

## JORDAN

*By Neil Scott*

**M**ining plays a very important part in the Jordanian economy, accounting for some 10% of GNP. The major contributors to the sector are potash, phosphate rock, cement, fertiliser products, calcium carbonate and building materials. Oil shale is the major undeveloped resource, and there has been recent oil exploration interest by junior companies. The long-neglected dimension-stone industry is developing rapidly.

### **Jordan Phosphate Mining Co**

Jordan is the sixth-largest phosphate rock producer in the world and, through state-owned Jordan Phosphate Mining Co (JPMC), is the largest mining and industrial employer in the country. Its long anticipated privatisation to a “preferred bidder” had been expected in 2003, but it is understood that negotiations have failed and an open tendering process is now to take place - as had been originally envisaged. JPMC’s phosphate rock exports account for some 9% of the country’s export earnings.

In 2003, JPMC produced a record 7.2 Mt of phosphate rock concentrates from its three mines – Eshidiya (which accounts for almost half of the company’s production), El Hassa and Al Abiad. JPMC envisages closing Al-Hassa in 2006 and Al-Abiad in 2008, the consequence of diminishing reserves and increasing overburden thickness. All production will then come from Eshidiya, necessitating an additional processing plant (Eshidiya 2), the construction of a 35km rail link between the mine and the present railhead, and the improvement and upgrading of the existing rail network to Aqaba. The flotation section of the current (Eshidiya 1) beneficiation plant has never worked satisfactorily and in 2002 JPMC sought tenders for its modification. This remedial work should to be completed by the end of 2004, thus allowing for the processing of substantial quantities of material stockpiled from the A2 horizon.

In addition to exporting some 4.5 Mt/y of phosphate rock to India and about 20 other countries, JPMC presently supplies 2.7 Mt/y to its own phosphoric acid complex, as well as to two joint ventures: the Indo-Jordan Chemicals Co’s phosphoric acid plant located adjacent to the mine and the Nippon-Jordan Fertilizer Co NPA/DAP plant at Aqaba.

### **Arab Potash Co**

In October 2003, the Jordanian Government sold its 26% holding in Arab Potash Co (APC) to Canada’s Potash Corp of Saskatchewan (PCS). Jordan is the world’s sixth-largest potash producer from solar evaporation operations on the Dead Sea. Total sales in 2003 were 1.25 Mt of K<sub>2</sub>O equivalent, an increase of nearly 5% over 2002. The company generates about 9% of the country’s export earnings.

APC has entered into five major JV projects, apart from its 20% holding in Nippon-Jordan Fertilizer Co (NJFC). They are as follows:

Jordan Bromine Co was established in 1999 and is now a 50:50 joint venture between APC and Kemira Co of Finland. It started production of bromine and bromine compounds at the end of 2002 from a plant with capacity of 50,000 t/y bromine, 35,000 t/y TBBA and 30,000 t/y calcium bromide. It will start chlorine production from a new 30,000 t/y capacity plant in 2005.

APC has a 55.3% interest in Jordan Magnesia Co (Jormag), which owns a magnesia plant at Al-Safi that is about to enter commercial production. Capacities are 50,000 t/y of dead-burned magnesia, and 10,000 t/y of magnesium hydroxide and caustic calcined magnesia. The process is based on magnesium chloride brine pumped 5 km by pipeline from the APC potash operations. Limestone is sourced from a local quarry. The project cost is US\$110 million.

Kemira Arab Potash Co was established in 1999 as a 50:50 partnership with Finland's Kemira Agro Oy. A 150,000 t/y capacity potassium nitrate fertiliser plant and a 75,000 t/y di-calcium phosphate animal feed supplement plant began production at the end of 2002.

Jordan Safi Salt Co was established in 1996 and produced 1,800 t of high-grade table salt and 331,000 t of industrial salt in 2002 (about 30% of its reported capacity). Following its liquidation in 2001, APC acquired full control of the company, which is now managed for APC by Jordan Industrial Co, an APC holding company.

Numeira Mixed Salts and Mud Co was established in 1997 and produces 20,000 t/y of cosmetic salts and 5,000 t/y of cosmetic mud from the southern end of the Dead Sea. APC's holding is 52.7%.

### **Limestone, cement and building materials**

Jordan is an important producer of ground calcium carbonate (GCC) from high purity (>99%  $\text{CaCO}_3$ ) limestone. Jordan Minerals Establishment has increased the capacity of its Amman plant by 25,000 t/y to 150,000 t/y of coated GCC and micronised products for paints, coatings and plastisols. Jordan Carbonate Co produces 185,000 t/y of coated and uncoated grades for a wide variety of filler applications in the Middle East.

Jordan Cement Factories Co has two plants with a combined capacity of 4.5 Mt/y of cement and 3.8 Mt/y clinker. The Arab Company for White Cement operates a much smaller plant with a capacity of 130,000 t/y of cement.

Initially through an UNCTAD initiative and latterly through the Euro-Jordanian Action for Enterprise Development (EJADA), the Jordanian dimension-stone industry has benefited from EU assistance in market research and development under a regional programme designed to strengthen and upgrade small- and medium-sized enterprises.

### **Other Opportunities**

In an effort to diversify minerals production, the government has formulated a new policy that offers incentives for oil and gas exploration. Currently, there are production-sharing agreements in place with Trans-Global of the US and the Australian group NFG Development. Other interesting undeveloped mineral projects include the Ellajjun and Sultani oil-shale deposits, copper and gold in Wadi Araba, silica sand, zeolites, gypsum and ornamental stone.

Details of these and other investment opportunities are available on Jordan's Natural Resources Authority website ([www.nra.gov.jo](http://www.nra.gov.jo)). For further information, please contact: Dr Jamal Alali [jmalali@nra.gov.jo](mailto:jmalali@nra.gov.jo) or Eng. Khuloud Mahasneh [liaison@nra.gov.jo](mailto:liaison@nra.gov.jo)