

THE MINERAL INDUSTRY OF

TUNISIA

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Production and processing of crude oil, and mining of phosphate rock and manufacturing of its derivative products were the most important segments of the Tunisian minerals industry in 1997. The mining and processing of metal ores were considerably reduced since the closure of the Bougrine lead-zinc mine in 1996 but should improve with the reopening of the mine in 1998. All segments of the minerals industry combined contribute about 3% to the nation's gross domestic product.

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 law was under revision in 1997 with the objective of harmonizing the existing laws into a single code and to improve the terms for foreign operators. The Government's hydrocarbon interests were 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 any offered Tunisian company 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; mining operations at Bougrine, however, were suspended in October 1996. Breakwater Resources of the United States acquired the assets of Bougrine for \$19.3 million and planned to spend \$7 million to upgrade the mine. The company anticipated production of 48,500 metric tons (t) of zinc concentrates and 5,800 t of lead concentrates in 1998 before reaching maximum production of 83,000 metric tons per year (t/yr) of zinc concentrates and 10,000 t/yr of lead concentrates in 1999 (Metal Bulletin, 1997).

The production of natural gas increased appreciably with the development of the Miskar Field, Tunisia's only domestic source of nonassociated natural gas. The production of crude oil continued a slow decline as the nation's largest field, El Borma, nears depletion. (See table 1.)

The European Union (EU) dominated Tunisian trade, accounting for 78% of total exports and 73% of total imports in 1997. France was Tunisia's main trading partner, accounting for one-fourth of Tunisia's total trade followed by Italy, accounting for one-fifth (Institut National de la Statistique, 1997). Imports in 1997 totaled \$9,517 million,¹ of which mineral imports accounted for \$1,236 million. Petroleum imports alone were valued at \$639 million. Exports in 1997 totaled \$6,640 million. The value of mineral exports was \$1,353 million, of which

phosphate rock and its derivatives were valued at \$629 million. About one-third of Tunisia's export earnings was 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 controlled 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 from 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.

Tunisian phosphate rock mining was primarily in the Gafsa region from nine open-pit and underground sources. Phosphate rock exports were 1.25 million metric tons (Mt) in 1997 compared with 1.21 Mt in 1996. A significant increase was reported in phosphoric acid exports, which totaled 1.34 Mt compared with 1.20 Mt in 1996. Diammonium phosphate and triple superphosphate exports were reduced from the previous year's levels by 10% and 5%, respectively. The phosphate derivatives industry was dependent upon imports for part of its feedstock. In 1977, sulfur imports totaled nearly 1.7 Mt, and ammonia imports were 270,100 t.

The Tunisian Government plans to develop a dump for phosphate wastes at Sebkat al-Malah, about 30 kilometers (km) northwest of Gabes. This action is taken in response to the 10,000 to 20,000 metric tons per day of waste that was being dumped in the Gulf of Gabes polluting the central and southern coastal areas. The cost of the facility will be \$100 million and was expected to be operational by 1999.

Natural gas supplies were derived from domestic output, Algerian pipeline transit fees payment in kind, and supplemental purchases from Algeria. Until the development of the Miskar Field in 1996, associated natural gas from the El-Borma Field was Tunisia's sole domestic natural gas source in this decade. Two natural-gas-processing plants were in operation. The Hannibal plant produced condensate for export and dry gas for power generation and other industrial uses. The Gabes plant processed El-Borma associated gas for production of butane and propane (Arab Petroleum Research Center, 1997).

The Trans-Mediterranean Pipeline (TransMed), which transited Tunisia to deliver Algerian natural gas to Italy, has supplied Tunisia with between 600 and 900 million cubic meters per year

¹Where necessary, values have been converted from Tunisian dinars (TD) to U.S. dollars at a rate of TD0.92=US\$1.00.

(Mm³/yr) of natural gas since 1983 as a transit fee. The transit fees are expected to increase as further usage is made of the newly expanded TransMed. In March 1997, ETAP signed an agreement with Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialization des Hydrocarbures (SONATRACH) of Algeria covering the delivery of 400 Mm³/yr of natural gas for the next 23 years, in addition to the amount supplied in payment of transit fees.

Increased domestic consumption and declining output from larger oilfields continued to stress the petroleum sector. Crude oil production totaling more than 74,000 barrels per day (bbl/d) was derived from 23 fields, the largest of which is the El-Borma Field operated by Italy's Azienda Generali Italiana Petroli, output averaged nearly 30,000 bbl/d of 41° API gravity crude oil. The offshore Ashtart Field accounted for nearly 22,000 bbl/d of 30° API gravity oil as the result of a \$210 million secondary development program. Formerly owned by France's Société Nationale des Pétroles in partnership with ETAP, the 50% interest in the Ashtart Field was sold to Atlantic Richfield (ARCO) of the United States in mid-1997. ARCO also owned 100% interest in the South Kerkennah exploration block located immediately to the west of the Ashtart license.

Union Texas Petroleum of the United States acquired its third Tunisian interest in late 1997 with the purchase of a 25% working interest in the Burj El Khadra block from Phillips Petroleum Company, Tunisia. The concession comprised a total of 5,816 square kilometers for which 1,500 km of two-dimensional seismic data have been acquired. An exploration well will be drilled in 1999. In the event of a commercial discovery, ETAP has the right to participate for up to 50% of the working interest in the field. The Burj El Khadra block is adjacent to the Burj Messouda block in the Ghadames Basin across the border in Algeria where a number of significant discoveries have been made (Union Texas Petroleum, 1997, Union Texas Petroleum joins exploration venture in Ghadames Basin in Tunisia, press release, accessed October 3, 1997, at URL <http://biz.Yahoo.com/prnews>).

Petroleum refining was confined to a single 35,000-bbl/d capacity refinery at Bizerte, operated by the Société Tunisienne des Industries de Raffinage. The refinery output accounted for more than one-half of the nation's petroleum product requirements. In March 1997, the Tunisian Government firmed plans to build a 120,000-bbl/d refinery at La Skhirra, 280 km south of Tunis. The second refinery would raise the nation's refined product capacity to 154,000 bbl/d, or about twice the nation's petroleum product requirements.

Tunisian phosphate rock reserves are 3.5 billion to 4 billion metric tons, or about 5% of global reserves. Tunisian crude petroleum reserves are 410 million barrels. Reserves of natural gas were 80 billion cubic meters (Arab Petroleum Research Center, 1997). The minable reserves at Bougrine were 5.3 Mt grading 11.7% zinc and 2.6% lead.

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 totaled 17,500 km. Crude oil pipelines

were 797 km long, and natural gas pipelines totaled 742 km. Tunisia had an installed electrical generation capacity of 1,500 megawatts. Combined cycle power stations, which generate electricity from natural gas, remained a construction priority.

The mineral industry was 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 markets 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 EU in July 1995. The agreement provided for the creation of a free trade area for a 12-year period.

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Major Sources of Information

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Major Publication

- Ministère du Développement Economique
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TABLE 1
TUNISIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1993	1994	1995	1996	1997	
METALS						
Iron and steel:						
Iron ore and concentrate, gross weight	thousand tons	299	288	224	238	252
Fe content	do.	153	129	122	129	137
Metal:						
Pig iron	do.	165	154	162	151	152
Steel, crude	do.	183	184	201	187	195
Lead, mine output, Pb content		863	2,856	6,601	4,764	1,424
Silver metal, primary e/	kilograms	900	2,500 r/	4,000 r/	3,000 r/	1,000
Zinc ore, gross weight		2,389	23,379	80,446	58,044	5,389
Zn content		1,350	14,548 r/	44,244	31,920	2,967
INDUSTRIAL MINERALS						
Barite		15,289	15,732	10,825	15,360	12,841
Cement, hydraulic	thousand tons	4,269	4,606	4,998	4,566	4,431
Clays, construction e/	do.	350	350	350	350	350
Fertilizers:						
Triple-superphosphate	do.	651	830	818	791 r/	748
Phosphoric acid	do.	858	986	1,018	1,093	984
Diammonium-phosphate	do.	749	741	830	928	745
Ammonium nitrate	do.	182	112	193	186	349
Fluorspar, acid grade		1,399	676	1,856	720 r/	1,426
Gypsum e/		100,000	100,000	100,000	100,000	100,000
Lime e/	thousand tons	600	600	600	600	600
Phosphate rock:						
Gross weight	do.	5,476	5,565	7,241	7,167	6,941
P ₂ O ₅ content e/	do.	1,630	1,712	2,181	2,150	2,140
Salt, marine	do.	435	414	481	477	393
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross e/	million cubic meters	250	354	335	1,027	1,866
Dry	do.	200	250	250	800 e/	1,500
Petroleum:						
Crude	thousand 42-gallon barrels	35,770	33,660	32,690	32,229	26,841
Refinery products:						
Liquefied petroleum gas	do.	1,460	1,545	1,465	1,573	1,353
Gasoline	do.	2,448	2,917	2,846	3,040	3,179
Kerosene	do.	1,141	1,057	1,035	1,012	827
Distillate fuel oil	do.	3,678	4,003	4,297	4,261	4,842
Residual fuel oil	do.	3,004	3,876	4,300	4,292	3,956
Other e/	do.	400	448	568	551	1,995
Total	do.	12,131	13,846	14,511	14,729	16,152

e/ Estimated. r/ Revised.

1/ Data available as of May 1, 1998.

2/ 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 reliable estimates of output levels.