

ALGERIA

By Philip M. Mobbs

For the Algerian minerals sector, 2000 was another year of change. The Government debated various revisions to the mining code and proposed to allow foreign investors to develop mineral deposits held by the national mining companies. It also continued the reorganization of the state-owned oil and gas company Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures (SONATRACH) and proposed to open the oil and gas sector to competition between public and private companies (Middle East Economic Digest, 2001b). The national electricity production, transmission, and distribution and natural gas transmission and distribution company Etablissement Public à Caractère Industriel et Commercial (Sonelgaz) announced that local and foreign investors would be allowed to generate and sell electricity (Richards, 2001).

Natural gas and petroleum dominated the minerals sector and accounted for about 30% of the gross domestic product (U.S. Energy Information Administration, January 2001, Algeria—General background, Country Analysis Briefs, accessed May 11, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/algeria2.html>). Of the nonfuel minerals produced, helium, iron ore, mercury, and phosphate rock were the most notable.

Government Policies and Programs

With further liberalization of the electrical power generation, mining, crude oil, and natural gas sectors proposed, the Government anticipated increased interest in mineral development and replacement of the limited state funds earmarked for the natural resource sector by project-dedicated domestic and foreign investment. The Government proposed to manage the minerals sector through two new organizations that will be created in 2002—the Agence Nationale du Patrimoine Minier and the Agence Nationale du Contrôle des Mines. In December, it was reported that SONATRACH would no longer conduct negotiations for new exploration and production contracts for crude oil and natural gas properties (Africa Energy Intelligence, 2000; African Mining Intelligence, 2000; Mining Journal, 2000c; Mining Magazine, 2000).

The Office Nationale de Recherche Géologique et Minière (ORGM) and the U.S. Geological Survey agreed to pursue scientific and technological cooperation in the earth sciences.

Structure of the Mineral Industry

The Ministère de l'Énergie et des Mines (M.E.M.) is involved in most mineral production. The Ministère de l'Industrie et de la Restructuration (M.I.R.) is responsible for the construction material and mineral product sectors, which included brick, cement, glass, lime, steel, and refined zinc operations. The Agence de Promotion, de Soutien et de Suivi des Investissements provides potential investors with information on local business opportunities.

Government organizations that are involved in the mineral

sector include M.E.M.'s Service Géologique Algérien and the ORGM, which is responsible for geologic and mining research. The mineral production section of the M.E.M. includes the state fertilizer company, the national salt mining company, the state-owned gold development company, the state iron and phosphate rock miner, the national sand and aggregate company, the state-owned marble producer, and the state nonferrous mineral mining company. In addition to M.E.M.'s 6 national enterprises, about 689 small private companies and 640 local public enterprises are authorized to produce aggregates, clay, gypsum, marble, or salt.

M.E.M.'s hydrocarbon branch includes SONATRACH, the state-owned petroleum refining company, the national petroleum distribution company, and Sonelgaz. In 2000, about 21 foreign oil companies were operating in association with SONATRACH on 31 contracts.

National enterprises within the M.I.R. include the Groupe SIDER and Entreprise Nationale de Métallurgie et de Transformation des Métaux Non Ferreux (METANOF).

Commodity Review

Although many mineral deposits had been identified by the ORGM, they were located in remote areas that lacked infrastructure, were uneconomic, or the mining enterprise to which the deposits were assigned was unable to secure Government funding for development (Ministère de l'Énergie et des Mines, [undated], Opportunités d'investissements—Mines, accessed August 14, 2001, at URL http://www.mem-algeria.org/opportunités/opport_mines.htm). In 2000, the Ministry of Energy & Mines offered 48 small mining operations to private investors via the Avis d'appel aux investisseurs No. 002/2000—Programme de Mise en Valeur de la Petite et Moyenne Mine (Mining Journal, 2000b).

Metals

Gold.—ENOR owned the Amesmessa and the Tirek gold projects southwest of Tamanrasset in the Hoggar region of southern Algeria. In 1999, the South African Council for Mineral Technology (Mintek) began sampling the Tirek prospect as part of the 1998 mining technology cooperation agreement that the Government signed with South Africa; in late 2000, Mintek shipped a 200-metric-ton-per-day gold recovery plant to Tirek (Mintek Bulletin, 2000). Production was scheduled to begin in 2001. In 2000, ENOR undertook a feasibility study of the Amesmessa gold prospect. In November, ENOR solicited partners to operate the Amesmessa and the Tirek gold projects and to explore the adjacent 1,200 square kilometers for gold. ENOR's resource estimates were 4.96 million metric tons (Mt) at grade of 14.1 grams per ton (g/t) gold for Amesmessa and 1.17 Mt at an average grade of 17 g/t gold for Tirek (Entreprise d'Exploitation des Mines d'Or, 2001, Geological context—Amesmessa deposit and Tirek

deposit, accessed August 10, 2001, at URL http://www.enor.com.dz/geo_en.htm).

Steel.—In 1999, during the reorganization of Enterprise Nationale de Sidérurgie, the El-Hadjar steelmaking operations at Annaba were spun off as Sté. Algérienne de Fabrication Sidérurgique (ALFASID). In 2000, ALFASID produced 841,957 metric tons (t) of liquid steel. Its mills produced 303,377 t of hot-rolled coil, 143,142 t of cold-rolled coil, 83,498 t of galvanized products, and 157,016 t of rounds and wire rod. ALFASID continued its modernization program in 2000 with the renovation of 21 of the 65 furnaces in coke oven battery No. 1 by awarding Voest-Alpine Industrieanlagenbau GmbH & Co. of Austria the contract to rehabilitate the hot-rolling mill and continued the World Bank's industrial pollution control project (Sté. Algérienne de Fabrication Sidérurgique, [undated], ALFASID-Fiche Technique, accessed August 8, 2001, at URL <http://www.alfasid.com.dz/presentation/fiche-technique.htm>).

Zinc.—Breakwater Resources Ltd. of Canada announced its intent to acquire 90% equity interest in the Oued Amizour zinc project (Metal Bulletin, 2000). Negotiations continued through yearend.

Industrial Minerals

Cement.—In 2000, Algerian cement production was dominated by the plants of the five subsidiary companies of the regional cement group L'Entreprise des Ciments et Dérivés de l'Est (ERCE), which had a total output of 4.2 Mt of cement. The renovation of the Mefta plant of L'Entreprise des Ciments et Dérivés du Centre Group (ERCC) allowed ERCC to produce about 1.7 Mt, the three subsidiaries of L'Entreprise Ciments et Dérivés de l'Ouest (ERCO) produced about 1.4 Mt, and L'Entreprise des Ciments et Dérivés d'Ech Group (ECDE) at Chlef produced about 1 Mt. Installed cement capacities for the regional groups were ERCE, 4.4 million metric tons per year (Mt/yr); ERCO, 2.7 Mt/yr; ERCC, 2.4 Mt/yr; and ECDE, 2 Mt/yr. Proposed projects under evaluation included the 500,000-metric-ton-per-year (t/yr) expansion of ERCE's Société des Ciments de Tebessa capacity, the 1-Mt/yr cement plant at Djelfa and the 1-Mt/yr plant at El-Kseur for the ERCC Group, and a 125,000-t/yr white cement plant for ERCO at Beni-Saf (Ministère de l'Industrie et de la Restructuration, [undated], Presentation de la Branche de Matériaux de Construction—Activité des entreprises et capacités and Projets de développement, accessed August 8, 2001, at URL <http://www.mir-algeria.org/materiaux.htm>; M. Stiti, El Watan, April 1, 2001, CIMENT/Production record—Mais probables tensions, Letter to the editor, accessed April 2, 2001, at URL <http://www.elwatan.com/journal/html/2001/04/01/economie.htm>).

In November 2000, Algerian Cement Co. terminated plans for a proposed cement plant in Bejaia Province after it was unable to acquire the required permits. In December, Algerian Cement (a subsidiary of Orascom Construction Industries of Egypt) began an evaluation of ERCC's proposed Djelfa cement plant.

Fertilizer.—Enterprise Nationale de Engrais et des Produits Phytosanitaires (ASMIDAL) produced ammonia and nitrogenous and phosphatic fertilizers at its Fertial plant in Annaba and at the Alzofert plant in Arzew. In 2000, nitrogenous fertilizer production was 231,000 t compared with

85,000 t in 1997. Phosphatic fertilizer production was 212,000 t in 2000 compared with 118,000 t in 1997. In joint venture with Fritz Werner Industrie-Ausrüstungen GmbH of Germany and Transammonia, Inc., of the United States, ASMIDAL planned to add a 675,250-t/yr-capacity unit to the existing 660,000-t/yr-capacity ammonia plant at Arzew by 2003 (Stell, 2001, p. 76; Group Industriel au Service du Développement Agricole, [undated], Capacités du groupe, accessed August 10, 2001, at URL http://www.asmidal-dz.com/capacites_ammoniac_filiale.htm).

Mineral Fuels

In 2000, the M.E.M. reported 11 hydrocarbon discoveries that included initial discoveries and new reservoirs in known fields. Announced SONATRACH discoveries included the Damrane-2 on block 237B, the Hassi Terfa North-1 oil discovery on block 427, and the two gas discoveries in the Reggane Basin, the Azrafil Sud Est-1 on block 351B and the Djebel Heirane Kahla Tablbala-1 on block 352B (Oil & Gas Journal, 2000a; Middle East Economic Digest, 2001a; Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures, October 22, 2000, Nouvelle découverte d'huile au sud est de Hassi Messaoud, accessed August 15, 2001, at URL <http://www.sonatrach-dsz.com/decouverte.htm>; Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures, September 25, 2000, Nouvelle découverte de gaz, accessed August 15, 2001, at URL <http://www.sonatrach-dsz.com/reggane25.htm>). ARCO Ghadames Inc. successfully cased the Semhari East-1 wildcat as an oil well on the Hassi bir Rekaiz permit.

A number of international oil companies entered into service contracts with SONATRACH. Amerada Hess Corp. (AHC) agreed to invest an estimated \$554 million to redevelop three Algerian oilfields—El Agrab, the Gassi, and the Zotti. AHC also committed to the exploration of the Rhourde El Rouni contract. First Calgary Petroleum Ltd. signed a 15-year contract to explore on block 406A. The contract called for the drilling of two wells by November 2003. The joint venture of BHP Petroleum Pty. Ltd. (60%), Japan Ohanet Oil and Gas Co. Ltd. (30%), and PetroFac Resources (Ohanet) LLC (10%) signed a risk service contract with SONATRACH to develop natural gas resources in the Ohanet region. BHP Petroleum also proposed to develop the oil resources of the Rhourde Oulad Djemma area on blocks 401A and 402A.

BP Amoco p.l.c. and SONATRACH agreed to proceed with the development of the In Salah project, which included the Garat al-Bafinat, the In Salah, the Krechba, the Reg, and the Teguentour gas prospects. Organisation Ourhoud awarded JGC Corp. of Japan and the recently privatized Spanish engineering company INITEC the contract to develop the Ourhoud oil prospect. When developed, Ourhoud, which straddles blocks 404, 405, and 406, would become the second largest oilfield in Algeria after the Hassi Messaoud (Bob Lunn, Bob Daniels, Stephen Linnard, and Lynda Okbi, 2001, The Ourhoud Field—Berkine Basin—Algeria, accessed August 16, 2001, at URL http://aapg.confex.com/aapg/de2001/techprogram/paper_8916.htm).

In September, CEPESA and SONATRACH agreed to evaluate the feasibility of building a third export pipeline from Algeria. The proposed pipeline would cross the Mediterranean Sea directly to Spain. In December, Conoco Inc. and SONATRACH agreed to study the possible use of Algerian gas to power electricity-generating projects in Algeria, Spain, and Turkey.

Reserves

Hydrocarbon reserve estimates varied. As of January 2001, Algeria was reported to have the 7th largest reserves of natural gas and the 14th largest oil reserves in the world. Estimated proven reserves were reported to be 9,200 million barrels and natural gas reserves were estimated to be 4.5 trillion cubic meters (Oil & Gas Journal, 2000b). The M.E.M. estimated that the country's recoverable oil reserves were about 14,600 million barrels and recoverable gas reserves were about 3 trillion cubic meters (Middle East Economic Digest, 2001a, p. 22).

Barite reserves were reported to be 9.5 billion metric tons (Gt); iron ore reserves, 3.5 Gt; lead/zinc reserves, 1.6 Gt metal content; phosphate rock reserves, 1.6 Gt; salt reserves, 1.5 Gt; diatomite reserves, 6.6 Mt; celestite reserves, 6 Mt; mercury reserves, 37,000 t metal content; uranium reserves, 26,000 t U₃O₈; and gold reserves, 110 t metal content (Mining Journal, 1999; Office de la Recherche Géologique et Minière, [undated], Mining potential, accessed August 14, 2001, at URL <http://www.orgm.com.dz/potential.htm>).

Infrastructure

Sonelgaz had an installed electricity generating capacity of 5,922 megawatts (MW) (Richards, 2001). Thermal plants (diesel, natural gas, and oil fired) accounted for about 99.8% of the electricity generated. Sonelgaz proposed to add a 2,000-MW plant to the national grid.

Algeria's railroad system [totaling 4,060 kilometers (km) of track] and its road network [covering more than 90,000 km] mostly served the northern section of the country and supported long-established mining and other export-oriented industries.

More than 13,200 km of pipeline served the hydrocarbon industries within Algeria. Three crude oil pipeline ran north to Skikda, Bejaia, and Arzew from Hassi Messaoud in the southeast. The focus of the natural gas pipeline network was Hassi R'Mel, from which pipelines were connected to liquefaction facilities at Arzew and Skikda. Hassi R'Mel also was the gathering point for natural gas exports to southern Europe by means of the 24-billion-cubic-meter-per-year-capacity 2,340-km Enrico Mattei pipeline (which was formerly the Trans-Mediterranean, or Transmed, pipeline) that extended from Algeria northeastward through Tunisia and under the Mediterranean Sea to Sicily and the Italian mainland and the 8-billion-cubic-meter-per-year-capacity 1,845-km Pedro Duran Farrell pipeline (which was formerly the Maghreb-Europe pipeline) that traversed Algeria northwestwards through Morocco and the Straits of Gibraltar to Spain.

Outlook

With its location close to Europe, the country's major customer for its minerals, and its known undeveloped and inferred hydrocarbon deposits and functional infrastructure, Algeria is expected to be of significant interest to international construction, engineering, financial, and oil companies. Algeria's base and precious metals and industrial mineral occurrences and potential could entice international mineral exploration and development organizations, and the Government's interest in reducing the mineral economy's dependence on oil and gas could add incentives to the nonfuel mineral sector; recurrent guerilla activity, especially by the Armed Islamic Group and the Salafist Group for Preaching and Combat, however, remains a significant deterrent to investors

(Mining Journal, 2000a).

References Cited

- Africa Energy Intelligence, 2000, Algeria—New game rules for E&P: Africa Energy Intelligence, no. 288, December 6, p. 1
- Africa Mining Intelligence, 2000, Algeria—Up to \$195 million in funding needed: Africa Mining Intelligence, no. 2, November 15, p. 1.
- Metal Bulletin, 2000, Breakwater agrees Algerian deal: Metal Bulletin, no. 8470, April 27, p. 5.
- Middle East Economic Digest, 2001a, Oil & Gas—News in brief—Algeria: Middle East Economic Digest, v. 45, no. 3, January 19, p. 16.
- 2001b, Special report oil & gas—Managing the downside: Middle East Economic Digest, v. 45, no. 2, January 12, p. 21-29.
- Mining Journal, 1999, Algeria: Mining Journal, v. 332, no. 8515, January 22, p. 41.
- 2000a, Algeria ready for business: Mining Journal, v. 334, no. 8576, March 31, p. 244.
- 2000b, Algerian mines for sale: Mining Journal, v. 334, no. 8578, April 14, p. 288.
- 2000c, New draft of Algerian mining code: Mining Journal, v. 335, no. 8596, August 18, p. 134.
- Mining Magazine, 2000, Exploration & development—Africa: Mining Magazine, v. 182, no. 6, June, p. 330.
- Mintek Bulletin, 2000, Algeria's first gold producer on track: Randburg, South Africa, Council for Mineral Technology, no. 128, June-July, p. 3.
- Oil & Gas Journal, 2000a, Exploration & Development—Algeria: Oil & Gas Journal, v. 98, no. 41, October 9, p. 38.
- 2000b Worldwide look at reserves and production: Oil & Gas Journal, v. 98, no. 51, p. 122-123.
- Richards, Catherine, 2001, About change: Middle East Economic Digest, v. 45, no. 7, February 16, p. 4-5.
- Stell, Jeannie, ed., 2001, Worldwide construction—Petrochemicals: Oil & Gas Journal, v. 99, no. 16, April 16, p. 76-83.

Major Sources of Information

Ministère de l'Energie et des Mines
80 Avenue Ahmed Ghermoul
Algiers, Algeria
Telephone: ++(213-21) 67 33 00
Telecopier: ++(213-21) 67 03 66

Ministère de l'Industrie et de la Restructuration
Immeuble Le Colisee, 3
Rue Ahmed Bey
Algiers, Algeria
Telephone: ++(213-21) 23-90-33
Telecopier: ++(213-21) 23-94-88
E-mail: info@mir-algeria.org

Investment Promotion, Support and Monitoring Agency
B.P. 235
El-Biar 116030
Algiers, Algeria
Telephone: ++(213-21) 91-44-05
Telecopier: ++(213-21) 91-43-03
E-mail: apsi@hoggar.cerist.dz

Office de la Recherche Géologique et Minière
Cit  Ibn Khaldoun
B.P. 102
Boumerd s, 35000, Algeria
Telephone: ++(213-24) 81 85 25
Telecopier: ++(213-24) 81 83 79
E-mail: orgm@wissal.dz

Soci t  Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures (SONATRACH)
Djenane El Malik - Hydra
Algiers, Algeria
Telephone: ++(213-21) 54 80 11
Telecopier: ++(213-21) 54 77 00
E-mail: sonatrach@sonatrach-dz.com

TABLE 1
ALGERIA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/ 4/	1996	1997	1998	1999	2000 p/	
METALS						
Cadmium, refined e/	75	75	70 r/	70 r/	70	
Iron and steel:						
Iron ore, gross weight	thousand tons	2,245	1,637	1,783	1,336	1,645
Metal:						
Pig iron e/	do.	800	700	700	500	400
Steel, crude	do.	620	427	400 e/	758 r/	842
Lead:						
Concentrate, Pb content		1,016	845	730	1,215	818
Metal, refined e/		8,600	8,000	7,000	7,000	7,000
Mercury	kilograms	367,800	447,034	223,965	240,327	215,625
Silver e/	do.	2,000	1,600	1,500	1,400	1,400
Zinc:						
Concentrate, Zn content		5,912	3,690	4,555	9,808	10,452
Metal, smelter output e/		30,000	29,300	31,000	34,000	34,000
INDUSTRIAL MINERALS						
Barite, crude		31,348	39,140	37,006	50,510	51,925
Cement, hydraulic		6,500	7,000	7,500	7,500 e/	8,300 e/
Clays:						
Bentonite		17,200	17,657	15,655	15,491	22,708
Fuller's earth		4,500 e/	3,960	3,942	2,489	3,431
Kaolin		25,000 e/	18,533	13,640	16,833	11,616
Diatomite		3,700 e/	2,332	2,133	2,563	2,500 e/
Feldspar e/		7,000	7,000	7,000	2,820 5/	707 5/
Gypsum e/ 6/	thousand tons	250	275	275	1,316 r/ 5/	1,341 5/
Helium, liquid e/	million cubic meters	15	15	16	16 5/	10
Lime, hydraulic e/		62,000	65,000	65,000	76,000 r/	96,000
Marble		700,000 e/	702,000	732,000	665,000 e/	700,000 e/
Nitrogen, N content of ammonia 7/		149,900	379,400	350,200	455,400 r/	430,700
Phosphate rock:						
Gross weight	thousand tons	1,051	1,063	1,155	1,096	877
P ₂ O ₅ content e/	do.	320 5/	330	358	340	265
Salt, brine and sea salt		178,000 e/	137,317	172,025	163,748 5/	182,000
Strontium minerals, celestite, gross weight e/		-- r/	-- r/	-- r/	-- r/	--
Sulfur, elemental e/		23,000	23,000	23,000	25,000	25,000
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross	million cubic meters	143,100	125,012	125,971	128,783 r/	139,499
Dry 8/	do.	62,300	97,458	96,873	97,151 r/	100,092
Natural gas plant liquids	thousand 42-gallon barrels	53,000	69,000 r/	77,200 r/	85,411 r/	95,619
Petroleum:						
Crude including condensate	do.	453,300	466,105	454,750	457,158 r/	476,288
Refinery products:						
Liquefied petroleum gas	do.	6,000 r/ e/	6,200 r/ e/	6,100 r/ e/	6,191	6,322
Gasoline	do.	20,000	17,313	17,836	20,310 r/	17,964
Naphtha	do.	31,000	33,233	31,688	32,757 r/	32,124
Kerosene and jet fuel e/	do.	8,100	8,000	8,000	10,428 r/	12,458 5/
Distillate fuel oil	do.	50,000	48,661	46,245	48,132 r/	44,820
Lubricants	do.	850 e/	686	728	777 r/	770
Residual fuel oil	do.	36,800	37,002	33,753	37,842 r/	36,803
Other e/	do.	3,500	2,500	2,000	2,884 r/ 5/	3,044 5/
Total	do.	156,000 r/	154,000 r/	146,000 r/	159,321 r/	154,305

e/ Estimated. p/ Preliminary. r/ Revised. -- Zero.

1/ Table includes data available through August 9, 2001.

2/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

3/ In addition to the commodities listed, secondary aluminum, coke, secondary lead, and secondary copper may be produced in small quantities, and crude construction materials are produced for local consumption, but output is not reported and available information is inadequate to make estimates of production levels.

4/ In addition to the commodities listed, about 700 metric tons per year of caustic soda had been estimated to be produced.

5/ Reported figure.

6/ Includes about 50,000 metric tons per year of plaster.

7/ Additional nitrogen was produced by Helios, the helium liquids production company. In 1999, Helios produced more than 68,000 42-gallon barrels of liquid nitrogen and 14 million cubic meters of gaseous nitrogen.

8/ Excludes gas used in reinjection, flaring, venting, transmission losses, and natural gas liquids extraction.