



# 2011 Minerals Yearbook

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JORDAN

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# THE MINERAL INDUSTRY OF JORDAN

By Mowafa Taib

Jordan was one of the world's top producers and exporters of bromine, phosphate rock, and potash in 2011. The country was the world's fourth, fifth, and seventh ranked producer of bromine, phosphate rock and potash, respectively (Jasinski, 2012a, b; Ober, 2012). Jordan also produced such mineral commodities as calcium carbonate, cement, clay, fertilizer, kaolin, limestone, pozzolanic materials, refined petroleum products, silica sand, steel, and zeolitic tuff. Jordan, however, had been importing 95% of the energy it consumed because it has negligible crude oil and natural gas reserves. Consequently, the Government was looking for alternative sources of energy to satisfy its current and future energy needs and to reduce the country's energy import costs. It was also actively promoting foreign investment to develop the country's huge shale oil reserves. These were estimated by the Natural Resources Authority (NRA) to be more than 40 billion metric tons (Gt) of near-surface oil shale reserves and to contain more than 4 Gt of crude oil spread across 26 localities around the country. The Government had plans to build a nuclear powerplant and to exploit the country's large uranium deposits, which were estimated to contain 140,000 metric tons (t) of recoverable uranium ore and 59,000 t of uranium oxide ( $U_3O_8$ ) that could be extracted from phosphate deposits (Natural Resources Authority, 2010, p. 7; 2012, p. 10).

## Minerals in the National Economy

Jordan's gross domestic product (GDP) based on purchasing power parity increased in real terms (using 1994 as the base year) by 2.5% in 2011 compared with an increase of 2.3% in 2010. Mining and quarrying sector activity in Jordan, which included mainly fertilizer, phosphate rock, and potash production, increased for the second year in a row in 2011; the sector's activity increased by 17.7% in 2011 compared with the exceptionally high growth rate of 19.4% in 2010. The share of the mining and quarrying sector in the country's GDP increased in constant prices to 2.1% in 2011 from a revised 1.8% in 2010. The share of the manufacturing sector, which included cement, fertilizer, and iron and steel, increased slightly in constant prices to 20.4% from 20.2% in 2010. The performance of the mineral sector, including hydrocarbons, phosphate rock, and potash, as indicated by the industrial production quantity index numbers, increased to 120.8 in 2011 (reference year 1999 = 100) compared with 103.7 in 2010 and 74.3 in 2009. The increase was owing to higher outputs of phosphate rock and potash in 2011 compared with those of previous years (Central Bank of Jordan, 2012, p. 11–13, 82).

## Production

Notable increases in the volume of production of mineral commodities in 2011 compared with those of 2010 included the increase in aluminum fluoride, by 22%; cement, by 20%;

phosphate rock, by 8%; and potash, by about 6%. In 2011, production of bromine decreased in volume by 55%; crude oil, by 19%; sulfuric acid, by 13%; and phosphoric acid, by 8% during the same period of comparison (table 1).

## Government Policies and Programs

The NRA is an autonomous Government agency responsible for the development and regulation of the country's mineral resources in accordance with mining law No. 12 of 1988. The NRA, which was focusing on increasing the mineral sector's contribution to the country's economy and promoting the country's mineral resources to attract investment in the mineral industry, moved forward with geochemical and geophysical surveys as well as the national geologic mapping project. The NRA issued exploration licenses, export permits, and mining rights, and undertook geologic studies and surveys. In 2011, the NRA issued 21 mining rights and 14 exploration licenses for clay, phosphate rock, pozzolanic materials, and pure limestone as well as 1,988 export licenses (Natural Resources Authority, 2012, p. 21).

In 2011, the Prospecting Studies Division at the NRA conducted a dolomite exploration project by drilling 25 core wells and collecting and analyzing 148 samples in the Al Thaghra/Ras en Naqab area. The NRA continued exploration activity for kaolin in the Disi area in the Wadi el Hafira and for oil shale in Ma'an Governorate by drilling six wells in the Bir Khdad area. The NRA invited international mining companies to bid for copper and gold exploration and exploitation rights at the Wadi Abu Khsheibeh and for copper exploration and exploitation rights in the Umm el Amad area (Natural Resources Authority, 2012, p. 8, 16).

## Structure of the Mineral Industry

Arab Potash Co. Ltd. (APC), which was the only producer of potash in the country, had 1,966 employees in 2011 and produced fine, granular, industrial, and standard grades of potash. APC had several subsidiaries, including Arab Fertilizers and Chemicals Industries Ltd., which employed 217 people and produced potassium nitrate and dicalcium phosphate; Jordan Dead Sea Industries Co.; Jordan Magnesia Co., which was under liquidation; and Numiera Mixed Salts and Mud Co., which employed 58 workers. APC was also affiliated with Jordan Bromine Co.; Jordan Industrial Ports Co.; Jordan Safi Salt Co., which was under liquidation in 2009; and Nippon Jordan Fertilizer Co. (Arab Potash Co. Ltd., 2012, p. 10, 16–17).

Jordan Phosphate Mines Co. plc. (JPMC), which was the country's only phosphate rock producer, employed 3,767 people in 2011 and produced phosphate rock, phosphate-based fertilizers, and phosphoric and sulfuric acids. JPMC owned 70% of Nippon Jordan Fertilizer Co. W.L.L., 50% of Industrial Ports Co., 48% of Jordan India Fertilizer Co., 34.8% of Indo-Jordan

Chemicals Co. Ltd., and 26% of Manajim Mining Development Co. (Indo-Jordan Chemicals Co. Ltd., 2012; Jordan Phosphate Mines Co. plc., 2012, p. 21, 24). Both APC and JPMC had mixed ownership that included both domestic and international private and public investors (table 2).

Five companies were active in cement production in Jordan in 2011. They included Al-Rajhi Cement–Jordan, which was wholly owned by Al-Rajhi Cement Holding Ltd. of Saudi Arabia; Arab Company for White Cement Industry, which was a joint venture of the Governments of Jordan and Syria; Jordan Lafarge Cement Factories Co. P.S.C. (JCFC), which was majority-owned by Lafarge S.A. of France; Northern Cement Co., which was wholly owned by private investors from Saudi Arabia; and Qatrana Cement Co., which was a subsidiary of Arabian Cement Co. of Saudi Arabia. Modern Cement and Mining Co., which was being built by Manaseer Group for Industries and Commercial Investments of Jordan, was expected to commence production in 2012 (table 2).

### Mineral Trade

In 2011, the value of Jordan's total commodity exports increased by 14% to about \$8.0 billion<sup>1</sup> from \$7.0 billion in 2010, as did the value of total commodity imports, which increased by 18% to \$16.3 billion from \$13.8 billion in 2010 (Central Bank of Jordan, 2012, p. 107). The value of Jordan's phosphate rock exports increased by about 69% to \$631 million from \$374 million in 2010. The quantity of phosphate rock exports increased about 26% to 5.4 million metric tons (Mt) from 4.3 Mt in 2010. Sixty-two percent of Jordan's phosphate rock exports went to India, followed by Indonesia, which received 10%; Bulgaria and Turkey, 6% each; the Netherlands and the Philippines, 4% each; and Mexico, 3% (Jordan Phosphate Mines Co. plc., 2012, p. 40).

In 2011, Jordan's potash exports increased in value by about 32% to \$837 million from \$636 million in 2010. The volume of potash exports, which amounted to 2.23 Mt, was an all-time record for the company and the country. Jordan's potash exports were received by more than 40 countries, chief among which was India, which received 25% of the total output, followed by China, 21%; Malaysia, about 12%; Indonesia, 10%; and others, 32% (Arab Potash Co. Ltd., 2012, p. 11).

The value of fertilizer and phosphoric acid exports decreased by 14% and 2%, respectively, in 2011 compared with that of 2010. India accounted for 69% of Jordan's fertilizer exports, followed by Ethiopia, 25%; Iraq, 3%; and the United Arab Emirates, 2% (Jordan Phosphate Mines Co. plc., 2012, p. 40).

Jordan was the 77th ranked trading partner of goods with the United States in 2011. The value of U.S. exports of goods to Jordan was \$1,454 million (an increase of about 24% from that of 2010) and that of imports from Jordan was \$1,061 million (an increase of about 9% from that of 2010). Jordan's exports to the United States accounted for 15% of Jordan's total exports, and imports from the United States accounted for about 6% of Jordan's total imports of goods (Central Bank of Jordan, 2012, p. 111–113; Office of the United States Trade Representative, 2012).

<sup>1</sup>Where necessary, values have been converted from Jordanian dinars (JD) to U.S. dollars (US\$) at the rate of JD0.709=US\$1.00.

## Commodity Review

### Industrial Minerals

**Cement.**—In 2011, the supply of cement to the local market exceeded the demand. The country's total production capacity was about 10 Mt of cement whereas consumption did not exceed 3 Mt. The increase in production capacity was attributed to the startup of operation at three new integrated cement plants, all of which were located in western Jordan, from 2007 through 2011. The additional production capacity prompted cement producers, such as JCFC, which held 47% of the market share and produced about 3 Mt in 2011, to adopt measures to increase their share of the local market, reduce their workforce, and use coal as a source of energy instead of fuel oil to reduce operating costs. In the meantime, the combined production capacity by Al-Rajhi Cement, Northern Cement, and Qatrana Cement was estimated to be about 3 million metric tons per year (Mt/yr). Cement exports to Iraq were reported to be 51,000 t in 2011 (Annous, 2012; Lafarge Group S.A., 2012, p. 57–58; Northern Cement Co., 2012; Qatrana Cement Co., 2012).

**Phosphate Rock.**—In 2011, JPMC produced about 7.6 Mt of phosphate rock, which was a record for the company and represented a 1.1 Mt increase in output compared with that of 2010. The majority of Jordan's phosphate rock resources, which were estimated by JPMC to be 1,386 Mt at the end of 2011, were located in the Eshidiya deposit. The Eshidiya deposit, which is situated in southern Jordan about 125 kilometers northeast of the Aqaba Port, covers an area of about 258 square kilometers (km<sup>2</sup>). About 64% of Jordan phosphate rock production in 2011 came from the Eshidiya Mine, 25% came from the Wadi Al-Abiad Mine, and 11% came from the Al Hassa Mine. Except for 2009, phosphate rock production from all three mines had increased every year from 2007 through 2011 (Jordan Phosphate Mines Co. plc., 2012, p. 13).

Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) began production in 2010 at the Aqaba Industrial Complex. The complex is located in the Al-Abyad Valley near the Al-Abyad phosphate rock mine. It included five production lines for the manufacturing of calcium chloride, [45,000 metric tons per year (t/yr) of production capacity], dicalcium phosphate (15,000 t/yr), hydrochloric acid (100,000 t/yr), soluble potassium sulfate (80,000 t/yr), sulfuric acid (132,000 t/yr), and triple superphosphate (65,000 t/yr). The shareholders of JAFCCO included JPMC (42.79%), Venture Capital Bank of Bahrain (25%), Old Jordan Arab Fertilizers and Chemical Co. (14.40%), Arab Mining Co. (10%), Sea Field Offshore Co. (5%), and Al-Fares Investments (2.81%) (Jordan Abyad Fertilizers and Chemicals Co. P.S.C., 2012).

Construction of the \$671 million phosphoric and sulfuric acid complex at Eshidiya in Ma'an Governorate, which began in 2010 by Jordan Indian Fertilizer Co. (JIFCO), continued throughout 2011. JIFCO was a joint venture of Indian Farmers Fertilizers Cooperative of India (IFFCO) (52% interest) and JPMC (48% interest). The joint venture was formed to build a phosphoric acid plant at the Eshidiya Mine that would have the capacity to produce 1,500 metric tons per day of phosphoric acid and 1.5 Mt/yr of sulfuric acid. JPMC committed to supply JIFCO with 2 Mt/yr of phosphate rock. JIFCO was

the largest investment in JPMC's history in terms of capital, supporting industries, and production. Most of the phosphoric acid produced would be exported to India where it would be used as feedstock for IFFCO's Kandla fertilizer plant, which is located in Gujarat State. The European Investment Bank and the International Finance Corp. were the lead arrangers and financial advisors for the project. They agreed to finance one-half of the project's cost (\$335.5 million), and the sponsors (JPMC and IFFCO) were responsible for the rest of the cost (\$335.5 million). The project was expected to be completed by July 2013 (Jordan India Fertilizer Company L.L.C., 2012).

JPMC and Petrokemias Gresik of Indonesia created a 50-50 joint venture, PT Petro-Jordan Abadi, to build a new plant in Indonesia that would have the capacity to produce 200,000 t/yr of phosphoric acid. JPMC would supply phosphate rock for the plant (Jordan Phosphate Mines Co. plc., 2012, p. 35).

JPMC completed 70% of the construction work needed to relocate its phosphate rock exports terminal at the Aqaba Port on the Red Sea to a new site in the Southern Industrial Zone, which is located on the southern tip of the Gulf of Aqaba near the border with Saudi Arabia. The company expected to begin using the new export terminal in the second half of 2012. The JPMC terminal would be operated in conjunction with Aqaba Development Corp. and the Aqaba Special Economic Zones Authority. Afcons Infrastructure Ltd. of India was the contractor for the \$200 million project, which would include construction of a 4-Mt/yr phosphate rock terminal; truck unloading, handling, and storage facilities; and pipe conveyors (Jordan Phosphate Mines Co. plc., 2012, p. 35).

**Potash.**—In 2011, Jordan's APC produced a record amount of potash—about 2.26 Mt compared with 1.94 Mt in 2010. The volume of potash sales, which reached 2.23 Mt, was also a record for APC following record sales of 2.1 Mt of potash in 2010. APC completed its capacity expansion project in 2011, including modifying the solar ponds, building new carnalite ponds, increasing the potash storage capacity at Safi, increasing storage capacity at its Aqaba warehouse, and building a new cold crystallization plant. The expansion project increased APC's production capacity to 2.45 Mt/yr of potash from 2.0 Mt/yr. APC added four intake pumping stations at the Dead Sea and reached a total flow of 10 million cubic meters. APC also contracted Von Oord B.V. of the Netherlands to carry out dredging of about 30% of the salt ponds in the next 3 years (Arab Potash Co. Ltd., 2012, p. 12, 31).

### ***Mineral Fuels and Related Materials***

**Oil Shale.**—Jordan's comprehensive national energy strategy called for using oil shale as a fuel to generate electricity or to distill it to produce crude oil; the objective was to increase oil shale usage to meet 11% of the country's primary energy needs by 2015 and 14% by 2020. The NRA offered concessions, through commercial agreements, to three companies. One concession was awarded to Jordan Oil Shale Co. (a subsidiary of Royal Dutch Shell plc of the United Kingdom). The concession included several locations and covered 22,270 km<sup>2</sup>. The company developed a subsurface model for exploiting oil shale using an in situ conversion process. Jordan Oil Shale Energy

Co. (a subsidiary of Eesti Energia of Estonia) held a concession at the Attarat um Ghurdran that covers about 42 km<sup>2</sup>. Al Karak International Oil Co. held a 35-km<sup>2</sup> concession at the Al Lajjun area in accordance with law No. 11 of 2011.

Six companies signed memoranda of understanding with the NRA to invest in oil shale projects in Jordan. These companies included Aqaba Petroleum Co., International Corporation for Oil Shale Investment of Saudi Arabia, Inter RAO UES Co. of Russia, Jordan Energy and Mining Ltd., and Petr leo Brasileiro S.A of Brazil (Natural Resources Authority, 2012, p. 10–12).

### **Outlook**

The volume of phosphate rock and potash exports is likely to increase in the upcoming years following the completion of the export hub at Aqaba Port, which was being built by APC and JPMC. The new terminal would enable the two companies to increase the volume of fertilizer, phosphate rock, and potash exports. The Government is expected to exert more efforts to attract foreign investment in alternative energy projects, including oil shale extraction and building a nuclear powerplant that would use locally mined uranium. In 2012, the NRA awarded Global Oil Shale Holdings of the United Kingdom two oil shale exploration and production contracts in the Attarat Umm Ghudran Block, which is located in central Jordan, and in the Isfir Al Mahatta Block, which is located in the southern part of the country (Oil and Gas Journal, 2012).

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

(Thousand metric tons unless otherwise specified)

Commodity	2007	2008	2009	2010	2011
<b>METALS</b>					
Steel: <sup>c</sup>					
Crude	150	150	150	150	150
Semimanufactured	360	360	360	360	360
<b>INDUSTRIAL MINERALS</b>					
Bromine	85	85 <sup>r</sup>	69	329	148
Calcium carbonate	328	415	317	411	46
Cement, hydraulic	4,255 <sup>r</sup>	4,375 <sup>r</sup>	3,876 <sup>r</sup>	5,000 <sup>r</sup>	6,000
Clay:					
Common clay	948	762	765	929	421
Dead Sea mud	207	256	1,348	227	225
Kaolin	101	181	177	115	90
Feldspar	10	3	--	--	--
Fluorine, aluminum fluoride	11	9	9	9	11
Gypsum	288	232	304	292	255
Lime	12	15	8	16	18
Limestone, pure	482	1,840	2,352	559	187
Phosphate:					
Phosphate rock, mine output:					
Gross weight	5,552	6,266	5,282	6,529	7,643
P <sub>2</sub> O <sub>5</sub> content	1,780	2,002	1,690	2,090	2,446
Phosphatic fertilizers	831	788	721	812 <sup>r</sup>	824
Phosphoric acid	480	477	488	549	504
Potash:					
Crude salts	1,797	2,005	1,120	2,141 <sup>2</sup>	2,259
K <sub>2</sub> O equivalent	1,090	1,223	683	1,185 <sup>r</sup>	1,355
Salt:					
Brine	17	25	23	33	--
Dead Sea	1,289	1,375	191	1,152	1,150 <sup>e</sup>
Sand: <sup>3</sup>					
Silica	628	23	298	150	88
Other	4,370	4,400	4,620	3,930	4,000
Stone:					
Basalt	21	5	44	14	15
Dimension:					
Worked	5,657	6,053	6,356	6,356	4,032
Marble	41	44	46	46	50
Gravel and crushed rock:					
Basalt	3	1	1	1	1
Granite	4	4	4	4	4
Marble	27	29	31	46	46
Other	15	14	15	31	30 <sup>e</sup>
Pozzolanic material	495	538	619	104	104 <sup>e</sup>
Travertine	3	6	11	9	9 <sup>e</sup>
Zeolite tuff	2	11	12 <sup>r</sup>	12 <sup>r</sup>	15
Sulfuric acid:					
Gross weight	1,022	933	918	1,067	932
S content	334	305	300	349	304

See footnotes at the end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity	2007	2008	2009	2010	2011
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Natural gas, dry	219	210	257	214	226
Petroleum:					
Crude	8,578	15,604	9,397	8,909	7,190
Refinery products:					
Liquefied petroleum gas	1,245	1,200	1,235	985	958
Lubricants	118	110	119	107	110
Gasoline	5,787	5,700	7,566	7,029	6,810
Jet fuel	2,304	2,300	2,444	2,717	2,721
Kerosene	1,075	1,080	625	654	448
Distillate fuel oil	9,047	9,000	8,750	6,739	7,684
Residual fuel oil	8,024	8,000	6,124	7,195	5,781
Asphalt	453	136	1,171	914	648
Total	28,053	27,526	28,034	26,340	25,160

<sup>0</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>1</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through October 31, 2012.

<sup>2</sup>Reported figure.

<sup>3</sup>Reported as cubic meters and converted to metric tons.

TABLE 2  
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
Aluminum fluoride	Jordan Phosphate Mines Co. p.l.c. (JPMC) (Kamil Holding Ltd., private, 37%; Jordan Finance Ministry, 26.3%; Social Security Corp., 16%; Kuwait Investment Corp., 9.3%; Passport Global Master Fund SPC Ltd., 2.8%; Islamic Development Bank, 1.4%)	Aqaba	14	
Basalt	Jordan Rock Wool Industries Co. Ltd.	Qa'a Hanna	5	
Bromine	Jordan Bromine Co. [Arab Potash Company Ltd. (APC), 50%, and Albemarle Corp., 50%]	al-Safi	100	
Cement	Al Rajhi Cement Jordan	Maftaq	2,000	
Do.	Arab Company for White Cement Industry	Amman	130	
Do.	Arabian Cement Jordan (Arabian Cement Co., 100%)	Al Qatraneh	1,800	
Do.	Jordan Lafarge Cement Factories Co. P.S.C. (JCFC) (Lafarge S.A., 50.28%, Social Security Corp., 21.86%; others, 27.87%)	Fuheis and Ar-Rashadiya	4,800	
Do.	Modern Cement and Mining Co. (Manaseer Group for Industries and Commercial Investments of Jordan, 100%)	do.	1,200 <sup>†</sup>	
	Northern Cement Co.	Mill at Muwaqar	1,000	
Feldspar	General Mining Co. Ltd.	Al-Jaishiah	10	
Gypsum	Al-Nasr Mining Establishment	Mujib	31	
Do.	Al-Nisr/Ali Manaseer	do.	89	
Do.	Al-Noor Mining Co.	do.	11	
Do.	Falahat Mining Establishment	do.	25	
Do.	Isam Alshoouly & Maksim	do.	13	
Do.	Jordan Lafarge Cement Factories Company P.S.C.	Zarqa	73	
Do.	Mansour Al Shoabaki Establishment	Mujib	2	
Do.	Public Mining Co. Ltd.	do.	68	
Do.	Shaker Al-Talib Establishment	Subeih	15	
Kaolin	Al-Faori Enterprise for Mining	Al-Adasieh	110	
Do.	Jordanian Company for Mining and Processing of Kaolin and Feldspar	Qanasieh	216	
Do.	Public Mining Company Ltd.	Fuahais	38	
Do.	do.	Batn el-Ghoul	31	
Lime	Arab Company for White Cement Industry	Khalidiah	NA	
Natural gas	million cubic meters	National Petroleum Co. (Government, 100%)	Risha	210
Petroleum:				
Crude	thousand 42-gallon barrels	do.	Hamza	16
Refined	do.	Jordan Petroleum Refinery Co. Ltd. (Government, 100%)	Zarqa	36,500
Phosphate:				
Phosphate rock	Jordan Phosphate Mines Co. p.l.c. (JPMC) (Kamil Holding Ltd., 37.000%; Jordan Finance Ministry, 26.261%; Social Security Corp., 16.030%; Kuwait Investment Corp. 9.333%; Passport Global Master Fund Spc Ltd., 2.775%; Jordan Islamic Bank, 1.465%; others,5.065%)	Al-Abiad, Al-Hassa, Eshidiya, and Russeifa Mines	7,000	
Phosphatic fertilizers	do.	Aqaba	650	
Do.	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) [Venture Capital Bank, 57.2%; Al-Fares Investments, 17.8%; Jordan Phosphate Mines Co. p.l.c. (JMPC), 15%; Arab Mining Co., 10%]	do.	80	
Do.	Nippon Jordan Fertilizer Co. [Asahi Industries Company Ltd. 10%; Mitsubishi Corp., 10%; Mitsubishi Chemicals Corp., 10%; Zen-Noh, 30%; Arab Potash Co. Ltd. (APC), 20%; Jordan Phosphate Mines Co. p.l.c. (JPMC), 20%]	Eshidiya	300	

See footnotes at end of table.

TABLE 2—Continued  
 JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Phosphate—Continued:</b>			
Phosphoric acid	Jordan Phosphate Mines Co. p.l.c. (JPMC)	Aqaba	350
Do.	Jordan Indian Fertilizer Co. (JIFCO) [Indian Farmers Fertilizers Cooperative of India (IFFCO), 52%, and Jordan Phosphate Mines Co. p.l.c. (JPMC), 48%]	Eshidiya	475 <sup>1</sup>
Do.	Indo-Jordan Chemicals Co. Ltd. (Jordan Phosphate Mines Co. p.l.c. (JPMC), 87% , and Arab Investment Co., 13%)	do.	250
Potash	Arab Potash Co. Ltd. (APC) (Potash Corporation of Saskatchewan, 27.96%; Arab Mining Co., 19.92%; Islamic Development Bank, 5.16%; Social Securty Corp., 5.04%; Iraqi Government, 4.71%; Libyan Arab Company for Foreign Investments, 4.06%; Kuwait Investment Authority, 3.95%; other investors, 2.32%)	al-Safi	2,450
Potassium nitrate	Arab Fertilizers and Chemicals Industries Ltd. [Arab Potash Co. Ltd. (APC), 100%]	Aqaba	150
Potassium sulfate	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) [Venture Capital Bank, 57.2%, Al-Fares Investments, 17.8%, Jordan Phosphate Mines Co. p.l.c. (JMPC), 15%, Arab Mining Co., 10%]	do.	80
Pozzolanic material	Jordan Lafarge Cement Factories Co. P.S.C.	Tel Remah	350
Do.	do.	Rashahdieh	150
Salt	Arab Potash Co. Ltd. (APC), 100%	al-Safi	17
Sand, silica	Middle East Regional Development Enterprises	Ras al-Naqab	530
Do.	Al-Habahbeh and Sons Company for Mining	do.	28
Do.	Al-Rehab for Industrial and Trading Establishment	do.	27
Do.	Al-Fares Company for Glass Sand Mining	do.	17
Do.	International Silica Industries	Dabbet Hanot/ Ras En Naqb	NA
Do.	Green Technology Group	AL-Homaimah	NA
<b>Steel:</b>			
Crude	Jordan Steel Co. p.l.c.	Amman	360
Semimanufactured	do.	do.	300
Do.	National Steel Industry Co.	Awajan	100
Do.	Jordan Steel Co. p.l.c.	Amman	506
Sulfuric acid	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) [Venture Capital Bank, 57.2%, Al-Fares Investments, 17.8%, Jordan Phosphate Mines Co. p.l.c. (JMPC), 15%, Arab Mining Co., 10%]	Aqaba	132
Do.	Jordan Phosphate Mines Co. p.l.c. (JPMC)	do.	1,100
Do.	Jordan Indian Fertilizer Co. (JIFCO) [Indian Farmers Fertilizers Cooperative of India (IFFCO), 52%, and Jordan Phosphate Mines Co. p.l.c. (JPMC), 48%]	Eshidiya	1,500 <sup>1</sup>
Do.	Indo-Jordan Chemicals Co. [Jordan Phosphate Mines Co. p.l.c. (JPMC), 87%, and Arab Investment Co., 13%]	do.	730
Zeolites	Amana Agricultural & Industrial Co.	Tel Hesban	NA
Do.	Green Technology Group of Jordan for Mining	Al Aritayn /Al-Marfaq	NA
Do.	Jordanian Factory for Soil Development & Moisture Drying Co.	do.	NA

Do., do. Ditto. NA Not available.

<sup>1</sup>Under construction.