

## JORDAN

*By Neil Scott*

**M**ining plays an important part in the Jordanian economy, accounting for 9.35% of GNP in 2001. The major components of 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.

### **Jordan Phosphate Mining**

The Jordan Phosphate Mining Co. (JPMC) is in advanced discussion with a preferred bidder for its privatisation. The negotiations, initiated without the expected tendering process, are timely since most forecasting agencies agree that the fertiliser industry is about to enter a period of growth. In 2001, JPMC staged a dramatic recovery in phosphate-rock exports with sales rising to 3.54 Mt. This was an impressive turn-around since its low point in 2000 when it recorded sales of 3.12 Mt. Sales were forecast to increase to 4.3 Mt by the end of 2002.

JPMC produces phosphate-rock concentrates from three mines: Eshidiya (3.00 Mt/y), El Hassa (1.75 Mt/y) and Al Abiad (1.96 Mt/y). Al-Abiad and Al-Hassa are nearing depletion as a consequence of increasing overburden thickness, and JPMC envisages the mines to cease operations in 2008 and 2006 respectively. All production will then come from Eshidiya, necessitating the construction of an additional processing plant (Eshidiya 2). The flotation section of the existing (Eshidiya 1) plant has never worked satisfactorily, such that the A3 Bed has had to be stockpiled with output confined to the A1 and A2 beds, which only require washing and dry processing respectively. In 2002, JPMC called for tenders for the modification of the Eshidiya 1 plant.

In addition to exporting phosphate rock, JPMC supplies 2.5 Mt/y to its own phosphoric-acid complex, as well as to two joint ventures: Indo-Jordan Chemicals Co.'s phosphoric-acid plant located adjacent to the mine, and Nippon-Jordan Fertilizer Co.'s NPA/DAP plant at Aqaba.

### **Arab Potash**

In the country's other major minerals industry privatisation, the Jordanian Government is selling 26% of its equity in Arab Potash Co. (APC) to a strategic investor. Qualified bidders include Potash Corp. of Saskatchewan of Canada, K+S of Germany, Mitsubishi Corp. of Japan and Sinochem of China. Due diligence is being undertaken by these bidders and the transaction is expected to close in mid-2003.

APC is the world's fifth-largest potash producer. It generates about 11% of Jordan's export earnings from operations on the Dead Sea involving the solar evaporation of carnallite-rich brines to recover muriate of potash or potassium chloride. Production in 2002 was 1.96 Mt, marginally down on the 1.96 Mt

achieved in 2001. APC has entered into five major joint-venture projects, apart from its 20% holding in Nippon-Jordan Fertilizer Co. They are as follows:

- Jordan Bromine Co. (JBC) was established in 1998 as a 50:50 joint venture between APC and Albemarle Holdings of the US. It will produce 50,000 t/y of elemental bromine and four other bromide and chloride products. A plant is under construction at Safi at a cost of US\$143 million. A facility for flame-retardant production is also being developed. Commercial production was expected to begin at the end of 2002.
- APC has a 55% interest in Jordan Magnesia Co. A magnesia plant is being constructed that will produce 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 from APC's potash operations and limestone sourced from a local quarry. The project cost is US\$110 million, and is now scheduled for completion in 2003, rather later than originally planned following delays in the final stages of construction.
- Kemira Arab Potash Co. is a 50:50 partnership between APC and Finland's Kemira Agro Oy. A 150,000 t/y potassium nitrate (NOP) plant and 75,000 t/y dicalcium phosphate animal feed supplement plant is being constructed at a cost of US\$106 million. Commercial production was expected to begin at the end of 2002.
- Jordan Saffi Salt Co. was established in 1996 and produced 25,000 t of high-grade table salt and 260,000 t of industrial salt in 2002 (less than a quarter of its reported capacity). In 2001, APC acquired full control of the company following its liquidation, at a project cost of US\$39 million.
- 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%.

### **Carbonate Minerals**

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 250,000 t/y of coated and uncoated grades for a wide variety of filler applications in the Middle East.

Jordan also has a major cement industry in which the French company Lafarge has a majority interest following what is generally recognised as being a mutually beneficial and successful privatisation. Production is 3.5 Mt/y, one third of which is exported, principally to the Middle and Far East. There are proposals for expansion to 4.5 Mt/y.

### **Other Opportunities**

In an initiative to diversify production away from industrial minerals, the government has formulated a new policy that offers incentives for oil and gas exploration. This has resulted in exploration over four Blocks and the signing of Memoranda of Understanding for PSA terms by Canadian, Australian and UK companies. Russian companies are also reported to be negotiating exploration agreements. Details of these petroleum and other mineral investment opportunities are available on the Natural Resources Authority website ([www.nra.gov.jo](http://www.nra.gov.jo)). Other mineral projects of particular interest include oil shale at El Lajjun, glass sand, gypsum, tripoli, zeolites and ornamental stone.