

# THE MINERAL INDUSTRY OF

# TUNISIA

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Petroleum production and processing, phosphate rock output with its derivative products, and base-metal mining formed the most important segments of the Tunisian mineral industry in 1996.

The laws governing hydrocarbon exploration and production were updated on June 12, 1990, by the Tunisian Parliament. This amendment, law No. 90-55, was designed to encourage foreign companies to engage in oil and gas exploration and development. The Government's hydrocarbon interests are overseen by the Enterprise Tunisienne d'Activités Pétrolières (ETAP), which maintained an interest in each licensed tract.

In the interest of accelerating privatization, foreign investors were permitted to buy up to 30% of Tunisian companies without prior authorization.

Appreciable increases in Tunisia's base-metals industry were reported in 1994 and 1995 with the commissioning of the Bougrine zinc-lead mine; however, mining operations at Bougrine were suspended in October 1996 (Metal Bulletin, 1996). The production of crude oil continued a slow decline in 1996. (See table 1.)

The European Union dominated Tunisian trade, accounting for 73% of total trade in 1996. France was Tunisia's main trading partner, accounting for about one-fourth of total trade followed by Italy accounting for nearly one-fifth of total trade. Imports totaled \$7,588 million,<sup>1</sup> of which mineral and metal imports totaled \$1,005 million. Petroleum imports alone were valued at \$485 million. Exports totaled \$5,406 million in 1996. The value of mineral and metal exports was \$1,045 million, of which phosphate rock and its derivatives were valued at \$537 million compared with \$474 million in 1995. About one-third of Tunisia's export earnings is absorbed in debt servicing.

Phosphate rock extraction was entirely controlled and operated by the Government parastatal Compagnie des Phosphates de Gafsa, the largest company in Tunisia. Le Groupe Chimique Tunisien controls phosphate processing through its Tunisian-owned Société Industrielle d'Acide Phosphorique et d'Engrais and Société Arabe des Engrais Phosphates et Azotes. Société Minière du Nord-Ouest operated a lead-zinc-barite mine at Boujabeur and a zinc mine at Hassine. The parastatal Société du Djebel Djerissa produced iron ore from the underground mine at Djerissa and the open pit operations at Tamera and Douaria. Hydrocarbon exploration and production were overseen by a series of production-sharing agreements between foreign operators and the Tunisian

Government-controlled ETAP, usually with ETAP holding a 45% to 50% equity.

The zinc-lead mine at Bougrine, approximately 170 kilometers (km) southwest of Tunis, commenced production in 1994 employing about 300 workers and operated by Société Minière de Bougrine, a subsidiary of Canada's Metall Mining Corp. The operation was an underground mine utilizing drift and fill and sublevel mining. Bougrine was the only private-sector mining project in Tunisia. Bougrine Mine concentrates were shipped to Germany for processing. Mining operations at Bougrine were suspended by investors in mid-October as zinc production costs were more than \$0.50 per pound, while sales prices were \$0.45 per pound.

Tunisian phosphate rock mining was primarily in the Gafsa region from a variety of open pit and underground sources. The increased cost of imported raw materials such as sulfur has appreciably reduced the profitability of phosphate derivatives. Sulfur imports totaled nearly 1.4 million metric tons (Mt) valued at \$89 million compared with 1.3 Mt valued at \$73 million in 1995.

Operated by the United Kingdom's British Gas Tunisia, the Miskar natural gas field came on-stream in May 1995. However, production at the Hannibal gas processing plant was shut down for the first 6 months of 1996 because of technical problems. By July, it was once again operative and by September it attained deliveries at its target rate of 4.5 million cubic meters per day (Mm<sup>3</sup>/d) to the local power company (Middle East Economic Digest, 1996). The Trans-Mediterranean Pipeline (TransMed) delivering Algerian natural gas to Italy since 1983 supplied Tunisia between 600 and 800 Mm<sup>3</sup>/d of natural gas annually as a transit fee. The transit fees are expected to increase as further usage is made of the newly expanded TransMed.

Increased domestic consumption and declining output from larger oilfields continued to stress the hydrocarbon sector. The El-Borma Field operated by Italy's Azienda Generali Italiana Petroli (Agip) remained Tunisia's largest crude oil producer, output averaged more than 30,000 barrels per day (bbl/d). The offshore Ashtart Field operated by France's Société Nationale des Pétroles d'Aquitaine accounted for nearly 20,000 bbl/d as the result of a \$210 million secondary development program.

An exploration agreement was signed in April 1996 between the Government and Agip of Italy for a 1,500-square-kilometer area in the Jenein block. The U.S. United Texas Petroleum is continuing its exploration program in the offshore Ramla block with a second well drilled in the last quarter of 1996. In order to concentrate on natural gas production, British Gas is offering

<sup>1</sup>Where necessary, values have been converted from Tunisian dinars (TD) to U.S. dollars at a rate of D0.98=US\$1.00.

for sale its 49% stake in the local Tunisian British Service which operates six producing oil fields.

Petroleum refining is confined to a single 35,000-bbl/d-capacity refinery at Bizerte, operated by the Société Tunisienne des Industries de Raffinage. The refinery output accounts for approximately one-half of the nation's petroleum product requirements.

Tunisian phosphate rock reserves are 3.5 billion metric tons to 4 billion metric tons, or about 5% of global reserves. Tunisian crude petroleum reserves are 410 million barrels. Reserves of natural gas are 30 billion cubic meters. The Inmet Mining Corporation, reported minable reserves at Bougrine at 5.3 Mt grading 11.7% zinc and 2.6% lead (Inmet Mining Corporation, 1996).

A total of 2,260 km of railway was the primary mode of transportation of phosphate rock to chemical plants and seaports. Highways within Tunisia total 17,500 km. Crude oil pipelines are 797 km long, and natural gas pipelines total 742 km. Tunisia has an electrical generation capacity of about 1.5 megawatts. Combined cycle power stations, which generate electricity from natural gas, remained a construction priority.

The mineral industry is an integral part of the country's economic future. Investments in heavy industry and a new export-directed economic policy combined with Tunisia's advantageous low labor costs and proximity to European and Middle Eastern market should enable Tunisia to evolve as a regional manufacturing center. Economic and technical cooperation with the members of the European community should substantially increase as Tunisia concluded an Association Agreement with the European Union in July 1995. The agreement provided for the creation of a free trade area for a 12-year period.

## References Cited

Metal Bulletin, 1996, Mining problems continue as Navan delays Spain's

Mazarron zinc-lead-silver project: Metal Bulletin, no. 8136, December 9, p. 9.  
Middle East Economic Digest, 1996, Oil and gas: Middle East Economic Digest, v. 40, no. 29, p. 15.  
Inmet Mining Corporation, 1996, Annual report, 1996: Inmet Mining Corporation, p. 16.

## Major Sources of Information

National Office of Mines  
Department de Geologie  
95 Avenue Mohamed V  
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Compagnie des Phosphate de Gafsa  
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## Major Publication

Ministere du Developpement Economique  
Institut National de la Statistique  
Bulletin mensuel de Statistique  
Monthly 1995-96  
Tunis, Tunisia

TABLE 1  
TUNISIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1992	1993	1994	1995	1996	
<b>METALS</b>						
<b>Iron and steel:</b>						
Iron ore and concentrate, gross weight	thousand tons	291	299	288	224	238
Fe content	do.	151	153	129	122	129
<b>Metal:</b>						
Pig iron	do.	158	165	154	162	151
Steel, crude	do.	181	183	184	201	187
Lead: Mine output, Pb content		1,362	863	2,856 r/	6,601 r/	4,764
Silver metal, primary e/	kilograms	900	900	900	1,000	900
Zinc, ore		4,090	2,389	23,379	80,446	58,044
Zn content		2,310	1,350	13,000	44,244	31,920
<b>INDUSTRIAL MINERALS</b>						
Barite		30,179	15,289	15,732 r/	10,825 r/	15,360
Cement, hydraulic	thousand tons	3,999	4,269	4,606	4,998	4,566
Clays, construction e/	do.	350	350	350	350	350
<b>Fertilizers:</b>						
Triple-superphosphate	do.	783	651	830	818	844
Phosphoric acid	do.	864	858	986	1,018	1,093
Diammonium-phosphate	do.	680	749	741	830	928
Ammonitrate	do.	219	182	112	193	186
Fluorspar, acid grade 3/		13,750	1,399	676	1,856	1,856
Gypsum e/		100,000	100,000	100,000	100,000	100,000
Lime e/	thousand tons	600	600	600	600	600
<b>Phosphate rock:</b>						
Gross weight	do.	6,455	5,476	5,565	7,241	7,167
P <sub>2</sub> O <sub>5</sub> content e/	do.	1,890	1,630	1,712	2,181 r/	2,150
Salt, marine	do.	460	435	414	481	477
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
<b>Gas, natural:</b>						
Gross e/	million cubic meters	250	250	354	335	1,027
Dry	do.	200	200	250	250	800 e/
<b>Petroleum:</b>						
Crude	thousand 42-gallon barrels	40,259	35,770	33,660	32,690	32,229
Liquefied petroleum gas	do.	1,648	1,460	1,545	1,465	1,573
Gasoline	do.	2,440	2,448	2,917	2,846	3,040
Kerosene	do.	1,183	1,141	1,057	1,035	1,012
Distillate fuel oil	do.	3,723	3,678	4,003	4,297	4,261
Residual fuel oil	do.	2,896	3,004	3,876	4,300	4,292
Other e/	do.	400	400	448	568	551
Total	do.	12,290	12,131	13,846	14,511	14,729

e/ Estimated. r/ Revised.

1/ Data available as of July 1, 1997.

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

3/ Zriba and Djedidi mines closed since 1992, all production from Boujabeur.