

## THE MINERAL INDUSTRY OF

# EGYPT

By Bernadette Michalski

The Egyptian economy has been, for the most part, traditionally sustained by mineral and mineral-related industries, particularly by revenues from petroleum and natural gas, the Suez Canal, and the Suez-Mediterranean (Sumed) oil pipeline. In recent years, the hydrocarbons sector accounted for more than 15% of the gross domestic product (GDP); other extractive mineral industries accounted for more than 1% of the GDP, which was \$65.48 billion in the fiscal year ending June 30, 1997. The production of crude oil has experienced little change in recent years. Natural gas production has, however, increased steadily with the discovery of new fields and improved technology. In addition to hydrocarbons, Egypt produced a wide variety of metals and industrial minerals. Output of these nonfuel minerals, however, remained relatively low when compared with global levels.

The Mining and Petroleum Code Law No. 66 of 1953 and the Mining Code Laws No. 86 and No. 151 of 1956 are the bases of minerals legislation in Egypt. These laws provide the legal basis for mineral exploration and exploitation. Laws No. 43 of 1979 and No. 50 of 1981 provide the governorates and local councils with the power to administer quarries in their particular districts. Ministerial Decree No. 8 of 1990 was designed to assist the private sector in obtaining the required permits for mining.

The Egyptian General Petroleum Corp. (EGPC) was created under law No. 20 of 1976. Petroleum policy requires exploration permits to be awarded as production-sharing agreements and the conversion of all joint ventures into such agreements.

Law No. 4 of 1994, the unified environmental legislation, empowers the Egyptian Environmental Affairs Agency to enforce environmental regulations and standards at all levels of Egyptian industry. The law also provides that any new mining or quarrying projects will require an environmental impact assessment.

Air pollution concern has prompted the Government to encourage the use of natural-gas-powered motor vehicles. In 1997, Amoco of the United States and the Egypt Gas Company created the semiprivate Natural Gas Vehicle Co., which is converting taxis and other vehicles to natural gas use.

A new crude oil pricing system went in effect as of January 1, 1996. The Government's monthly pricing formula for each of its crude is now expressed as a differential relative to the North Sea Brent crude oil. Oil revenues were \$1.397 billion (fiscal year 1996-97), \$1.379 billion (fiscal year 1995-96), and \$1.323 billion (fiscal year 1994-95).

Egypt's state-run Holding Co. for Metallurgical Industries offered 20% equity in its subsidiary Aluminium Co. of Egypt (Egyptalum) to employees (10%) and private and institutional investors (10%) at the close of 1997. The Government's privatization plans include offering an additional 25% equity in Egyptalum and a 20% equity, valued at \$124 million, in the

Egyptian Iron and Steel Company Hadisob.

In 1997, Egypt produced a variety of minerals from more than 600 mines and quarries. Among nonfuel minerals produced in Egypt, phosphate rock and iron ore remained the most important in terms of value. Most other mining activity was on a rather limited scale. (*See table 1.*)

Crude petroleum and refined products (mostly fuel oil and naphtha) were Egypt's leading exports in 1997. Asia continued to be the major market for Egyptian crude oil. Israel was also a significant importer, with deliveries of about 11 million barrels (Mbbbl). The United States imported 13 Mbbbl of crude oil and nearly 600,000 barrels of petroleum products from Egypt (U.S. Department of Energy, Energy Information Administration, 1998a).

Total Egyptian exports were valued at \$4.93 billion in fiscal year 1996-97. (*See table 3.*) Oil exports rose to \$1.96 billion in fiscal year 1996-97 from \$1.58 billion in fiscal year 1995-96. Nonoil exports, however, dropped to \$1.45 billion from \$1.7 billion during the same time frame. The trade deficit widened from \$7.1 billion to \$9.78 billion (Arab Petroleum Research Center, 1998, p.78).

Petroleum products, totaling \$1.36 billion, also were Egypt's principal mineral import. The United States delivered 12 Mbbbl of petroleum products in 1997. Other mineral imports included asbestos, barite, chromite, copper, graphite, iron and steel products, lead, nickel, pumice, silver, sulfur, tin, titanium, tungsten, and zinc. (*See table 4.*) The total value of all imports was \$14.7 billion in fiscal year 1996-97 (Middle East Economic Digest, 1998).

Most mining and mineral processing in Egypt is carried out by Government-owned mining companies. (*See table 2.*) Privatization has not progressed as rapidly as was originally planned.

Egyptalum completed installation of the 50,000 metric-ton-per year-(t/yr)-capacity potline at the Nag Hammadi primary aluminum smelter, thus raising total smelter capacity to 230,000 t/yr. The five older existing potlines are to be upgraded by adding an additional 60,000-70,000-t/yr capacity by 2002. Equity in Egyptalum was scheduled for public offering in 1996; the partial privatization was delayed because the process of valuation of the company had only been completed at yearend 1996 (Metal Bulletin, 1997b).

Egyptian iron ore was mined in El Gedida area of El Bahariya Oasis in the Western Desert. The nearly 3 million metric tons per year (Mt/yr) produced from this deposit was destined for Hadisob's Helwan Iron and Steel Works near Cairo; this satisfied about three-quarters of Egypt's demand. About 1 Mt/yr was imported mostly from Russia. The Egyptian Geological Survey

& Mining Authority (EGSMA) identified oolitic hematite iron ore deposits in the Eastern Desert about 85 kilometers (km) southeast of Aswan. At yearend, 15 iron ore discovery sites east and southeast of Aswan were opened for development bids. Average iron content at these sites ranged from 65% to 81%, according to EGSMA.

Alexandria National Iron and Steel Co. has completed an expansion and modernization program that will raise output capacity to 1.6 Mt/yr. The expansion program included a \$177 million, 800,000-metric-ton-capacity second module for the Midrex direct reduction plant, a \$46 million expansion of the steelmaking plant, and a \$40 million expansion at the rod-mill plant (Metal Bulletin, 1997a). In late 1997, the company announced plans to build a flat products plant, including a thin-slab casting unit and a hot-rolling coil unit with an annual capacity of 1 million metric tons of sheet steel. The cost of the project was \$625 million. Partial financing was to be raised by an offer of company shares valued at \$221 million. (Egypt's ANSDK steel co to raise capital, accessed October 16, 1997, at <http://biz.yahoo.com/finance/97/10/16/y0023-z00-19.html>). Hadisolib is expected to be the first of Egypt's steel mills to transfer to partial private ownership. A minority stake in the company is expected to be offered on the Cairo stock exchange in 1998. The public offering receipts are to be applied to the revamping of the #3 blast furnace at the Helwan plant.

The EGSMA invited gold concession bids in the Al-Oweinat area in Southwestern Egypt and the Allaqi area in the Eastern Desert. The Sukkari gold deposit was under development by Centamin NL of Australia. The company anticipates production by the close of 1998 (Africa Energy and Mining, 1998).

The nation's eight cement companies have a combined installed production capacity of about 20 Mt/yr. A new cement company was formed in 1997 SQena Cement with capitalization of \$88.5 million. The private venture company was accepting bids for the construction of a 1.4-Mt/yr-capacity cement plant.

Egypt has four nitrogenous fertilizer complexes, the largest of which is in Abu Qir; the others are in Kima, Suez, and Talkha. The nation's three other fertilizer complexes produce phosphate-base fertilizers. Egypt currently imports about 70,000 t/yr of potassium fertilizers with demand projected to rise to 200,000 t/yr by the turn of the century. BHP Minerals International Exploration Inc. continued exploration for potash deposits in a 14,800-square-kilometer (km<sup>2</sup>) area near Ras Gharib on the Gulf of Suez, and the Botas Co. continued exploration over a 14,000-km<sup>2</sup> area in the region of the Gulf of Suez and the Red Sea.

The Government opened the Abu Tartor phosphate mine, about 50 km west of the Kharga Oasis in the Western Desert. When at full production, the annual crude phosphate rock output should reach 4.5 million metric ton (Mt) at 31% P<sub>2</sub>O<sub>5</sub>, yielding 2.2 Mt of concentrate. The 680-km railway to transport the phosphate from Abu Tartor to Safaga on the Red Sea coast was completed in 1996.

Ilmenite is produced from the Abu Ghalaga Mine in the Red Sea region by El Nasr Phosphate Co. Most of the ilmenite is exported; Europe is the principal destination.

The nation's first coal mine opened in December 1995 in the northern Sinai. Mine production was originally intended for the domestic power industry. The availability of an ample supply of

natural gas, however, altered plans, and the coal is now produced for the export market.

Natural gas accounted for 35% of total energy consumption in Egypt in 1997. The Government planned to further utilize natural gas resources through improvements in production, transportation, and infrastructure. Natural gas output is expected to double by 2001.

More than one-half of the nation's total natural gas production is derived from two fields)) the Abu Madi and the Badreddin-3 Fields. International Egyptian Oil Co. (IEOC) was the country's leading natural gas producer at 14.87 million cubic meters per day (Mm<sup>3</sup>/d) followed by Amoco Egypt Oil Co. (AEOC), a subsidiary of Amoco Producing Co., at 2.55 Mm<sup>3</sup>/d. Twelve natural gas plants, with a total capacity of nearly 48 Mm<sup>3</sup>/d, operate in three different regions of the country)) the Mediterranean region (with more than 50% of the total output), the northern edge of the Western Desert (with more than 30% of the output), and the Nile Delta. Some associated natural gas fields also were in production in the Gulf of Suez and the Sinai peninsula. AEOC and EGPC are considering using recent gas finds on the Nile Delta by developing a \$1.2 billion liquefied natural gas (LNG) export project. Under study is a single train plant with capacity to produce 4 billion m<sup>3</sup>/yr of LNG. A site west of Port Said has been selected to build the LNG plant and export facilities. The gas is to be eventually delivered to Botas to supply planned gas-fired power stations in the Izmir region of Turkey. Gas sales negotiations are under way among AEOC, EGPC, and Botas. SNAM of Ente Nazionale Idrocarburi Spa (ENI) has taken a 45% interest in the \$1.2 billion Egyptian LNG project. AEOC also has 45% and EGPC has 10%. (Italy's SNAM takes 45% stake in Egypt gas project url; [http://biz Yahoo, com/finance/971211/italy-s-takes-4-1.html](http://biz.yahoo.com/finance/971211/italy-s-takes-4-1.html)) accessed December 11, 1997.

EGPC has awarded 11 exploration blocks in 1997. The companies involved have proposed to drill 62 wells in total with investment of \$208 million. Nine additional blocks are to be offered in the 1998 round.

A total of 15 oil and 20 natural gas discoveries were made in 1997, most of which were made in the Western Desert and in the Nile Delta as a result of advanced seismic acquisition and interpretation techniques. In February 1997, AEOC and IEOC announced discoveries in 2 Nile Delta Blocks. During the year discoveries were announced by Apache Corp., British Gas plc, Khalda Petroleum Corp., Naftex Energy Corp., Petrobel, Repsol Exploration S.A., and Seagull Energy Corp.

Crude oil output has held fairly steady at about 900,000 barrels per day (bbl/d) for the past decade. (U.S. Department of Energy, Energy Information Administration, 1998b). About four-fifths of the country's total output is derived from within the 20,000-km<sup>2</sup> Gulf of Suez basin. AEOC, through the Gulf of Suez Petroleum Co., its joint venture with EGPC, remained the largest oil producer in the country, producing about 360,000 bbl/d. The second largest producer is IEOC, producing about 290,000 bbl/d. Declining yields in more-mature fields have been offset by improved recovery rates in other fields after artificial lift systems were installed.

Egypt's seven refineries have a combined capacity of 604,000 bbl/d and process just over 500,000 bbl/d. The existing refineries

produce a disproportionately high volume of fuel oil, which accounts for almost 50% of total refinery output. New refining projects are directed toward increasing production of lighter products and decreasing the need for imports. Among these is the Middle East Oil Refinery, a joint venture with Israel. The export refinery, under construction in Alexandria, is scheduled for completion in 1999 and it will be the first refinery in the Middle East to comply with the European Union environmental standards. It is to process about 10 Mbbl/yr of Ras Gharib crude oil (24°API Gravity) and about 25 Mbbl/yr of imported crude oil. The refinery will include a 34,000-bbl/d hydrocracker geared to produce light products and a 33,000 bbl/d naphtha processing unit.

Egypt's first petrochemical complex, to be constructed in Alexandria, is being developed by Sidi Krier Petrochemicals in partnership with banks and insurance companies. The complex will include a 300,000-t/yr-capacity naphtha cracker.

Egypt's crude petroleum reserves were reported to be 3.7 billion barrels. Egypt's natural gas reserves are 918 billion m<sup>3</sup> and include recent new discoveries in the Nile Delta and the eastern Mediterranean Sea. Natural gas reserves have more than doubled since 1993. (Arab Petroleum Research Center, 1998b).

Phosphate rock reserves are 1,270 million tons (Mt), iron ore reserves are 450 Mt, and manganese ore reserves about 1.5 Mt.

Railways within Egypt totaled 5,110 km. There were more than 51,925 km of roadways and 1,171 km of crude oil pipelines.

Commerce transiting the 193.5-km-long Suez Canal is critical to the Egyptian economy. Traffic in the Suez Canal declined to 14,430 vessels from 14,731 in 1996 and 15,041 in 1995. Receipts were \$1.80 billion in 1997 and \$1.88 billion in 1996—a drop from \$1.98 billion during the peak year, 1993. The Suez canal is once again under expansion with plans to increase the maximum draft from 19 meters to 24 meters by 1999. (Arab Petroleum Research Center, 1998c). The canal is presently inaccessible to tankers of very large crude carrier (VLCC) class and ultra large crude carrier (ULCC) class except for transiting in ballast. The 320-km-long Sumed pipeline complements the Suez Canal by linking Ain al-Sokhna on the Gulf of Suez to Sidi Krir on the Mediterranean coast. The pipeline's capacity was increased to 2.4 million barrels per day (Mbbl/d) in late 1995, following a long series of improvements since the Sumed opened in 1977 with a 1.5 Mbbl/d capacity. The pipeline is operated by the Arab Petroleum Pipeline Co.

Installed electrical generation capacity was 14,000 megawatts divided among 37 thermal power stations and 4 hydroelectric plants. About 80% of the electrical output was generated by natural gas with the remainder generated by hydroelectric means. Egypt has embarked on a program that interconnects its power grid with neighboring countries. Already interconnected with the Libyan power grid, future connections with Jordan, Syria, and Turkey were planned.

The allowance of 100% cost recovery on mineral-resource concession agreements should favor future foreign investment.

The country is suffering from high levels of unemployment, and foreign investment and private sector development will be required if further progress is to be made. Following the

structural reforms put forth by the International Monetary Fund, the Egyptian economy has become more market oriented and less centralized. The program for 1997 and 1998 includes measures to stimulate the development of the private sector, tariff reductions, and ending import restrictions. The World Bank announced in May 1997 that it would advance Egypt \$2.5 billion in grants and loans during the 1997-1998 fiscal year which would include aid of \$1.5 billion. While natural gas will be Egypt's main energy and revenue source in the future, development is time and capital intensive. Petroleum output continues to bring in hard currency and new exploration and production techniques continue to augment reserves which have doubled in the past decade. Egypt plans to press ahead with rapid expansion of the gas industry. Oil companies are courting new exploration concessions and the majority of wells drilled to date have yielded oil or gas.

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## Major Sources of Information

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Table 1  
EGYPT: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997e/
<b>METALS</b>					
Aluminum metal	178,477	188,464	180,300	179,200 r/	178,200
Copper, refined, secondary	4,600	4,300	4,400	4,600	4,600
Iron and steel:					
Iron ore and concentrate	2,190	3,870	2,043	2,429	2,700 2/
Metal:					
Pig iron	1,325	1,148	1,062	1,100	1,000
Ferroalloys:					
Ferrosilicon	40,100	44,000 r/	44,000 e/	44,000 e/	44,000
Ferromanganese e/	30,000	35,000	35,000	35,000	35,000
Direct reduced iron	837	774	850	830	1,190 2/
Steel, crude	2,772	2,622	2,642	2,618	2,717
Manganese	15,000	15,000 e/	1,207 r/	15,000 e/	10,000 2/
Titanium, ilmenite	--	--	57,000	124,000 r/	125,000
<b>INDUSTRIAL MINERALS</b>					
Asbestos	604	514	427	1,836 r/	2,000
Barite	2,535	419	500	---	---
Cement, hydraulic	16,000	17,000	17,665 r/	18,000 e/	18,000
Clays:					
Bentonite	4,994	2,379	1,930 r/	1,136	1,200
Fire clay e/	421,000 2/	420,000	420,000	420,000	420,000
Kaolin	184,004	180,000	293,381	258,725 r/	260,000
Feldspar, crude	53,649	39,745	75,049 r/	53,783 r/	50,000
Fluorspar	773	514	551 r/	700 r/	700
Gypsum and anhydrite, crude	1,199	1,481	2,032 r/	2,000 r/	2,000
Lime e/	748,000	750,000	750,000	750,000	800,000
Nitrogen:					
Ammonia, N content	941	1,021 r/	1,096 r/	1,126 r/	1,061 2/
Urea, N content	383	420	480	489	445 2/
Phosphate:					
Phosphate rock	537 r/	632 r/	765 r/	808 r/	900
P <sub>2</sub> O <sub>5</sub> content	153 r/	178 r/	207 r/	222 r/	240 2/
Salt	986	1,008	1,990	1,530 r/	1,500
Sodium compounds:					
Soda ash	51,000	50,000	50,000 e/	50,000 e/	50,000
Sodium sulfate e/	25,600 2/	26,000	26,000	26,000	26,000
Stone, sand and gravel: e/					
Basalt	551 2/	600	600	600	600
Dolomite	952	1,000	1,000	1,000	1,000
Granite, dimension	12,900 2/	13,000	13,000	13,000	13,000
Gravel	7,180 2/	7,200	7,200	7,200	7,200
Limestone and other calcareous n.e.s.	18,100 2/	18,000	18,000	18,300 r/	22,000 2/
Marble blocks (including alabaster)	15,800 2/	16,000	45,000	45,000	45,000
Sand:					
Industrial sand (glass sand)	743	740	740	850 r/	1,000
Construction sand	21,700 2/	22,000	22,000	22,000	23,000
Sandstone	180	200	200	200	200
Sulfur: e/					
Elemental, byproduct	4,100	8,000	10,000	8,000 r/	4,453 2/
Sulfuric acid	100,000	100,000	591,000	680,000	500,000
Talc, steatite, soapstone, pyrophyllite	5,297	4,125	38,608 r/	41,227	40,000
Vermiculite	942	1,659	483	447 r/	500
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal e/	--	--	10	200	300
Coke e/	1,180 2/	1,200	1,200	1,200	1,200
Gas, natural:					
Gross production	11,100	11,900	15,942 r/	16,800 e/	17,000
Dry	8,800	9,000	12,536 r/	13,183 r/	13,349 2/

See footnotes at end of table.

Table 1--Continued  
 EGYPT: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997e/	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand barrels	324,850	327,040	335,800	336,500	319,000 2/
Refinery products:						
Liquefied petroleum gas	do.	4,460	4,755	5,325	5,080 r/	6,333 2/
Gasoline and naphtha	do.	33,800	36,900	38,450	40,185 r/	44,065 2/
Kerosene and jet fuel	do.	18,750	17,155	15,770	17,255 r/	16,606 2/
Distillate fuel oil	do.	36,050	39,200	43,550	42,298 r/	43,790 2/
Residual fuel oil	do.	77,700	90,080	80,350	85,787 r/	86,100 2/
Lubricants	do.	1,400	1,580	1,645	1,645 r/	1,729 2/
Asphalt	do.	3,700	4,130	4,485	4,181 r/	4,641 2/
Unspecified	do.	2,430	2,250	2,550	2,600 e/	2,400 e/
Total	do.	178,290	196,050	192,125	199,031 r/	205,664

e/ Estimated. r/ Revised.

1/ Table includes data available through September 1, 1998.

2/ Reported figure.

TABLE 2  
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum		Aluminium Co. of Egypt (Government, 80%; ( private interests, 20%.)	Nag Hammadi	230.
Carbon black		Alexandria Carbon Black Co. (Egyptian Holding Co. for the Chemical Industry, 49%; Inco-Bharat, 36% Grasim Industries 15%.)	Alexandria	20.
Cement		Al Ameriyah Cement Co. (Government, 100%)	Ameriya	2, 100.
Do.		Asiut Cement Co.	Assiut	2,600.
Do.		Helwan Portland Cement Co. (Government, 73%; private interests, 27%.)	Helwan	2,800.
Do.		Egyptian Cement Co. (Orascom Group, 40%; private interests, 40%; Holderbank Financiere Glaris Ltd., Ltd., 20%)	70 kilometers east of Cairo	1,400. (completion 1998).
Do.		Suez Cement Co. (Government, 60%; private interests, 40%)	Ain Sukhna	1,700.
Do.		Alexandria Portland Cement Co. (Government 77%; private interests, 23%).	Qattamia	1,200.
Do.		National Cement Co. (Government, 77%; private interests, 23%).	Waddi Hagoul	1,200.
Do.			El Mex	800.
Fertilizers, nitrogenous		Société El-Nasr d Engrais et d'Industries Chimiques (Government, 100%)	El Tabbin	4,000.
Do.		do.	Beni Suef	1,000.
Do.		do.	Abu Qir	660. (ammonia). 760. (ammonia nitrate).
Do.		do.	Suez	146. (ammonia). 450. (nitric acid). 365. (ammonium nitrate).
Do.		do.	Talkha	330. (ammonium nitrate). 570. (ammonia & urea).
Do.		Egyptian Chemical Industries (Government, 100%)	Kimi	330. (ammonia). 600. (nitric acid). 800. (ammonium nitrate).
Ilmenite		El Nasr Phosphate Co. (Government, 100%)	Abu Ghalaga	125.
Iron and steel		Egyptian Iron and Steel Co. (Government, 100%)	Helwan steel plant	1,500.
Do.		Alexandria National Iron and Steel Co. (Government, 64.52%, private, 35.48%)	El Dikheila plant	1,600.
Natural gas	million cubic meters	Egyptian General Petroleum Corp. (EGPC) (Government, 100%)	Badreddin-1, 2 , & 3	7,000.
Do.	do.	Grupo Khalda (Repsol Exploration S.A., 50%, Apache Oil Co., 40%; Samsung, 10%).	Abu Madi	5,000.
Do.	do.	Gulf of Suez Oil Co. (EGPC, 50%; Amoco, 50%)	Abu Qir/Naf	3,900.
Do.	do.	Belayim Petroleum Co. (EGPC, 50%; IEOC, 50%)	Ras Shukheir	3,700.
Do.	do.	Suez Oil Company (EGPC, 50%; Deminex, 25%; Repsol Exploration S.A., 25%)	Khalda	95.
Do.	do.	Qarun Petroleum Co. (EGPC.50%; Apache Corp., 37.5%, Seagull Energy Corp., 12.5%)	October, Suez Gulf	65.
Do.	do.	Arab Petroleum Pipeline Co. (Egypt, 50%; Saudi Arabia, 15%; Kuwait, 15%; United Arab Emirates, 15%; Qatar, 5%)	El Morgan, Suez Gulf	20.
Petroleum, pipeline throughput	million 42-gallon barrels		Belayim, Suez Gulf	62.
Do.			Ras Budran, Suez Gulf	12.
Do.			Qarun, Western Desert	15.
Petroleum, refined		Cairo Petroleum Refining Co. (Government, 100%)	Ain al-Sokhna to Sidi Kir	875.
Do.	million 42-gallon barrels	Alexandria Petroleum Co. (Government, 100%)	Mostorod	52.
Do.	do.	El-Nasr Petroleum Refining Co. (Government, 100%)	Tanta	20.
Do.	do.	Ameriya Petroleum Refining Co. (Government, 100%)	Alexandria	42.
Do.	do.	Suez Petroleum Processing Co. (Government, 100%)	Suez	36.
Do.	do.	Ameriya Lubricant Oil Blending Co. (Government, 100%)	Ameriya	27.
Do.	do.	Asyut Petroleum Refining Co. (Government, 100%)	Suez	25.
Do.	do.		Ameriya	1.
Do.	do.		Asyut	18.

TABLE 2--Continued  
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Phosphate rock	Egyptian Organization of Industrial and Mining Complexes (Government, 100%)		Abu Tartur	2,200.
Salt:	Egyptian Salts & Minerals Co. (EMISAL)		Lake Quarun	
Sodium sulfate	million 42-gallon barrels	do.	do.	96.
Sodium chloride	do.	do.	do.	200.
Magnesium oxide	do.	do.	do.	20.

TABLE 3  
EGYPT: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>METALS</b>			
<b>Aluminum:</b>			
Oxides and hydroxides	400	--	All to Italy.
<b>Metal including alloys:</b>			
Scrap	127	--	All to Netherlands.
Unwrought	96,880	--	Netherlands 46,327; Greece 10,568; Italy 6,606.
Semimanufactures	10,488	86	Jordan 2,507; Greece 2,182; Syria 1,356.
<b>Copper, metal including alloys:</b>			
Scrap	124	--	Italy 76; Republic of Korea 48.
Semimanufactures	665	1	Syria 223; Republic of Korea 137; Germany 62..
Gold, metal including alloys, unwrought and partly wrought	kilograms	1	-- All to United Arab Emirates.
<b>Iron and steel, metal:</b>			
Scrap	1,719	--	Netherlands 1,296; Republic of Korea 136; United Kingdom 106.
<b>Ferroalloys:</b>			
Ferromanganese	1,153	--	Syria 519; Libya 336; Turkey 298.
Ferrosilicon	31,745	13,819	Netherlands 7,390; United Kingdom 3,751; Germany 3,026.
Silicon metal 2/	926	926	
Steel, primary forms	2	--	All to Saudi Arabia.
<b>Semimanufactures:</b>			
<b>Flat-rolled products:</b>			
<b>Of iron or nonalloy steel:</b>			
Not clad, plated, coated	62	--	Jordan 49; Germany 13.
Clad, plated, coated	1,217	--	Saudi Arabia 1,179; Jordan 25; Sudan 7.
<b>Of alloy steel</b>			
Bars, rods, angles, shapes, sections	73,382	--	Saudi Arabia 42,149; Syria 7,573; Spain 5,515.
Rails and accessories	76	--	All to Saudi Arabia.
Wire	44,335	8,126	Saudi Arabia 18,679; Tunisia 8,962; Netherlands 4,811.
Tubes, pipes, fittings	12,294	2,846	Cyprus 5,917; Italy 1,187; Syria 793.
Lead, metal including alloys, scrap	14	--	All to Belgium-Luxembourg.
Magnesium, metal including alloys, scrap	13	--	Germany 7; United Kingdom 6.
Manganese, ore and concentrate, metallurgical-grade	40	--	All to Italy.
Nickel, metal including alloys, semimanufactures value, thousands	\$1	--	All to Kuwait.
Silver, metal including alloys, unwrought and partly wrought do.	\$9	\$9	
Tin, metal including alloys, unwrought	195	--	Sudan 155; Ethiopia 40.
<b>Zinc:</b>			
Ore and concentrate	80	--	All to Belgium-Luxembourg.
Blue powder 3/	411	--	Do.
Other, ashes and residues	232	--	Do.
<b>INDUSTRIAL MINERALS</b>			
Abrasives, n.e.s., grinding and polishing wheels and stones	108	--	South Africa 54; Italy 25; Lebanon 20.
Cement	44,952	--	Unspecified Asia 38,042; Israel 4,300; Saudi Arabia 2,610.
Chalk	21	--	All to Sudan.
<b>Clays, crude:</b>			
Bentonite	2,017	--	Libya 1,000; Israel 966; Lebanon 36.
Kaolin	3,250	--	United Arab Emirates 2,995; Greece 60; Jordan 44.
Unspecified	3,079	--	Libya 2,069; Israel 560; Japan 250.
Cryolite and chiolite	4,438	--	Netherlands 3,425; Russia 1,013.
Diamond, natural, gem, not set or strung value, thousands	\$5	--	All to Oman.
Feldspar	4	--	All to Italy.
<b>Fertilizer materials, manufactured:</b>			
Ammonia	15,548	--	Italy 14,048; Morocco 1,500.
Nitrogenous	36,515	--	Sudan 10,853; Greece 7,344; Italy 6,765.
Phosphatic	45,791	--	Sudan 14,415; Sri Lanka 12,250; Burma (Myanmar) 12,232.
Potassic	20	--	All to Saudi Arabia.
Unspecified and mixed	4,960	--	All to Italy.
Fluorspar	60	--	All to Saudi Arabia.
Graphite, natural	166	--	Israel 26; Saudi Arabia 26; free zones 100.
Gypsum and plaster	398,990	--	Japan 385,865; United Arab Emirates 5,323; Jordan 1,481.

See footnotes at end of table.

TABLE 3--Continued  
EGYPT: EXPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
Lime	598	--	Saudi Arabia 500; free zones 98.
Phosphates, crude	1,150	--	All to Saudi Arabia.
Pigments, mineral, iron oxides and hydroxides, processed	22	--	All to Jordan.
Salt and brine	298,527	183,140	Croatia 43,036; Italy 27,400; Slovenia 21,057.
Sodium compounds, n.e.s.:			
Soda ash, manufactured	2,233	--	Saudi Arabia 2,000; Sudan 200; Jordan 22.
Sulfate, manufactured	38,945	--	Saudi Arabia 17,165; Syria 8,233; Jordan 6,365.
Stone, sand and gravel:			
Dimension stone:			
Crude and partly worked	24,332	249	Italy 10,918; Saudi Arabia 2,897; Indonesia 1,931.
Worked	1,262	125	Italy 475; Singapore 180; Israel 179.
Dolomite, chiefly refractory-grade	1	--	All to Saudi Arabia.
Gravel and crushed rock	9,783	--	Israel 9,746; Jordan 36; Saudi Arabia 2.
Sand other than metal-bearing	282,057	--	Turkey 115,597; Italy 108,437; Greece 47,700.
Sulfur:			
Elemental:			
Crude including native and byproduct	1,260	--	All to Cyprus.
Colloidal, precipitated, sublimed	82	--	Do.
Sulfuric acid	2,325	--	Libya 1,550; Sudan 775.
Talc, steatite, soapstone, pyrophyllite	4,610	--	Germany 2,000; Spain 1,460; Greece 280.
Other:			
Crude	201	--	Syria 101; Israel 100.
Slag and dross, not metal-bearing	32	--	All to United Kingdom.
<b>MINERAL FUELS AND RELATED MATERIALS</b>			
Asphalt and bitumen, natural	1,981	--	Saudi Arabia 1,668; United Arab Emirates 228; Bahrain 85.
Carbon, black	21,722	524	Israel 4,795; Greece 2,863; Italy 2,588.
Coal:			
Anthracite	311		All to Japan.
Briquets of anthracite and bituminous coal	2	--	All to Saudi Arabia.
Coke and semicoke	394,403	--	Tunisia 105,996; Germany 64,390; France 61,445.
Petroleum:			
Crude	thousand tons 6,685	1,723	Israel 2,628; Italy 501; Greece 302.
Refinery products:			
Mineral jelly and wax	40,390	565	Germany 37,213; United Kingdom 515; Belgium-Luxembourg 476.
Unspecified petroleum products	thousand tons 5,964	168	Italy 1,886; Netherlands 1,441; Singapore 442.

1/ Table prepared by Glenn J. Wallace.

2/ May include high-purity silicon.

3/ Includes zinc dust, flakes, and powders.

Source: United Nations Statistical Office (microfiche).

TABLE 4  
EGYPT: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS</b>			
Alkali and alkaline-earth metals:			
Alkali metals	13	11	Italy 2.
Alkaline-earth metals	21	20	Italy 1.
Aluminum:			
Ore and concentrate	400,670	141	Australia 374,508; Italy 6,992; Jordan 5,611.
Oxides and hydroxides	3,805	66	France 2,304; Netherlands 550; China 400.
Metal including alloys:			
Scrap	135	--	Belarus 96; Ethiopia 28.
Unwrought	2,645	--	Netherlands 1,828; Russia 799; Italy 15.
Semimanufactures	7,184	1,111	Italy 2,236; Germany 1,243; France 597.
Antimony, metal including alloys, all forms	35	--	All from China.
Cadmium, metal including alloys, all forms	value, thousands	\$2	\$2
Chromium:			
Ore and concentrate	20	--	All from Netherlands.
Oxides and hydroxides	19	--	Russia 17; Germany 2.
Cobalt, oxides and hydroxides	23	(2/)	Belgium-Luxembourg 16; Spain 5; Nigeria 1.
Copper, metal including alloys:			
Scrap	276	--	Belarus 121; Belgium-Luxembourg 40; Germany 38.
Unwrought	94	--	Italy 51; Libya 22; Germany 18.
Semimanufactures	23,862	2,225	Saudi Arabia 13,884; Germany 2,109; Poland 1,017.
Iron and steel:			
Iron ore and concentrate, excluding roasted pyrite	881,265	--	Brazil 545,236; Norway 137,500; Sweden 137,500.
Metal:			
Scrap	121,382	250	United Kingdom 31,676; Ukraine 29,021; Germany 20,409.
Pig iron, cast iron, related materials	270,793	172	India 105,174; Switzerland 35,964; United Kingdom 30,157.
Ferroalloys:			
Ferromanganese	244	--	China 112; Netherlands 60; Germany 12.
Ferrosilicomanganese	14,203	19	France 2,502; Germany 2,014; Spain 210.
Ferrosilicon	7	--	All from Sweden.
Ferrosilicomanganese	9,495	--	Turkey 4,564; Ukraine 3,130; China 1,209.
Ferrosilicon	1,717	558	Germany 630; Norway 365; South Africa 63.
Silicon metal 3/	10	--	India 3; United Kingdom 3; unspecified Asia 4.
Unspecified	126	--	Sweden 44; South Africa 35; Japan 21.
Steel, primary forms	642,561	1,968	Russia 519,273; Ukraine 57,394; Portugal 16,588.
Semimanufactures:			
Flat-rolled products:			
Of iron or nonalloy steel:			
Not clad, plated, coated	441,381	8,159	Russia 135,376; Ukraine 91,051; Libya 61,563.
Clad, plated, coated	155,228	4,097	Russia 29,680; Italy 20,503; Germany 20,174.
Of alloy steel	27,038	299	France 5,281; Germany 5,275; Turkey 4,660.
Bars, rods, angles, shapes, sections	971,470	7,814	Saudi Arabia 244,217; Libya 149,516; Turkey 139,338.
Rails and accessories	9,030	--	Poland 5,396; Czech Republic 2,991; Switzerland 529.
Wire	8,390	93	United Kingdom 2,582; Belgium-Luxembourg 1,233; Turkey 1,175.
Tubes, pipes, fittings	106,365	14,376	China 32,065; Italy 8,373; Germany 6,698.
Lead:			
Ore and concentrate	35	--	All from Morocco.
Oxides	1,180	--	Italy 433; Spain 325; Bulgaria 110.
Metal including alloys:			
Scrap	243	--	Jordan 220; Sudan 22; Japan 1.
Unwrought	8,318	--	Greece 3,572; Bulgaria 2,157; Switzerland 1,914.
Semimanufactures	65	--	Belgium-Luxembourg 26; Malaysia 13; France 11.
Magnesium, metal including alloys:			
Unwrought	71	--	Switzerland 20; Republic of Korea 20; United Kingdom 19.
Semimanufactures	18	1	United Kingdom 14; Germany 1; Italy 1.
Manganese:			
Ore and concentrate, metallurgical-grade	12,617	--	Australia 4,326; Brazil 3,828; Central African Republic 3,240.
Oxides	2,102	7	Germany 1,444; Hong Kong 182; Belgium-Luxembourg 153.

See footnotes at end of table.

TABLE 4--Continued  
EGYPT: IMPORTS OF MINERAL COMMODITIES IN 1996 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS--Continued</b>			
Mercury	28	5	Russia 15; Netherlands 7; Germany 1.
Molybdenum, metal including alloys, semimanufactures			
value, thousands	\$47	\$15	Netherlands \$17; Spain \$14.
Nickel:			
Matte and speiss	21	--	All from United Kingdom.
Metal including alloys:			
Unwrought	200	--	United Kingdom 50; Finland 45; Canada 27.
Semimanufactures	22	--	United Kingdom 15; Italy 3; Canada 2.
Silver, metal including alloys, unwrought and partly wrought			
value, thousands	\$4,858	--	Switzerland \$4,259; United Kingdom \$353; Germany \$220.
Tin, metal including alloys:			
Unwrought	4,025	22	Russia 1,000; Romania 414; Turkey 381.
Semimanufactures	40	--	Italy 14; Republic of Korea 14; Israel 10.
Titanium:			
Ore and concentrate	1,423	--	Sri Lanka 251; Ukraine 244; Turkey 220.
Oxides	1,023	84	France 456; Germany 322; Finland 51.
Metal including alloys:			
Unwrought	14	--	All from Belgium-Luxembourg.
Semimanufactures	80	(2/)	Mainly from United Kingdom.
Tungsten, metal including alloys, semimanufactures	9	(2/)	Netherlands 7; Japan 1.
Uranium and thorium:			
Ore and concentrate	value, thousands	\$112	-- All from Turkey.
Metal including alloys:			
Uranium	do.	\$70	\$17 Switzerland \$30; Russia \$9; United Kingdom \$4.
Thorium	do.	\$23	-- All from Italy.
Vanadium, metal including alloys, all forms	31	--	All from South Africa.
Zinc:			
Oxides	1,366	7	China 924; Turkey 117; France 84.
Metal including alloys:			
Scrap	20	--	All from Saudi Arabia.
Unwrought	9,058	--	Bulgaria 3,798; United Kingdom 1,083; Kazakstan 1,032.
Semimanufactures 4/	303	--	Germany 147; China 91; Italy 25.
Zirconium, ore and concentrate	245	--	All from Germany.
Other:			
Oxides and hydroxides	46	8	France 34; Italy 10; Japan 2.
Ashes and residues	55	--	Kuwait 35; Jordan 20.
Base metals including alloys, all forms	21	--	All from South Africa.
Metalloids	57	--	India 44; Belgium-Luxembourg 9; Germany 2.
<b>INDUSTRIAL MINERALS</b>			
Abrasives, n.e.s.:			
Natural, corundum, emery, pumice, etc.	271	--	Turkey 86; Germany 53; France 51.
Artificial corundum	39	--	Germany 21; Italy 18.
Dust and powder of precious and semiprecious stones			
value, thousands	\$58	--	Germany \$37; France \$12; United Kingdom \$8.
Grinding and polishing wheels and stones	5,677	24	Italy 3,420; Slovenia 699; Japan 438.
Asbestos, crude	29,849	193	Greece 11,180; Canada 3,456; Switzerland 1,041.
Barite and witherite	354	82	United Kingdom 188; Germany 17; Italy 7.
Boron, oxides and acids	403	--	Turkey 250; Italy 72; Germany 40.
Bromine, fluorine, iodine	321	4	Switzerland 230; Germany 44; United Kingdom 29.
Cement	thousand tons	2,276	13 Romania 911; Greece 713; Russia 335.
Chalk	58	--	Italy 41; Japan 17.
Clays, crude:			
Bentonite	2,535	362	India 1,503; United Kingdom 584; Spain 44.
Kaolin	55,829	78	United Kingdom 40,877; Turkey 6,065; Japan 5,548.
Unspecified	1,520	787	United Kingdom 356; Germany 346; Spain 22.
Cryolite and chiolite	305	--	Finland 269; Spain 36.
Diatomite and other infusorial earth	487	270	Spain 107; Germany 60; Belgium-Luxembourg 28.
Feldspar	23,149	--	Turkey 21,609; Italy 704; Netherlands 566.

See footnotes at end of table.

TABLE 4--Continued  
EGYPT: 1996 IMPORTS OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
<b>Fertilizer materials:</b>			
Crude, n.e.s.	428	9	Israel 410; Sri Lanka 9.
<b>Manufactured:</b>			
Ammonia	6	--	Mainly from Germany.
Nitrogenous value, thousands	\$2	--	All from Italy.
Phosphatic	41	--	Mainly from Jordan.
Potassic	38,560	329	Germany 12,005; Switzerland 5,500; France 5,361.
Unspecified and mixed	13,854	999	Israel 5,200; Belgium-Luxembourg 3,833; United Kingdom 1,895.
Fluorspar	1,654	21	Turkey 1,550; Germany 39; Switzerland 22.
Graphite, natural	912	--	China 899; Germany 13.
Gypsum and plaster	3,353	89	Turkey 2,372; Germany 551; Italy 299.
Lime	1	--	All from United Kingdom.
<b>Magnesium compounds:</b>			
Magnesite, crude	1,993	--	Turkey 1,103; China 525; Austria 154.
Oxides and hydroxides	25,781	830	Austria 6,403; Turkey 6,126; Japan 4,815.
<b>Mica:</b>			
Crude including splittings and waste	131	20	India 101; United Kingdom 10.
Worked including agglomerated splittings	7	--	China 3; Belgium-Luxembourg 1; Germany 1.
Nitrates, crude	81	--	All from Netherlands.
Phosphates, crude	26,800	--	Jordan 20,500; Syria 6,300.
Pigments, mineral, iron oxides and hydroxides, processed	3,565	--	China 2,441; Italy 385; Hong Kong 329.
<b>Precious and semiprecious stones other than diamond:</b>			
Natural value, thousands	\$112	\$4	Indonesia \$64; Hong Kong \$20; Pakistan \$14.
Synthetic do.	\$178	\$46	Republic of Korea \$48; China \$28; Pakistan \$20.
Salt and brine	1,767	20	Netherlands 1,431; Germany 55; Saudi Arabia 54.
<b>Sodium compounds, n.e.s.:</b>			
Soda ash, manufactured	32,730	816	Romania 12,635; Bulgaria 9,957; Turkey 4,878.
Sulfate, manufactured	59	--	China 50; Belgium-Luxembourg 4; India 2.
<b>Stone, sand and gravel:</b>			
<b>Dimension stone:</b>			
Crude and partly worked	41,893	--	Italy 31,105; Spain 7,926; Greece 592.
Worked	5,390	--	Italy 2,772; Greece 1,093; Germany 253.
Dolomite, chiefly refractory-grade	45	--	Norway 22; France 21; United Kingdom 2.
Gravel and crushed rock	158	19	Italy 82; Israel 36; Germany 20.
Limestone other than dimension	18	18	
Quartz and quartzite	359	(2/)	Sweden 175; Germany 104; Italy 45.
Sand other than metal-bearing	2,213	20	Germany 725; Denmark 459; Italy 221.
<b>Sulfur:</b>			
<b>Elemental:</b>			
Crude including native and byproduct	322,139	--	Iran 76,157; Germany 58,774; Switzerland 35,298.
Colloidal, precipitated, sublimed	541	--	All from Germany.
Dioxide	1	--	All from Netherlands.
Sulfuric acid	13	--	France 8; Sweden 2; Germany 1.
Talc, steatite, soapstone, pyrophyllite	1,125	7	Italy 435; France 193; Belgium-Luxembourg 104.
Vermiculite, perlite, chlorite	120	--	Greece 100; Germany 20.
<b>Other:</b>			
Crude	3,182	--	Italy 1,355; Germany 605; Sudan 582.
Slag and dross, not metal-bearing	188	--	Germany 168; Japan 20.
<b>MINERAL FUELS AND RELATED MATERIALS</b>			
Carbon, black	2,809	7	Italy 1,471; United Kingdom 759; Germany 234.
<b>Coal:</b>			
Anthracite	773	--	United Kingdom 679; Italy 53; Australia 29.
Other thousand tons	1,875	1,039	Australia 493; Poland 205; Canada 93.
Coke and semicoke	5,117	53	Norway 4,896; Italy 48; Belgium-Luxembourg 41.
Peat including briquets and litter	9,356	66	Ireland 5,743; Germany 2,675; United Kingdom 575.

See footnotes at end of table.

TABLE 4--Continued  
 EGYPT: 1996 IMPORTS OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
MINERAL FUELS AND RELATED MATERIALS--Continued			
Petroleum refinery products:			
Liquefied petroleum gas	6,992	--	Greece 3,988; Libya 3,004.
Mineral jelly and wax	2,844	6	United Kingdom 1,019; Hungary 763; Germany 447.
Bitumen and other residues	107,882	--	Kuwait 81,173; Morocco 26, 669; Italy 40.
Bituminous mixtures	432	11	Saudi Arabia 294; France 98; Netherlands 26.
Petroleum coke	2,950	--	Turkey 1,917; Greece 527; India 260.
Unspecified petroleum products	181,409	4,984	Israel 55,160; Italy 43,602; Greece 36,526.

1/ Table prepared by Glenn J. Wallace.

2/ Less than 1/2 unit.

3/ May include high-purity silicon.

4/ Includes zinc dust, powders, flakes.

Source: United Nations Statistical Office (microfiche).