



# 2005 Minerals Yearbook

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## TUNISIA

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# THE MINERAL INDUSTRY OF TUNISIA

By Philip M. Mobbs

Tunisia's major contribution to the world mineral supplies was phosphate rock and phosphate-based fertilizers. Tunisia, which is located in North Africa and has a total area of 163,610 square kilometers, was the world's fifth ranked phosphate rock producer and accounted for about 5% of the world supply of phosphate rock. About 80% of Tunisian phosphate rock production was processed locally into fertilizers (such as diammonium phosphate and triple superphosphate) and phosphoric acid. The Tunisian mineral sector posted mixed results in 2005. The planned September closure of the Bougrine lead-zinc mine resulted in a drop in zinc exports, but the resultant slight decline in revenue from zinc exports was offset by increased income from exports of aluminum fluoride, cement, crude oil, iron and steel, phosphate rock, phosphoric acid, and refined petroleum products. The industry also was buoyed by significantly increased production from privately owned marine salt operations that offset the decline in production of the Government salt company and by increased crude oil production from new wells in the Adam oilfield that offset the continued decline from the Ashtart and El Borma Fields (Central Bank of Tunisia, 2006, p. 114, 117, 118, 124, 127; Jasinski, 2006<sup>1</sup>).

The hydrocarbon sector accounted for about 4% of Tunisia's gross domestic product (GDP) in 2005. The cement, construction materials, glass, and mining sectors accounted for about 2.5% of the GDP, and phosphate-based fertilizer production accounted for nearly 2%. In 2005, the GDP based on purchasing power parity was estimated to be about \$83.7 billion.<sup>2</sup> The per capita GDP based on purchasing power parity was \$8,255 (Central Bank of Tunisia, 2006, p. 57; International Monetary Fund, 2006<sup>3</sup>).

Other mineral or processed mineral commodities produced in Tunisia included clay, gypsum, iron ore, lead, lime, salt, and silver. Mineral exploration and production were licensed by the Government according to the Mining Code (law No. 2003-30 of April 28, 2003). The Hydrocarbon Code (law No. 99-93 of August 17, 1999) regulated offshore and onshore natural gas and oil exploration and production.

## Commodity Review

### Metals

**Copper, Gold, Lead, and Zinc.**—The closure of the Bougrine lead-zinc mine in 2005 followed the closure of the Fej Lahdoum lead-zinc mine in May 2004 and the Boujabeur barite-lead-zinc mine in July 2004. All three mines were closed after

reserves were depleted (Central Bank of Tunisia, 2005, p. 57; 2006, p. 57).

In 2005, Breakwater Tunisia S.A. (a subsidiary of Breakwater Resources Ltd. of Canada) milled 216,823 metric tons (t) of lead-zinc ore, which was down from 330,392 t in 2004. The Bougrine mill produced 29,142 t of zinc concentrates that contained 15,889 t of zinc. The mill's lead concentrate production increased to 13,373 t that contained 8,708 t of lead compared with 8,399 t of lead concentrates produced in 2004 that contained 5,470 t of lead. Breakwater started reclamation of the mine and tailings dam and pond. The mill was placed on care and maintenance status (Breakwater Resources Ltd., 2006, p. 24).

Metal exploration in Tunisia included Albidon Ltd. of Australia's evaluation of its Nefza exploration permit, which included drilling and geophysical surveys on the Jebel Trozza and the Jebel Touila zinc prospects, and sampling of the Kef El Agueb, the Oued Belif, and the Ras Rajel gold prospects. Maghreb Minerals Plc of the United Kingdom completed a 24-hole 4,497-meter drill program on the Djebba lead-zinc prospect and additional drilling on the Fej Lahdoum, the Koudiat Louatia, and the Ouled Moussa lead-zinc prospects. Maghreb allowed the exploration permit for the Koudiat Sidii prospect to expire (Maghreb Minerals Plc, 2006<sup>4</sup>).

Albidon and Maghreb were expected to increase their respective exploration activities in 2006. Breakwater proposed to begin a drilling program and geophysical surveys on a lead-zinc prospect that was located 170 kilometers northwest of the mill at Bougrine.

### Industrial Minerals

**Cement.**—In 2005, Grupo PRASA of Spain acquired the Société Tuniso-Algérienne de Ciment Blanc S.A., which was privatized by the Governments of Algeria and Tunisia (each of which had formerly held a 50% interest). Grupo PRASA proposed to expand the 200,000-metric-ton-per-year (t/yr)-capacity white cement plant at Feriana by 2010 (Internet Management Group SA, 2005<sup>5</sup>).

### Mineral Fuels

**Natural Gas.**—In 2005, Trans-Tunisian Pipeline Co. Ltd (a subsidiary of Eni S.p.A.) agreed to expand the 27-billion-cubic-meter-per-year-capacity Trans-Tunisian Pipeline, which connects the Algerian natural gas pipeline system of la Société Nationale de la Recherche, de la Production, du Transport, du Traitement et de la Commercialisation des Hydrocarbures (Sonatrach) with the Trans-Mediterranean Pipeline that connects Cap Bon, Tunisia, with Mazara del Vallo, Sicily, Italy. An initial 3.2-billion-cubic-meter-per-year-capacity increase of the Trans-Tunisian pipeline was planned to come online in 2008; an additional 3.3-billion-cubic-meter-per-year-capacity expansion

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

<sup>2</sup>Where necessary, values have been converted from Tunisian dinars (TD) to U.S. dollars (US\$) at an average rate of TD1.31=US\$1.00 for 2005 and TD1.29=US\$1.00 for 2004.

was planned by 2012, which would give the Tunisian segment a final capacity of 33.5 billion cubic meters per year. Sonatrach agreed to a similar expansion of the Algerian feeder pipelines (Eni S.p.A., 2005).

**Petroleum.**—The Adam concession, which included the Adam, the Dalia, and the Hawa Fields, became Tunisia's leading crude oil producing center in 2005. Initial production from the Adam concession had begun in 2003. In 2005, crude oil production from El Borma Field, which had been the leading producing oilfield, declined by 10.3% compared with that of 2004 and 31.5% compared with that of 2001. Production from the Ashtart Field declined by 8.1% in 2005 compared with that of 2004 and by 22.2% compared with that of 2001 (Central Bank of Tunisia, 2006, p. 61).

In 2005, the Government proposed to build a second crude oil refinery in Tunisia. The new 120,000-barrel-per-day-capacity facility, which was to be located at La Skhira, would increase the locally-produced refined petroleum supply that was currently (2005) being produced by a 34,000-bbl/d-capacity refinery at Bizerte. State-owned Société Tunisienne des Industries du Raffinage planned to award a 30-year build-own-operate concession for the new refinery in 2007; initial production was expected by 2010 (Middle East Economic Digest, 2006).

## Outlook

The mineral and energy sectors, which accounted for about 17% of exports and more than 8% of the GDP, are integral parts of Tunisia's economic future. Metal deposits in northern Tunisia are expected to continue to attract junior exploration companies. The hydrocarbon resources of Tunisia, which were small relative to the other oil-producing nations of North Africa, are expected to continue to attract independent oil companies.

## References Cited

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- Maghreb Minerals Plc, 2006 (March 16), Interim results for the period ended 31 December 2005, Chairman's Statement, accessed March 16, 2006, at URL <http://www.londonstockexchange.com/LSECWS/IFSPages/MarketNewsPopUp.aspx?id=1180672&source=RNS>.

## Major Sources of Information

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TABLE 1  
TUNISIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2001	2002	2003	2004	2005 <sup>p</sup>	
<b>METALS</b>						
Iron and steel:						
Iron ore:						
Direct shipping ore and concentrate, gross weight	204	198	164	256 <sup>r</sup>	206	
Fe content	109 <sup>e</sup>	105	97	134 <sup>r</sup>	108	
Metal:						
Pig iron	192	152	36	--	--	
Steel, crude	239	200	86	70	66	
Lead, mine output, Pb content	metric tons	6,820 <sup>e</sup>	5,081	5,000	5,470 <sup>r</sup>	8,708
Silver, metal, primary <sup>e</sup>	kilograms	3,650	3,000	3,000	2,400 <sup>r</sup>	1,200
Zinc:						
Concentrate, gross weight	metric tons	73,000	64,890	65,800	52,747	29,412
Zn content	do.	37,900 <sup>e</sup>	35,692	36,000	29,011	15,889
<b>INDUSTRIAL MINERALS</b>						
Barite	metric tons	2,208	5,539	3,000	1,813	--
Cement, hydraulic <sup>3</sup>		5,721	6,022	6,038	6,662 <sup>r</sup>	6,691
Clays, for construction and clay products		4,260	4,400	4,500	5,200 <sup>r</sup>	5,400
Fertilizers:						
Triple superphosphate		783	796	875	868 <sup>r</sup>	848
Phosphoric acid		1,144	1,219	1,164	1,241	1,217
Diammonium phosphate		1,124	1,315	1,324	1,313	1,114
Ammonium nitrate		170	127	164	134 <sup>r</sup>	148
Fluorine, aluminum fluoride		44	39	45	42 <sup>r</sup>	42
Gypsum <sup>e,4</sup>		125	125	110	108 <sup>r</sup>	113
Lime		467	471	446	476 <sup>r</sup>	424
Phosphate rock, washed, gross weight		8,144	7,461	7,890	8,051 <sup>r</sup>	8,220
Salt, marine		654	616	700	1,117 <sup>r</sup>	1,132
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Gas, natural:						
Gross	million cubic meters	2,254	2,149	2,167	2,530	2,585
Dry <sup>e</sup>	do.	1,800	1,700	1,750	2,050	2,100
Petroleum:						
Crude	thousand 42-gallon barrels	26,300	26,800	24,300	25,700	26,200
Refinery products:						
Liquefied petroleum gas	do.	1,180	1,310	1,200	1,250 <sup>r</sup>	1,260
Gasoline	do.	3,690	3,380	3,600	3,450 <sup>r</sup>	1,880
Kerosene	do.	1,560	1,590	1,270	1,310 <sup>r</sup>	1,770
Distillate fuel oil	do.	3,490	3,500	3,780	3,220 <sup>r</sup>	3,630
Residual fuel oil	do.	3,950	4,020	4,050	3,960 <sup>r</sup>	4,030
Other <sup>e</sup>	do.	940	1,120	1,180	660 <sup>r</sup>	1,300
Total <sup>e</sup>	do.	14,800	14,900	15,100	13,900	13,900

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>Table includes data available through October 4, 2006.

<sup>2</sup>In addition to the commodities listed, a variety of crude construction materials (sand and gravel and stone) was produced, but output was not reported, and available information was inadequate to make estimates of output.

<sup>3</sup>Includes white cement production, in thousand metric tons: 2001--247; 2002--259; 2003--296 (revised); 2004--304; and 2005--333.

<sup>4</sup>Does not include phosphatic gypsum (waste product) generated during fertilizer production.

TABLE 2  
TUNISIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)\*

Commodity		Major operating companies	Location of main facilities	Annual capacity
Aluminum fluoride		Industries Chimiques du Fluor	Ghannouch, near Gabes	42
Cement:				
Portland		Société des Ciment d'Enfidha	Enfidha	2,000
Do.		Société des Ciment de Jbel Oust	Jbel Oust	1,200
Do.		Société des Ciment d'Oum el Kétil	Le Kef	970
Do.		Société des Ciment de Bizerte	Bizerte	840
Do.		Société des Ciments Artificiels Tunisiens	Ben Arous	800
Do.		Société des Ciment de Gabès	Gabes	733
White		Société Tuniso-Algérienne de Ciment Blanc S.A.	Feriana	200
Fertilizer:				
Ammonium nitrate		Group Chimique Tunisienne	Ghannouch, near Gabes	330
Diammonium phosphate		do.	do.	1,000
Triple superphosphate		do.	M'Dhilla	465
Do.		do.	Sfax	330
Iron and steel:				
Iron ore		Société de Djebel Djerissa	Djerissa Mine	175
Do.		do.	Tamera Mine	75
Steel, crude		Société Tunisienne de Sidérurgie	El Fouladh	70
Steel, rolled, bar and rod		Intermetal S.A.	Ben Arous	300
Lead and zinc ore		Breakwater Tunisia S.A.	Bougrine Mine	330
Do.		Compagnie Minière du Nord Ouest	Fej Lahdoum	50
Petroleum, refined	42-gallon barrels per day	Société Tunisienne des Industries du Raffinage	Bizerte	34,000
Phosphate rock				
Do.		Compagnie des Phosphates de Gafsa	Kef Eddour Mine	3,200
Do.		do.	Kef Eschfair Mine	3,000
Do.		do.	Jallabia	1,700
Do.		do.	Redeyef Mine	150
Phosphoric acid				
Do.		Group Chimique Tunisienne	Ghannouch, near Gabes	405
Do.		do.	Skhira	365
Do.		do.	M'Dhilla	183
Do.		do.	Sfax	131
Salt				
Do.		Compagnie Générale des Salines de Tunisie	Zarzis and Sahline Sousse	750
Do.		SAIDA S.A.	Sebkhet Sidi El Heni, Zeramdine	250

\*Corrected on February 24, 2009.