts the Tirek and Amessmessa deposits.

■ Tirek North

Cancor acquired this prospect permit in May 2008 and will begin exploration this autumn. The property covers 989km^2 and is 12km from GMA s Tirek deposit. With numerous vein goldfields and showings, Tirek North is a highly prospective ground.

■ Tan Chaffao West

The gold-copper prospect permit for the Tan Chaffao West site, 45km northwest of the Tan Chaffao East copper-gold deposit, comprises 445km^2. Initial exploration works were completed in 2008, confirming the existing potential.

■ Tan Chaffao East

Cancor gained this exploration permit in July 2008. In close proximity to Tan Chaffao West, this property covers an area of 200km^2 and contains a gold-copper deposit. Free gold is visible on the surface in various areas. Historical data (non-NI 43-101 compliant) reveals an estimated 6.6Mt at 0.55% Cu and 1.62g/t Au.

CANADIAN PROPERTIES

In Quebec, Cancor controls five significant base and precious-metal properties in established mining camps. Two of the company s projects have reached advanced stages in the exploration process:

■ Kistabiche Explo-Zinc

With a confirmed and regulatory-compliant 587,961t deposit in the bank , Cancor is positioned to benefit from a stronger zinc market. With partner SOQUEM, it is conducting additional exploration at depth.

■ Gemini-Turgeon

With an indicated 2Mt resource (non-NI 43-101 compliant) mineralised in copper, gold and zinc, Cancor is proceeding with a prioritised drilling programme, conducted and funded by partner IAMGOLD.

MANAGEMENT

The members of Cancor s management and Board of Directors have earned impressive reputations for exploration and mine development. They bring proven track records. The officers and directors of Cancor bring many decades of experience in the technical, financial and management areas of mineral exploration and mining development. As innovative explorers, they have all participated in creating shareholder value.

■ Cancor and Algeria

The president of Cancor, Kamil Khobzi, is of Algerian origin and brings a native knowledge of the culture, government and business practices of his country, and he knows its geology.

Cancor is positioned to continue acquiring properties with outstanding potential that have, until recently, been unavailable for exploration.

Cancor s Board of Directors includes industry leaders who have mining experience in Algeria and abroad. Denis Francoeur brings to the company more than 30 years exploration experience and a consistent track record of exploration leading to production.

Florent Baril, a highly-experienced mine manager, has started up numerous mining operations in both Canada and abroad, and has directed various feasibility studies for mining projects in Algeria and other countries.

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