MOROCCO

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Mineral Industry Intelligence & Information

Drought, the old enemy, has once more reined in Morocco's progress on the road to economic well being. Approximately half the workforce is employed within the agricultural sector, which normally accounts for 17 - 20% of GDP. Having already weakened the sector's contribution by about 17% in 2000, poor rainfall continued to limit food production and exports last year, as well as hydro-electric power output. As a result, the trade deficit increased by 8.1% in the first half of 2001, leading to a 5% currency devaluation, before narrowing in the second half. Industrial activity was sluggish but tourism boomed, attracting a 60% increase in investment in the sector. The high-technology industry sector made progress and Morocco gained an increased benefit from the Free Trade Agreement with the European Union (which accounted for 74% of the country's overseas trade in 2000). GDP growth in 2001 is estimated as 6.5% and that in 2002 is projected at 6.1%.

The UN continued its efforts to find a broadly acceptable solution for the disputed territory of the Western Sahara while the Moroccan Government made strenuous efforts to build support for its intention to retain sovereignty. UN Special Envoy James Baker and Secretary-General Kofi Annan are exploring four possible solutions. Morocco has scheduled legislative elections for September 2002.

Mineral Production

Phosphorite remains the backbone of the Moroccan mineral sector while the lack of fossil fuels continues to be its Achilles heel. Phosphate rock mining contributes by far the largest mineral export in tonnage terms but also provides the feedstock for domestic manufacture of intermediate phosphate materials with a higher unit export value. Office Cherifien des Phosphates Group (OCP) typically contributes between 25 and 30% of internationally traded phosphate rock and phosphate derivatives (referred to as "phosphate in all forms"). These materials account for 18 - 20% of Morocco's total exports by value and OCP contributes 2 - 3% of national GDP. Metallic mineral and concentrates production is dominated by the private sector ONA Group through its mining holding company Managem. Nevertheless, there are another 80 or so mining companies in Morocco, producing 20 different mineral products and employing more than 45,000 people in total. In all, mining accounts for 75-80% of exports in tonnage terms and 30-33% by value.

Meanwhile, the ONA Group, which is already a major metal mining entity through Managem, gained a significant footing in the construction materials production sector. By purchasing an interest in SNI during 1999, ONA became a major shareholder in steel producer Sonasid and a partner in Lafarge Maroc, which supplies over 40% of Morocco's grey cement. Early in 2001, Lafarge Maroc and the government reached an agreement covering the upgrading and expansion of existing facilities as well as the construction of a second cement works at Tetouan, which is scheduled for completion in 2003 and will have a capacity of 960,000 t/y. Sonasid is presently adding a new 400,000 t/y flexible bar and section plant at Jorf Lasfar to existing capacity at Casablanca and Nador totalling 700,000 t/y and has also commenced feasibility studies for electric steelmaking at Jorf Lasfar.

However, in the national economic balance all this activity is substantially offset by Morocco's limited production of coal, gas and oil - domestic consumption of 10 Mt of oil equivalent was met as to 97.5% by importing 8.5 Mt of petroleum products, 4.7 Mt of coal and 1,564 GWh of electricity. The

Charbonnages de Maroc anthracite mine was closed during 2001 and there has been very limited production of oil (approximately 13,000 t in 2000) and natural gas (50 MNm^3 in 2000). The commissioning of two imported coal-fired electric power plants at Jorf Lasfar did reduce oil consumption at a time of high oil prices but energy imports still cost US$1.9 billion dollars in 2001 despite per capita consumption that is well below world average levels.

Industrial Minerals

Created in 1921, OCP operates three mining centres - Khouribga, Benguérir/Youssoufia, Boucraâ/Laâyoune - and two phosphate chemical processing sites, Safi and Jorf Lasfar. Since the mid-1970s, OCP has invested heavily in the wholly-owned Maroc Chimie and Maroc Phosphore processing operations at Safi and Jorf Lasfar in order to add value to a significant part of its mined rock output. This strategy has been facilitated by an increasing preference on the part of manufacturers in several major fertiliser consuming markets, either to use phosphoric acid as feedstock rather than rock, or to purchase basic fertiliser chemicals - di-ammonium phosphate, mono-ammonium phosphate, triple superphosphate - at least partly in order to avoid adverse environmental impacts. More recently, OCP has extended investment to forming industrial partnerships with customers to process phosphates either in fertiliser markets or at Jorf Lasfar.

Partnerships with Belgium's Prayon and France's Grande Paroisse import materials from Morocco for conversion in Europe, while the Emaphos and Imaphos plants at Jorf Lasfar export phosphoric acid. Emaphos is a joint venture with Prayon and Germany's CFB; Imaphos is a partnership with India's Birla Group. Since the development of Benguérir, capital investment in mining has been quite limited although OCP commissioned a new flotation plant at Khouribga in 2000. In April 2001, the group announced plans to spend about US$80 million on environment-related projects over the next few years, notably on the afforestation of mined out areas.

Reporting this year on business in 2000, OCP comments that since 1999 the world market has on the one hand weakened in volume terms and on the other become more competitive as Chinese mines attempt to increase sales, particularly to Asian and Australasian markets. Despite this squeeze, OCP's marketing strategy has proved rather robust, such that although world trade decreased in 2000 the group's exports fell less sharply and its all-forms market share increased to 26.2%. Even so, Moroccan phosphate rock exports declined by 7.9% (896,000 t) in 2000 whereas China's rose by 40% (almost 1 Mt). However, consumption by group phosphoric acid and fertiliser plants increased slightly so that 50.6% of OCP rock deliveries (10.89 Mt) went to local processing. Major export markets for rock were (in descending order) the US, Mexico, Spain, France, Poland, New Zealand, Belgium and Australia. Asia and Europe accounted for the bulk of phosphoric acid shipments.

OCP notes that, while world phosphate consumption is expected to grow long term, much of the increase in demand will be met by domestic production, especially in Australia, China and India, so the squeeze on traditional exporters will remain. This will necessitate further optimisation of OCP's mining operations and its processing potential. In fact, OCP has already extended its participation in overseas fertiliser production during 2002, with the purchase of a 74% stake in the Indian fertiliser manufacturer Paradeep. This is expected to secure sales of 800,000 t/y of phosphate and 200,000 t/y of phosphoric acid.

The London-based consultancy Fertecon, estimates that in 2001, OCP produced 21.8 Mt of phosphate rock and increased its exports by 400,000 t giving it an approximately 36% share of the global market.

Although OCP has proved adept at maintaining its overall market share in difficult circumstances, the extent to which the state-owned group has traditionally played a social as well as an economic role in Morocco may tend to limit its ability to operate profitably. Whether the April 2002 appointment of former ONA chief Mourad Cherif as group general manager signals a more ‘bottom line’ approach in the future remains to be seen. Meanwhile Cherif’s successor at ONA is Bassim Jai Hokimi.

Probably the other most significant Moroccan industrial minerals in world market terms are barytes and bentonite. The main barytes producers include COMABAR, in which the Norwegian firm Norbar is partnered by the state agency Bureau de Recherches et de Participations Minières (BRPM), SMBA, Soc. Nord Africaine de Recherches et d’Exploitation des Mines d’Argana (Snarema), SNUMM and SOCOMIS. COMABAR also mines bentonite and SOCOMIS copper. Newer entities include some resulting from collaborative exploration and development work by BRPM and partners, such as the TOLSA bentonite mining company Arbensa and Minière d’Afarha Bentonite SA (Mabensa) in which TOLSA is partnered by BRPM (20%) and also Perlite Roche in which BRPM has a 20% interest and Roche Invest the majority.

Managem Metals and Fluorspar

(t except where stated)

	1998	1999	2000
Cobalt Cathode (kg)	241,681	472,196	1,206,716
Cobalt Concentrate	729	4,588	11,378
Copper	31,719	25,170	23,150
Gold (kg)	53.25	406	505
Lead	35,635	35,140	30,470
Silver (kg)	240,412	226,642	246,204
Zinc	210,936	208,056	191,128
Fluorspar	n.a.	83,100	76,991

Source: Managem

Other industrial mineral suppliers include SACEM (BRPM 43%), which mines chemical manganese at Imini, and the salt producers Soc. Cherifienne des Sels (SCS, sea salt - BRPM 50%) and Soc. Sel de Mohammedia (SSM, rock salt - BRPM 100%). Managem owns Samine, which mines fluorspar at El Hammam.

Metals Mining

During 2001, the first year of ONA’s 2001 - 2003 strategic business plan, the group’s mining arm Managem continued to expand the scope of its activities both in Morocco and in West Africa. Although there is a notable emphasis on gold mining, the company is also investing in operations that maximise the overall potential of its properties.

Managem’s main holdings are:

- 100% of CTT, which combines the previously separate CTT cobalt mining unit and the Bou Azzer (CMBA) metallurgical operations: CTT holds 100% of Somifer, 100% of Samine and 2% of Techsub.
- The service companies Reminex (100%) and Techsub (98%).
- Silver producer Soc. Metallurgique d’Imiter - SMI (73.4%).
- Cie Minière de Guemassa (CMG), the group’s major metal mining firm, which is partly owned by Somifer (6%) but mainly by Managem (71%) with BRPM holding the remaining stake.
- Akka Gold Mining (AGM) is owned mainly by CMG (60.38%) and partly by Managem (23.56%) with BRPM again holding the balance of the shares.
- A 51% interest in the Canadian junior mining/exploration company Semafo which holds a number of gold properties in West Africa.

Having produced about 500 kg of gold during construction and commissioning in 2000, AGM started full-scale operations in April 2001, while in April 2002 the group opened the 2 t/y gold Jean Gobele open-pit mine in Guinea. A second overseas gold mine, Samira in Niger, is scheduled to start up in the second half of this year while the Mana project in Burkina Faso is expected to come on stream during 2004.

CMG's Sommital copper sulphate manufacturing unit at Guemassa, which started up during September 2000, added a crystalliser during 2001, increasing production flexibility. The supply of mineral for zinc oxide production having been secured, construction of the Calamine project at Guemassa was started.

For the Bou Maadine polymetallic deposit acquired through the partnership convention with BRPM, Managem studied optimal gold recovery strategies. Detailed feasibility studies of Draa Sfar progressed, as well as preliminary development; measured resources are 5.3 Mt at 6.98% Zn, 2.82% Pb and 0.29% Cu.

In the Annual Report for 2000, Managem showed that improvement to the CTT mineral-processing operation helped raised cobalt concentrate production in order to supply the two CMBA cobalt cathode plants. Concentrate output increased by 148% relative to 1999 and cathode production rose by 155%. The CMBA II unit operated at 40% above the anticipated rate, raising total cathode output to about 1,207 t. A 40% increase in processing capacity at SMI offset a sharp reduction in ore grade, increasing silver production by 9% to over 246,000 kg. SMI acquired the Kelaat M'Gouna prospect from CMG. The improved performance of these two units helped Managem increase turnover by almost 44% and operating income by 277% relative to 1999 despite otherwise reduced metals (and fluorspar) output.

Another significant player in the non-ferrous metals sector is Cie. Royale des Asturienne des Mines, a subsidiary of the French group Nord-Est. Asturienne's Moroccan holdings include 51% of Cie Minière de Touissit, which mines one lead ore and one silver-bearing lead-zinc ore deposit, and a stake in Soc. des Fonderies de Plomb de Zellidja which owns the primary lead smelter at Oued el Heimer. There is also a small secondary smelter owned by Soc. Africaine des Metaux et Alliages Blancs.

[Cie Minière de Seksaoua (CMS), the 50/50 joint venture between Anglo American and Snarema, continued to study the feasibility of substantial copper production at Seksaoua.]

Minerals Development

Although Morocco is striving to maximise use of renewable energy and plans to tap the Maghreb-Europe natural gas pipeline, it is clear that finding sizeable reserves of oil and or gas is the key objective for the Ministry of Industry, Trade, Energy & Mining and the Office National de Recherches et d'Exploitations Petrolieres (Onarep). At the same time, based on the premise that unexploited mineral potential can in future maintain the mining industry's contribution to economic development, the Ministry is also progressing a national Mining Development Plan, with the Bureau de Recherches et de Participations Minières (BRPM) managing mineral exploration and the licensing of commercial exploitation. OCP remains responsible for the crucial phosphate industry.

Encouragingly, according to Ms Amina Benkhadra (who heads both ONAREP and BRPM), after many years of prospecting with modest results, Morocco is entering a new critical period of petroleum exploration. Since 1997 some 14 international companies have started to apply the latest techniques for both on- and offshore investigation (assisted since March 2000 by a very favourable hydrocarbon law). During 2000, Lone Star's first exploration well encountered a viable oil reservoir at Talsinnt in a previously almost unexplored area of the inter-Atlas region. By end-2000, some 35 offshore and 10 onshore exploration permits were in place, compared with five a year earlier, while two on- and two offshore reconnaissance licences had been granted. A year later 47 exploration permits were in force and six reconnaissance contracts, with three more under negotiation. Both large- and medium -scale oil companies are involved - for instance, towards the end of 2001 Onarep made agreements with Kerr-McGee of the US and with Malaysia's Petronas. Investment in petroleum exploration during 2001 is believed to have totalled about US$4.2 million. More than 1,000 people attended the First Marrakech International Oil and Gas Conference earlier this year.

During 2001 BRPM continued the recently adopted and already reasonably successful strategy of collaborative mineral exploration effort, which has helped introduce modern technology. One focus of activity is the area around Marrakech, where BRPM is separately working with the local company CMG, Finland's Outokumpu and Metales Hispania. With CMG the Bureau is studying a VMS type occurrence in Koudiat Aicha where 2.5% zinc mineralisation has been located. The Outokumpu venture is working on a polymetallic find at Khawadra, while the Spanish firm will finance 70% of an exploration programme seeking polymetallic vein mineralisation targets, including tin occurrences, at Achemmach and El Karit (see MAR 2001). In the Taourirt region, MVT targets are being mapped by the BRPM in partnership with the Japanese International Co-operation Agency (JICA). Precious metals prospects include gold-bearing structures at Tizegouine near Akka, Ouassamgane, Had Imaoun, Azour N'Boutwala and Tamlalt. In April 2002, the Irish company Ormonde Mining, which has gold exploration experience in Tanzania, agreed a 40/60 joint venture with BRPM covering a gold property in the Tamlalt area.

Other significant activities within BRPM's ongoing partnership programmes include training programmes provided by JICA; the definition of copper targets through the partnership with Poland's Centrum Badawczo Projectowe Miedzi (CUPRUM); a range of geographical/geological and other studies with the Geological Institute of Poland; exchanges of information and personnel with the Polytechnic University of Madrid; exploration in the Kerous and Sirwa regions with UK mining company Navan Resources; reconnaissance work on clay indications in three Tertiary basins with Italy's Caolino Panciera; and collaboration on mining services with the Iran Itok company. Meanwhile, tenders are still in progress for the previously worked Zgounder silver deposit and the Jebel Mahdi calcite deposit.

As well as overseeing this collaborative exploration programme and managing the still substantial holdings in the mine production sector, BRPM maintains a team of exploration, shaft sinking and drilling experts. As well as providing staff for the Bureau's own programmes and those of the collaborative ventures, this team also works for mining companies. In 2000, for instance, BRPM carried out exploratory shaft sinking and underground development at Imiter (for SMI), Draa Sfar and Guemassa (for CMG), Iourirn (for Akka Gold Mining), El Hammam (Samine), Nador (for Comabar) and at the Mohammedia salt mine.

During 2001 King Mohammed VI opened a new headquarters for CRTS - the Royal Remote Sensing Centre.

Phosphate Products Output ('000 t)

	1998	1999	2000
Phosphate rock	22,644	22,163	21,628
Phosphoric acid	2,668	2,696	2,736
Triple superphosphate	542	485	630
Monoammonium phosphate	84	198	348
Diammonium phosphate	1,278	1,205	1,238
NPK fertilisers	206	200	195

Source: Groupe OCP