

THE MINERAL INDUSTRIES OF JORDAN, LEBANON, AND SYRIA

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JORDAN

Jordan was the world's fifth leading producer of phosphate rock and the world's sixth leading producer of potash. It has also produced such industrial minerals as bromine, feldspar, gypsum, kaolin, magnesia, salt, and silica sand, and such building materials as cement, dimension stone, limestone, and marble. Natural gas and petroleum products have been produced for domestic consumption. Deposits of copper, gold, iron, sulfur, and titanium are found in Jordan (Jasinski, 2005; Searls, 2005).

In 2003, Jordan's gross domestic product (GDP) based on purchasing power parity amounted to about \$22.5 billion. Per capita GDP based on purchasing power parity was about \$4,100. Jordan's GDP grew by 3.2% in 2003 and 5% in 2002. In 2002, the output of the manufacturing sector amounted to 17% of the GDP; construction, 5.5%; mining and quarrying, 3.1%; and electricity and water, 2.7% (Central Bank of Jordan, 2004, p. 83; International Monetary Fund, 2004, p. 196; 2004§¹).

In 2003, total exports were valued at \$2.31 billion, of which \$558 million were cement, fertilizers, phosphate rock, phosphoric acid, potash, and sulfuric acid. Total imports were valued at \$4.98 billion, of which imports of crude petroleum amounted to \$673 million; iron and steel products, \$183 million; refined petroleum products, \$167 million; and ammonia, \$9.2 million (Central Bank of Jordan, 2004, p. 66-67).

Commodity Review

Metals

Steel.—Jordan had 11 rolling mills with a total capacity of 856,000 metric tons per year (t/yr). The domestic steel market suffered from severe overcapacity; production amounted to about 290,000 t/yr, most of which was consumed locally. Jordan Steel Company produced crude steel and 80,000 t/yr of rebar and other semimanufactured steel. The company exported about 25% of its output to Kuwait, Lebanon, Saudi Arabia, and other countries. National consumption of rebar ranged from 350,000 to 400,000 t/yr. In 2003, the value of iron and steel imports rose to \$183 million from \$176 million in 2002 and \$139 million in 1999 (al-Ibrahim, 2004; Central Bank of Jordan, 2004, p. 66-67).

Industrial Minerals

Bromine.—Jordan Bromine Company [a joint venture of Arab Potash Company Ltd. (APC) and Kemira Danmark A/S of

Denmark] started production of bromine, calcium bromide, and sodium bromide at its plant at al-Safi in 2002. The company planned to start chlorine production in January 2005 at a new facility with a capacity of 25,000 t/yr; this plant would also produce nearly 40,000 t/yr of caustic soda. From 2003 to 2006, revenues from the bromine complex were expected to rise to more than \$100 million from \$12 million. During the same period, investment in the company's facilities was expected to rise to \$125 million from \$85 million. APC planned to export the entire production from the new facility (Arab Potash Company Ltd., 2003a, b).

Cement.—Jordan Cement Factories Co. Ltd. (JCFC) had two plants with a combined capacity of 4.1 million metric tons per year (Mt/yr). Arab Company for White Cement Industry also operated a small cement plant. National cement production fell to nearly 3.52 million metric tons (Mt) from 3.56 Mt in 2002. From 1999 to 2003, national cement exports rose to \$35 million from \$23.4 million (Central Bank of Jordan, 2004, p. 64-65).

Magnesium Compounds.—In late 2003, Jordan Magnesia Company (a subsidiary of APC) started the production of magnesia from the Dead Sea's resources of magnesium chloride. The plant had a capacity of 50,000 t/yr of refractory-grade magnesia and 10,000 t/yr of magnesium hydroxide and other magnesium (Industrial Minerals, 2004).

Phosphate Rock.—Jordan Phosphate Mines Company (JPMC) produced phosphate rock at the al-Abiad, the al-Hasa, and the Shidiya Mines. In 2003, phosphate rock production fell to 6.76 Mt from 7.18 Mt in 2002. National exports of phosphate rock amounted to \$128 million in 2003 compared with \$136 million in 2002 and \$162 million in 1999 (Central Bank of Jordan, 2004, p. 64-65).

Phosphoric acid was produced by the Indo-Jordan Chemicals Company (IJC) and the Jordan Fertilizer Industry Company (JFIC). IJC consumed about 850,000 t/yr of phosphate rock from the Shidiya Mine and exported its output to India. In 2003, IJC's production of phosphoric acid fell to 231,000 metric tons (t) from 251,000 t in 2002. About 80% of JFIC's phosphoric acid was consumed in the production of diammonium phosphate (DAP) fertilizer. From 1999 to 2003, exports of phosphoric acid fell to \$85.5 million from \$91.6 million (Arab Petroleum Research Center, 2004; Central Bank of Jordan, 2004, p. 64-65; Indo-Jordan Chemicals Co. Ltd., undated§).

JFIC had a DAP plant with a capacity of 600,000 t/yr. Nippon Jordan Fertilizer Company (NJFC) also produced DAP and other fertilizers at Aqaba and exported its output to Japan. In 2003, Jordan's exports of fertilizers were \$104 million compared with \$90 million in 2002 and \$110 million in 1999 (Central Bank of Jordan, 2004, p. 64-65).

Potash.—APC was one of the world's leading potash producers with a capacity of 1.8 Mt/yr. Capacity was expected

¹References that include a section mark (§) are found in the Internet Reference(s) Cited sections.

to increase to 2.4 Mt/yr of potash in 2004. In October 2003, the Government of Jordan finalized an agreement to sell one-half of its interest in APC to Potash Corp. of Canada for \$173 million (Arab Petroleum Research Center, 2004).

APC's potash production rose slightly in 2003. Exports of potash were \$204 million in 2003 compared with \$193 million in 2002 and \$178 million in 1999. India accounted for 22% of APC's total potash sales; China, 16%; Indonesia, 10%; and Malaysia, 9% (Arab Potash Company Ltd., 2004; Central Bank of Jordan, 2004, p. 64-65).

Kemira Arab Potash Company, which was a joint venture of APC and Kemira, produced potassium nitrate fertilizer and dicalcium phosphate animal feed supplement. The company's consumption of potash amounted to 125,000 t/yr; phosphate rock, 60,000 t/yr; and phosphoric acid, 5,000 t/yr. Potash was sourced from APC, and phosphates, from JPMC. NJFC consumed 80,000 t/yr of potash and 50,000 t/yr of ammonia (Arab Petroleum Research Center, 2004).

Sulfur.—In 2003, Jordan's production of sulfuric acid decreased to 1.65 Mt from 1.8 Mt in 2002. JFIC and IJC produced sulfuric acid from imported sulfur; IJC's production fell to 686,000 t in 2003 from 746,000 t in 2002. Exports of sulfuric acid decreased to \$1.2 million in 2003 from \$1.4 million in 2002 and \$5.7 million in 1999 (Central Bank of Jordan, 2004, p. 64-65; Indo-Jordan Chemicals Co. Ltd., undated\$).

Mineral Fuels

Natural Gas.—Production of natural gas increased at the al-Risha gasfield because of the completion of a new pipeline in August 2003. National Petroleum Company planned to raise output at Risha to about 1 billion cubic meters per year. In July, the completion of the first phase of the Arab Gasline allowed Jordan to import Egyptian natural gas at a rate of 1.1 billion cubic meters per year. The Government estimated that demand for Egyptian natural gas could rise to 2 billion cubic meters per year by 2008 (Arab Petroleum Research Center, 2004).

Petroleum.—Because only minimal production at the Hamza oilfield continued in 2003, Jordan depended on imports for most of its petroleum requirements. Imports of crude petroleum increased to \$673 million in 2003 from \$571 million in 2002 and \$311 million in 1999. Kuwait, Saudi Arabia, and the United Arab Emirates replaced Iraq as the sources of Jordan's petroleum imports in 2003 (Central Bank of Jordan, 2004, p. 66-67).

Jordan Petroleum Refinery Company operated the country's only refinery at Zarqa. The output of petroleum products increased by 1.9% in 2003 and 0.8% in 2002. The company was expanding the refinery to a capacity of 150,000 barrels per day (bbl/d) from 90,400 bbl/d and reducing the sulfur content of its products. The expansion and upgrades were expected to cost \$700 million and to be completed in 2008. In 2003, imports of petroleum products rose to \$167 million from \$145 million in 2002 and \$103 million in 1999 (Arab Petroleum Research Center, 2004; Central Bank of Jordan, 2004, p. 66-67, 88).

Infrastructure

Jordan produced 7,994 gigawatt-hours (GWh) of electricity in 2003 compared with 8,132 GWh in 2002; imports rose to 972 GWh from 322 GWh. About 9% of domestic electricity was generated from the gas-fired plant at Risha. Installed generating capacity was 1,788 megawatts (MW) in 2003. The expansion of the Rehab power station to 360 MW from 260 MW and that of the al-Risha power station to 150 MW from 120 MW were expected to be completed in 2005. The new al-Samra plant was expected to start operation as a simple cycle in summer 2005 and as a combined cycle in mid-2006. Al-Samra would have a capacity of 300 MW (National Electric Power Company, undated, p. 12, 28-29).

National consumption of electricity was 7,346 GWh in 2003 compared with 6,906 GWh in 2002 and 5,634 GWh in 1998. Cement producers consumed 381 GWh; potash, 292 GWh; fertilizers, phosphoric acid, and sulfuric acid, 204 GWh; phosphate rock, 123 GWh; refined petroleum products, 100 GWh; bromine, 9.7 GWh; and magnesia, 8.8 GWh. Peak demand was 1,428 MW of capacity in 2003 and was expected to rise to 1,576 MW in 2005, 1,925 MW in 2010, and 2,515 MW in 2020 (National Electric Power Company, undated, p. 27, 35).

Outlook

Jordan's economy was expected to grow by 5% in 2004 and 5.5% in 2005. The strength of the domestic economy could lead to higher demand for cement, dimension stone, sand and gravel, and steel. The outlook for bromine, magnesia, phosphate rock, and potash depended heavily upon world market conditions.

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LEBANON

The Lebanese minerals industry continued its historically small contribution to the country's economy. In recent years, Lebanon has been known to produce cement, gypsum, lime, phosphatic fertilizers, phosphoric acid, salt, steel, and sulfuric acid for domestic consumption. Modest deposits of asphalt, coal, and iron ore occur in Lebanon. In 2003, Lebanon's GDP based on purchasing power parity amounted to about \$20.1 billion. Per capita GDP based on purchasing power parity was about \$5,500. The GDP grew by 3% in 2003 compared with an increase of 2% in 2002 (International Monetary Fund, 2004, p. 196; 2004§).

Consolidated Steel Lebanon SAL, which was Lebanon's only rolling mill, shut down in 2002 because of high input costs. The country depended upon imports to meet its demand for steel. The International Iron and Steel Institute (2004, p. 82, 92) estimated that imports of semimanufactured and finished steel products amounted to 443,000 t in 2002 compared with 705,000 t in 2001 and 300,000 t in 1997.

Lebanon's cement factories were owned by Holcim (Liban) SAL, which had a capacity of 1.8 Mt/yr; Ciementerie Nationale SAL, 1.65 Mt/yr; and Ciment de Sibline, 1.2 Mt/yr. National cement production amounted to nearly 2.9 Mt/yr between 2001 and 2003. Cement consumption rose to 2.7 Mt in 2003 from 2.6 Mt in 2002 (Holcim Ltd., 2004, p. 42).

In July 2003, the Government decided to shut down all Lebanon's quarries and import sand and gravel from Syria because of the environmental damage caused by the quarries. The resulting shortages of sand and gravel led to higher prices for asphalt and cement (Arzoumanian, 2003).

Lebanon imported phosphate rock from Syria to produce phosphoric acid and such fertilizers as triple superphosphate. Lebanon Chemicals Company SAL produced sulfuric acid for use in fertilizer manufacturing; imports were sourced from Russia and Saudi Arabia. Production fell to 465,000 t in 2003 from 480,000 t in 2002 (table 1).

By May 2004, Lebanon was expected to start importing natural gas from Syria as part of the Arab Gasline Project. In the first phase, imports were expected to start out at about 550 million cubic meters per year and to increase to nearly 1.1 billion cubic meters per year. In the second phase, imports could increase to 2.2 billion cubic meters per year. Electricité du Liban (EdL) was expected to save \$90 million per year initially; cost savings were expected to increase to \$200 million per year by the end of the first phase. The conversion of all Lebanese powerplants to natural gas would save \$300 million per year (Iran Daily, 2003; Arab Petroleum Research Center, 2004).

Lebanon has no petroleum reserves, so the country relies on imports for its energy requirements. Consumption of petroleum products has fluctuated between 90,000 and 98,000 bbl/d. The Government estimated that consumption would rise to 200,000 bbl/d by 2015 (Arab Petroleum Research Center, 2004).

EdL operated eight thermal powerplants with a capacity of 2,200 MW in 2002, although effective operating capacity was estimated to be no more than 1,285 MW. The company also operated hydroelectric plants. EdL estimated that the rising demand for electricity and the decommissioning of the 331-MW Jieh and the 65-MW al-Haricha powerplants would necessitate the installation of 750 MW of new capacity by 2005 (Arab Petroleum Research Center, 2004).

Lebanon's transportation network comprised about 7,300 km of roads, of which 6,200 km was paved. Railroad track totaled 401 km, most of which was damaged during the civil war. The country had 209 km of crude oil pipelines. Ports and harbors were Antilyas, Batroun, Beirut, Chekka, El Mina, Ez Zahrani, Jbail, Jounie, Naqoura, Sidon, Tripoli, and Tyre.

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SYRIA

The Middle Eastern nation of Syria was a producer of dimension stone, fertilizers, gravel, industrial minerals, natural gas, oil, sand, and semimanufactured minerals. Industrial minerals produced in recent years included gypsum, phosphate rock, salt, silica sand, and sulfur. Semimanufactured goods included cement, glass, phosphoric acid, steel, and sulfuric acid.

Syria's 2003 GDP based on purchasing power parity was estimated to be \$63.4 billion. Per capita GDP based on purchasing power parity was about \$3,600. In 2003, the GDP increased by 2.5% after rising by a revised 3.2% in 2002. In 2002, the electricity, gas, manufacturing, mining, and water sectors accounted for a total of 27% of the GDP; and building and construction, 3%. Extractive industries accounted for 61% of industrial production; manufacturing, 34%; and electricity and water, 5% (Central Bank of Syria, 2003, p. 39, 56; International Monetary Fund, 2004, p. 196; 2004§).

Commodity Review

Metals

Steel.—Syria produced a small amount of crude steel; production of semimanufactured steel increased with the opening of new rolling mills in 2002. Arab Steel Co. and Joud International operated rolling mills that used imported billet from Turkey and Ukraine. In 2003, state-owned General Company for Iron and Steel Products produced 58,000 t of billet compared with 48,515 t in 2002; production of rebar fell to 53,000 t from 57,511 t. In 2004, the company planned to increase rebar production to 78,000 t and billet, to 60,000 t. All the company's products were consumed domestically (Iran Daily, 2003; Ministry of Industry, undated c; MEsteeel.com, 2004§).

The International Iron and Steel Institute (2004, p. 82, 92) estimated that Syria's imports of semimanufactured and finished steel products amounted to nearly 1.69 Mt in 2002, which was an increase from 1.31 Mt in 2001 and 400,000 t in 1997. From 1997 to 2002, Syria's apparent consumption of finished steel rose to 1.75 Mt from 463,000 t.

Industrial Minerals

Cement.—Seven state-owned but independently operated companies within the General Organization for Cement and Building Materials (GOCBM) produced cement from plants with a combined capacity of 5.22 Mt/yr. In 2002, Tartous Company for Cement & Building Materials produced 1.41 Mt of cement; al-Chaba Cement & Building Materials, 1.05 Mt; Arabian Cement Co. for Cement, 1.03 Mt; Adra Co. for Cement and Building, 886,000 t; Syrian Co. for Manufacturing Cement, 486,000 t; and Rastan Co. for Cement and Building Materials, 136,000 t (Ministry of Industry, undated e). The state-owned Military Housing Cement Group also produced cement.

GOCBM planned to increase national cement production capacity to 8 Mt/yr by 2008. By late 2005, Edhasse Sanat Corp. of Iran planned to complete a new cement plant in Hama with a capacity of 1 Mt/yr. This project was expected to cost \$198 million (Middle East Economic Digest, 2003).

Nitrogen.—In 2003, General Fertilizer Company (GFC) (a subsidiary of the General Organization for Chemical Industries) increased ammonia production to 161,100 t from 142,800 t in 2002; urea production also rose. GFC produced 118,135 t of such nitrogenous fertilizers as ammonium nitrate and calcium nitrate in 2002. The company consumed about 400 million cubic meters per year of natural gas from the Jbeisseh gas-processing plant (Arab Petroleum Research Center, 2004, p. 445; Ministry of Industry, undated d).

Phosphate Rock.—General Company for Phosphate and Mines (GECOPHAM) produced 2.41 Mt of phosphate rock in 2003 compared with 2.48 Mt in 2002 and 2.49 Mt in 1998. Phosphate rock was consumed by GFC's phosphoric acid and triple superphosphate fertilizer plants in Homs. Exports of phosphate rock amounted to 1.68 Mt in 2002 compared with 1.19 Mt in 2001 and 1.84 Mt in 1998 (Central Bank of Syria, 2003, p. 66-67).

Silica.—GECOPHAM quarried sand for use in domestic construction and industrial applications. Resources of silica sand at al-Qaristyn were estimated to be 150 Mt. In 2002, General Company for Glass and Porcelain Industries produced 31,652 t of glass, and General Company for Glass Industries, 26,231 t (Industrial Minerals, 2001; Ministry of Industry, undated a, b).

Mineral Fuels

Natural Gas.—At the end of 2003, Syria's proven natural gas reserves were estimated to be about 370 billion cubic meters. Syria had gas-processing plants at Deir ez-Zor, Jbeisseh, Omar, Palmyra, and Suwaidiyah with the capacity to process 10.65 billion cubic meters of gas per year. The Government expected marketable natural gas production to rise to about 12.8 billion cubic meters within the next few years. State-owned Syrian Petroleum Company (SPC) planned to develop 15 new gasfields in the Palmyra region and two new gas-processing plants. The plant near Homs would have a capacity of 2.2 billion cubic meters per year, and the plant at al-Thawra, 1.1 billion cubic meters per year (Arab Petroleum Research Center, 2004, p. 445).

By May 2004, Lebanon was expected to start importing natural gas from Syria as part of the Arab Gasline project. During the first phase, imports were expected to start out at about 550 million cubic meters per year and to rise to nearly 1.1 billion cubic meters per year. During the second phase, imports were expected to rise to 2.2 billion cubic meters per year (Arab Petroleum Research Center, 2004, p. 445-446).

Petroleum.—At the end of 2003, Syria's reserves of crude petroleum amounted to 3.15 billion barrels. Crude petroleum accounted for 62% of national exports in 2002, and other mineral fuels and lubricants, 9%. Production of crude petroleum amounted to 528,000 bbl/d. In 2003, Syria's petroleum refineries consumed from about 230,000 to 235,000 bbl/d of crude petroleum; the remainder of domestic crude production was available for export (Central Bank of Syria, 2003, p. 61, 67; Arab Petroleum Research Center, 2004, p. 435, 440).

al-Furat Petroleum Company (AFPC) was Syria's leading producer of crude petroleum and accounted for about 60% of national production. AFPC's largest fields, which were located mostly in the Deir ez-Zor region, were, in decreasing order of size, the al-Thayyem, the al-Izba, the Omar and Omar North, the Maleh/Azraq, the Sijan, the Jarnof/Saban, the al-Ward, and the Tanak. AFPC planned to produce about 300,000 bbl/d in the near future (Arab Petroleum Research Center, 2004, p. 436).

SPC produced heavy crude from the northern fields in the Suwaidiyah-Karatchok area and at Jbeisseh. In 2003, SPC's production amounted to about 125,000 bbl/d in 2003; the company planned to restore output to 150,000 bbl/d by building enhanced oil-recovery facilities (Arab Petroleum Research Center, 2004, p. 436).

Deir ez-Zor Petroleum Company (a joint venture between SPC and Total S.A.) produced about 50,000 bbl/d in 2003. Production at the Qahar field amounted to 28,000 bbl/d; Jafra,

13,000 bbl/d; and al-Mazraa and Attala North, slightly under 10,000 bbl/d. The al-Khabur Petroleum Company produced from 15,000 to 17,000 bbl/d from the Kishlma field (Arab Petroleum Research Center, 2004, p. 436).

In June 2003, SPC signed an exploration and production-sharing agreement with the U.S. companies Devon Energy Corporation and Gulfsands Petroleum for block 26. SPC also signed agreements with Petro-Canada Inc. for block 2 in November and Tatneft JSC of Russia for block 27 in December. In the first half of 2003, SPC signed field-development contracts with China National Petroleum Corp. for the Koubyba field, Tanganyika Oil Co. of Canada for the Oudeh field, and Zarubezhneft JSC of Russia for the Sheikh Mansour and the Teshreen fields (Arab Petroleum Research Center, 2004, p. 431, 436-437).

Syria's petroleum-products-refining capacity amounted to 242,000 bbl/d. In 2003, production fell at the Baniyas refinery because of a shutdown for maintenance. The Government planned to upgrade the Baniyas and the Homs refineries because of the imbalance of refinery products. The refineries produced surpluses of fuel oil and naphtha that were exported, but Syria had to import diesel fuel to meet domestic demand. The upgrade of the Homs refinery would also alleviate local pollution problems and would substantially reduce the production of leaded gasoline in favor of unleaded gasoline.

Infrastructure

In 2002, Syria produced 26,896 GWh of electricity compared with 25,544 GWh in 2001 and 19,841 GWh in 1998. Natural gas-fired plants accounted for more than 25% of electricity generated, and hydroelectric plants, about 10%. Total installed Syrian electricity-generating capacity amounted to about 7,500 MW in 2003. The largest thermal plants were Aleppo, with a capacity of 1,065 MW; Baniyas, 680 MW; and Mhardeh, 630 MW. The Government planned to increase the country's total capacity by 3,000 MW by 2010 and an additional 5,000 MW by 2020 to meet rising demand (Central Bank of Syria, 2003, p. 57; Arab Petroleum Research Center, 2004, p. 446-447).

Outlook

The International Monetary Fund (2004, p. 196) predicted that Syria's GDP would grow by 3.6% in 2004 and 4% in 2005. Although increases in reserves are expected to prolong the life of Syria's oilfields, natural gas is likely to account for an increasing share of exports and domestic energy consumption. The outlook for phosphate rock depends heavily upon world market conditions. Higher cement production could lead to greater output of gypsum and limestone.

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TABLE 1
JORDAN, LEBANON, AND SYRIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity	1999	2000	2001 ^c	2002 ^c	2003 ^c	
JORDAN						
Bromine:	--	--	-- ²	5,000	20,000	
Cement, hydraulic	thousand tons	2,687	2,640	3,173 ^{r,2}	3,558 ^{r,2}	3,515 ²
Clay:						
Common clay	450,178	199,468	211,000 ^r	241,000 ^r	239,000	
Kaolin	34,040	36,795	39,000 ^r	44,000 ^r	43,600	
Zeolite tuff	13,086	9,797	10,300 ^r	11,800 ^r	11,700	
Feldspar	1,000	11,112	611 ^{r,2}	530 ^{r,2}	530	
Gypsum	244,920	157,868	86,012 ^{r,2}	11,252 ^{r,2}	11,200	
Lime ^c	4,100	4,100	4,300 ^r	4,900 ^r	4,900	
Natural gas, gross	million cubic meters	282	287	279 ^{r,2}	256 ^{r,2}	310 ²
Petroleum:						
Crude	42-gallon barrels	14,600 ^e	14,600 ²	14,600 ²	14,600 ²	14,600 ²
Refinery products:						
Liquefied petroleum gas	thousand 42-gallon barrels	1,505	1,684	1,606 ^{r,2}	1,577 ^{r,2}	1,600
Gasoline	do.	4,685	4,957	5,465 ^{r,2}	5,383 ^{r,2}	5,500
Jet fuel	do.	1,722	1,950	1,693 ^{r,2}	1,650 ^{r,2}	1,700
Kerosene	do.	1,382	1,991	1,398 ^{r,2}	1,608 ^{r,2}	1,700
Distillate fuel oil	do.	7,100 ^r	6,662 ^r	7,456 ^{r,2}	8,139 ^{r,2}	8,300
Residual fuel oil	do.	7,341 ^r	8,929 ^r	8,564 ^{r,2}	7,911 ^{r,2}	8,100
Asphalt	do.	830	688	821 ^{r,2}	1,066 ^{r,2}	1,100
Total	do.	24,565 ^r	26,861 ^r	27,003 ^{r,2}	27,334 ^{r,2}	28,000
Phosphate:						
Phosphate rock, mine output:						
Gross weight	thousand tons	6,014	5,526	5,843 ²	7,179 ²	6,763 ²
P ₂ O ₅ content	do.	1,924	1,824	1,928 ²	2,340	2,230
P ₂ O ₅ equivalent:						
Diammonium phosphate		313,000	197,000	256,000 ^{r,2}	267,000 ²	210,000 ²
Phosphoric acid		587,000 ^r	543,000	482,000 ^{r,2}	594,000 ²	563,000 ²
Potassium:						
Potash:						
Crude salts	thousand tons	1,800	1,936	1,963 ²	1,956 ²	1,961 ²
K ₂ O equivalent	do.	1,080	1,162 ^r	1,180 ^{r,2}	1,170 ²	1,230 ²
Potassium nitrate		--	--	-- ²	5,000 ^r	60,000
Salt		279,135	311,189	329,000 ^r	375,000 ^r	372,000
Sand, silica		130,560 ^r	118,045 ^r	125,000 ^r	143,000 ^r	142,000 ^r
Steel:						
Crude ^c		30,000	30,000	30,000	30,000	30,000
Semimanufactured		300,000	270,000	290,000 ^r	290,000 ^r	290,000
Stone:						
Dimension, worked	thousand meters	6,303	3,508	3,700 ^r	4,200 ^r	4,200
Gravel and crushed rock	thousand cubic meters	12,180	10,381	11,000 ^r	12,600 ^r	12,500
Limestone	do.	8,000	8,000	8,400 ^r	9,600 ^r	9,500
Marble	cubic meters	10,250	21,575	22,800 ^r	26,000 ^r	25,800
Sulfuric acid:						
Gross weight	thousand tons	1,804	1,761	1,653 ^{r,2}	1,803 ²	1,649 ^p
S content	do.	590	576	540 ^{r,2}	589 ²	539 ^p
LEBANON						
Cement, hydraulic	thousand tons	2,714	2,808	2,890 ^{r,2}	2,852 ²	2,900
Gypsum ^c		1,600 ^r	1,700 ^r	1,600 ^r	1,700	1,700
Iron and steel, metal, semimanufactures		55,000	80,000	80,000	40,000	-- ²
Lime ^c		14,000 ^r	14,000 ^r	14,000 ^r	14,000	14,000
P ₂ O ₅ equivalent:						
Phosphatic fertilizers		30,000	15,000	20,000 ^{r,2}	30,000 ²	50,000
Phosphoric acid		100,000	122,000	135,000 ^{r,2}	150,000 ²	150,000
Salt ^c		3,500	3,500	3,500	3,500	3,500

See footnotes at end of table.

TABLE 1--Continued
 JORDAN, LEBANON, AND SYRIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity	1999	2000	2001 ^c	2002 ^c	2003 ^c
LEBANON--Continued					
Sulfuric acid:					
Gross weight	249,000	400,000 ^r	400,000 ^{r,2}	480,000 ²	465,000 ^p
S content	81,400	131,000 ^r	131,000 ^{r,2}	157,000 ²	152,000 ^p
SYRIA					
Cement, hydraulic	5,134 ^r	4,631 ^r	5,428 ^{r,2}	5,450 ^r	5,450
Gas, natural:					
Gross	6,947	6,934	7,130 ²	8,000	8,000
Dry	3,676	3,886	5,590 ²	6,000 ^r	6,000 ^r
Gypsum	394,000	333,000	375,000 ^r	375,000 ^r	375,000
Natural gas liquids:					
Propane	500	511	525 ^r	760	760
Butane	1,630	1,666	1,710 ^r	2,480	2,480
Pentanes	43	44	45 ^r	65	65
Total	2,173 ^r	2,221 ^r	2,280 ^r	3,300	3,300
Nitrogen:					
N content of ammonia	111,800	91,100	138,400 ²	142,800 ²	161,100 ²
N content of urea	73,400	56,600	97,700 ²	88,500 ²	90,700 ²
Petroleum:					
Crude	210,000	199,843	189,180 ^{r,2}	185,530 ²	192,720 ²
Refinery products:					
Liquefied petroleum gas	1,571	1,633	1,310 ^{r,2}	1,430 ^{r,2}	1,370 ²
Gasoline	10,076	8,678	11,400 ^{r,2}	12,500 ^{r,2}	11,900 ²
Naphtha	3,156	4,419	4,400 ^r	4,400 ^r	4,400
Jet fuel	2,218	1,457	1,500 ^r	1,500 ^r	1,500
Kerosene	742	742	750 ^r	800 ^r	750
Distillate fuel oil	31,704	33,176	31,000 ^r	33,000 ^r	32,000
Residual fuel oil	28,201	27,467	26,800 ^{r,2}	28,900 ^{r,2}	27,700 ²
Asphalt	2,513	2,332	2,300 ^r	2,300 ^r	2,300
Other	826	826	800 ^r	800 ^r	800
Total	81,007	80,730	80,300 ^r	85,600 ^r	82,700
Phosphate:					
Phosphate rock, mine output:					
Gross weight	2,084	2,166	2,043 ²	2,483 ²	2,414 ²
P ₂ O ₅ content	635	646	613 ²	745	725
P ₂ O ₅ equivalent:					
Phosphatic fertilizers	66,000 ^r	113,000 ^r	69,000 ^r	123,000 ²	91,000 ²
Phosphoric acid	53,000 ^r	89,000 ^r	57,000 ^r	102,000 ²	73,000 ²
Salt	104,335	106,130	190,000 ^{r,2}	146,000 ^{r,2}	146,000
Steel:					
Crude ^c	70,000	70,000	70,000	70,000	70,000
Semimanufactured	85,000	60,000	60,000	300,000	450,000
Stone:					
Dolomite, refractory grade	2,856	4,912	5,000	5,000	5,000
Gravel and crushed rock	6,546	5,549	6,000	6,000	6,000
Marble blocks	456	377	347 ²	340 ²	340
Sand, construction	556	395	450	450	450
Sand, industrial	869	813	850 ^r	850 ^r	850
Volcanic tuff	510	507	650 ^r	650 ^r	650
Sulfur					
Byproduct of petroleum and natural gas	11,730	16,660	16,400 ^r	16,100	15,400
Sulfuric acid:					
Gross weight	193,000	318,000	239,000 ²	344,000 ²	250,000 ^p
S content	63,100	104,000	78,000 ²	112,000 ²	81,800 ^p

^cEstimated; estimated data are rounded to no more than three significant digits. ^pPreliminary. ^rRevised. -- Zero.

¹Table includes data available through February 3, 2005.

²Reported figure.

TABLE 2
 JORDAN, LEBANON, AND SYRIA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2003

(Thousand metric tons unless otherwise specified)

Country and commodity	Major operating companies	Location of main facilities	Annual capacity
JORDAN			
Bromine	Jordan Bromine Company (Arab Potash Company Ltd., 50%, and Kemira Danmark A/S, 50%)	al-Safi	50.
Cement	Jordan Cement Factories Co. Ltd. (LaFarge Group, 44%; Jordan Investment Corp., 14.3%; Social Security Corp., 9%)	Fuhia and Rashadia	4,100.
Do.	Arab Company for White Cement Industry	Amman	130.
Magnesia	Jordan Magnesia Company (Arab Potash Company Ltd., 55.8%)	al-Safi	60.
Natural gas	million cubic meters National Petroleum Company (Government, 100%)	Risha	460.
Petroleum:			
Crude	thousand 42-gallon barrels National Petroleum Company	Hamza	NA.
Refined	do. Jordan Petroleum Refinery Company	Zarqa	33,000.
Phosphate:			
Phosphate rock	Jordan Phosphate Mines Company (Jordan Investment Corp., 41.5%; Social Security Corp., 27.8%; Kuwait Investment Corp., 15.9%)	al-Hasa	4,000.
Do.	do.	Shidiya	3,264.
Do.	do.	al-Abiad	3,000.
Phosphatic fertilizers	Jordan Fertilizer Industry Company (Government, 26%, and Jordan Phosphate Mines Company, 25%)	Aqaba	600 DAP. ¹
Do.	Nippon Jordan Fertilizer Company (Arab Potash Company Ltd., 20%, and Jordan Phosphate Mines Company, 20%)	Shiyada	100 DAP; ¹ 200 other.
Do.	Kemira Arab Potash Company (Arab Potash Company Ltd., 50%, and Kemira Danmark A/S, 50%)	Aqaba	75.
Phosphoric acid ²	Jordan Fertilizer Industry Company	do.	750.
Do. ²	Indo-Jordan Chemicals Company (Southern Petrochemical Industries Corp., 52.2%; Jordan Phosphate Mines Company 34.8%; Arab Investment Co., 13%)	Shiyada	224.
Potash	Arab Potash Company Ltd. (Government of Jordan, 52.9%; Arab Mining Co., 20.7%; Islamic Development Bank, 5.2%)	al-Safi	1,800.
Potassium nitrate	Kemira Arab Potash Company	Aqaba	150.
Salt	Jordan Safi Salt Company (subsidiary of Arab Potash Company Ltd.)	al-Safi	1,232.
Do.	al-Azraq	Azraq	NA.
Steel:			
Crude	Jordan Steel plc	Amman	250.
Semi-manufactured	do.	do.	250.
Do.	National Steel Industry Co.	Awajan	100.
Do.	Other steel producers	NA.	506.
Sulfuric acid	Jordan Fertilizer Industry Company	Aqaba	1,640.
Do.	Indo-Jordan Chemicals Company	Shiyada	660.
LEBANON			
Cement	Holcim (Liban) SAL (Holcim Ltd., 55.8%)	Chekka	1,800.
Do.	Ciementerie Nationale SAL	do.	1,650.
Do.	Ciment de Sibleine	Sibleine	1,200.
Phosphate fertilizers	Lebanon Chemicals Company SAL	Selaata	NA.
Phosphoric acid	do.	do.	NA.
Steel	Consolidated Steel Lebanon SAL	Amchit	300.
Sulfuric acid	Lebanon Chemicals Company SAL	Selaata	NA.
SYRIA			
Cement	Tartous Company for Cement & Building Materials ³	Tartous	1,802.
Do.	al-Chaba Cement & Building Materials ³	Aleppo	923.
Do.	Arabian Cement Co. for Cement ³	do.	898.
Do.	Adra Co. for Cement and Building ³	Adra	845.
Do.	Syrian Co. for Manufacturing Cement ³	Hama	432.
Do.	National Co. for Manufacturing of Cement ³	Dummar	190.

See footnotes at end of table.

TABLE 2--Continued
 JORDAN, LEBANON, AND SYRIA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2003

(Thousand metric tons unless otherwise specified)

Country and commodity		Major operating companies		Location of main facilities	Annual capacity	
SYRIA--Continued						
Cement--Continued		Rastan Co. for Cement and Building Materials ³		Rastan	131.	
Do.		Military Housing Cement Group (Government, 100%)		Musselemieh	NA.	
Natural gas	million cubic meters	ConocoPhillips Company		Processing plant at Deir ez-Zor	4,750.	
Do.	do.	al-Furat Petroleum Company (Syrian Petroleum Company, 50%; Deminex GmbH, 18.8%; Pecten Syria Petroleum, 15.6%; Royal Dutch/Shell, 15.6%)		Processing plant at Omar	2,400.	
Do.	do.	Syrian Petroleum Company (Government, 100%)		Processing plant at Palmyra	2,200.	
Do.	do.	do.		Processing plant at Jebissa	1,060.	
Do.	do.	do.		Processing plant at Suwaidiyah	240.	
Nitrogen:						
Ammonia and urea ⁴		General Fertilizers Company (subsidiary of General Organization for Chemical Industries)		Homs	256 ammonia; 137 urea.	
Fertilizers		do.		do.	109.	
Petroleum:						
Crude	thousand 42-gallon barrels	al-Furat Petroleum Company		al-Thayyem	20,000.	
Do.	do.	do.		al-Izba	18,300.	
Do.	do.	do.		Omar/Omar North	14,600.	
Do.	do.	do.		Maleh/Azraq	11,000.	
Do.	do.	do.		Sijan	11,000.	
Do.	do.	do.		Jarnof/Saban	9,100.	
Do.	do.	do.		al-Ward	7,300.	
Do.	do.	do.		Tanak	6,600.	
Do.	do.	Syrian Petroleum Company		Suwaidiyah, Jebissa, and Karatchok	45,600.	
Do.	do.	Deir-ez Zor Petroleum Company (Syrian Petroleum Company, 50%, and Total S.A., 50%)		Qahar	10,200.	
Do.	do.	do.		Jafra	4,700.	
Do.	do.	do.		al-Mazraa and Attala North	3,700.	
Do.	do.	al-Khabur Petroleum Co. (Syrian Petroleum Company, 50%)		Kishma	5,800.	
Refined:		do.		Banias Refinery Company (Government, 100%)	Banias	49,300.
Do.		do.		Homs Refinery Company (Government, 100%)	Homs	39,100.
Phosphate:						
Phosphate rock		General Company for Phosphate and Mines (Government, 100%)		Eastern A	1,150.	
Do.		do.		Kneifis	800.	
Do.		do.		Eastern B	700.	
Phosphatic fertilizers		General Fertilizers Company		Homs	450 TSP; ⁵ 207 P ₂ O ₅ .	
Phosphoric acid		do.		do.	NA.	
Salt		General Company for Phosphate and Mines		Deir al-Zour	72.	
Steel:						
Billet		General Company for Iron and Steel Products (Government, 100%)		Hama	60.	
Rolled		Merri Family		Tartous	300.	
Do.		Arab Steel Co.		Lattakia	250.	
Do.		Joud International		do.	150.	
Do.		General Company for Iron and Steel Products		Hama	78.	
Sulfur	metric tons	Homs Refinery Co.		Homs	14,600.	
Do.	do.	do.		Processing plant at Suwaidiyah	7,410.	
Do.	do.	Syrian Petroleum Company		Processing plant at Jebissa	7,300.	
Sulfuric acid		General Fertilizers Company		Homs	560.	

NA Not available.

¹Diammonium phosphate.

²Expressed in phosphorus pentoxide (P₂O₅) equivalent.

³Subsidiary of General Organization for Cement and Building Materials, which is 100% Government owned.

⁴Expressed in nitrogen equivalent.

⁵Triple superphosphate.