



# 2014 Minerals Yearbook

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JORDAN

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# THE MINERAL INDUSTRY OF JORDAN

By Mowafa Taib

Jordan was a significant supplier of bromine, phosphate rock and phosphate-based fertilizers, and potash to the world in 2014. The country was among the world's top 10 producers of bromine, phosphate rock, and potash; it also produced modest quantities of calcium carbonate, cement, clay, crude oil, iron and steel, kaolin, limestone, natural gas, pozzolanic materials, refined petroleum products, silica sand, and zeolite tuff mainly for domestic use (table 1; Jasinski, 2016a, b; Schnebele, 2016).

## Minerals in the National Economy

Jordan's gross domestic product (GDP) increased in real terms by 3.1% in 2014 compared with an increase of 2.8% in 2013. The GDP in nominal terms was about \$36 billion<sup>1</sup> in 2014 compared with \$33 billion in 2013. In 2014, the contribution of the mining and quarrying sector increased to 2.6% of the country's GDP from 2.4% (revised) in 2013. The manufacturing sector, which included cement, fertilizer, iron and steel production, and other industries, contributed 16.9% to the country's GDP compared with 15.8% (revised) in 2013, and the construction sector contributed 4.5% to the GDP compared with 4.1% (revised) in 2013. The mining and quarrying sector activity increased in value at constant prices in 2014 compared with that of the previous 3 years; it increased by 27.6% in 2014 compared with decreases of 10.9% and 17.1% in 2013 and 2012, respectively. The increase was mainly attributable to greater production of phosphate rock and potash. The output value of the construction sector (inflation adjusted) increased by 5.8% compared with an average annual increase of 5.4% during the past 3 years. The increase in construction sector activity was mainly attributable to the increase in housing activity to accommodate the increased flow of refugees from Syria (Central Bank of Jordan, 2015a, p. 69; 2015b, p. 8–10, 69).

## Government Policies and Programs

The Government approved the Renewable Energy and Efficient Energy Law No. 13 of 2012. The law established the legal, legislative, and regulatory framework for investment in renewable energy projects in Jordan and authorized the Ministry of Energy and Mineral Resources (MEMR) to approve proposed renewable energy projects and grant tariff exemptions on imported renewable energy equipment. In 2014, the Government was focused on alternative sources of energy, such as oil shale, nuclear, solar, and wind. The national comprehensive energy strategy called for using oil shale as a fuel to generate electricity or to distill it to produce crude oil. One of the objectives of Jordan's energy strategy was to increase the share of renewable energy usage to meet 7% of the country's primary energy needs by 2015 and 10% by 2020 (Ministry of Energy and Mineral Resources, 2015a, p. 38).

<sup>1</sup>Where necessary, values have been converted from Jordanian dinar (JD) to U.S. dollars (US\$) at the rate of JD0.71=US\$1.00 for 2013 and 2014.

The MEMR continued to promote investment in the country's mineral resources sector. The MEMR conducted exploration studies for basalt, bentonite, calcite, copper, diatomite, and dolomite deposits at Al Farsh/Ras Negav; feldspar ore at Ar Rashidiya; kaolinite clays at Wadi Al Mizrab; oil shale at four locations in Ma'an Governorate; pure limestone at Al Hisa; and silica sand at Ras Al Negav. In addition to exploration studies, the MEMR supervised electric, gravity, and magnetic surveys as well as continued work on the national geologic mapping project, which sought to generate 1:50,000 and 1:100,000 scale maps for the whole country (Ministry of Energy and Mineral Resources, 2015a, p. 47–50).

The Natural Resources Authority (NRA), which was an autonomous Government agency under the MEMR, was responsible for the development and regulation of the country's mineral resources in accordance with Mining Law No. 12 of 1968, regulation No. 131 of 1966, quarries regulation No. 8 of 1971, and amendment regulations of quarries and mining fees No. 57 of 2012. The Government moved the NRA regulatory functions to the Energy and Mineral Resources Regulatory Authority. The NRA conducted exploration, geologic research, and survey activities and was renamed the Geological Survey and Exploration Corporation (GSEC). The GSEC has been promoting Jordan's mineral resources to attract investment in the mineral industry and to increase the mineral sector's contribution to the country's economy. The GSEC conducted geochemical and geophysical surveys as well as the national geologic mapping project; issued exploration licenses, export permits, and mining rights; and undertook geologic studies and surveys (Natural Resources Authority and Ministry of Industry and Trade, 2012, p. 9–12; Ministry of Energy and Mineral Resources, 2015b).

## Production

In 2014, Jordan's phosphate rock production increased by 32% compared with that of 2013; bromine, by 25%; potash, by 20%; aluminum fluoride, by 13%; cement, by 6%; and gypsum, by 5%. Notable output decreases in mineral production in 2014 compared with those of 2013 included the decrease in the production of residual fuel oil, by 19%; natural gas, by 13%; and total refined petroleum products, by 9% (table 1).

## Structure of the Mineral Industry

National Petroleum Co. and Jordan Petroleum Refinery Co. Ltd. were wholly state owned. Arab Company for White Cement, Arab Potash Co. (APC), Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO), Jordan India Fertilizer Co. (JIFCO), Jordan Lafarge Cement Factories Co. P.S.C. (JCFC), Jordan Phosphate Mines Co. p.l.c. (JPMC), and Nippon Jordan Fertilizer Co. had mixed ownership whereas the remainder (all other companies) were privately owned (table 2).

## Mineral Trade

In 2014, the value of Jordan's total exports increased to \$8.4 billion from \$7.9 billion in 2013. The value of phosphate rock exports increased by 25% in 2014 to \$470 million compared with \$377 million in 2013. The quantity of phosphate rock exports increased to 4.6 million metric tons (Mt) in 2014 from 3.2 Mt in 2013. The main destinations for phosphate rock exports were India (70%), Indonesia (16%), and Bulgaria (3%); other countries that imported phosphate rock from Jordan were Bangladesh, Iran, Japan, New Zealand, the Republic of Korea, Serbia, and Taiwan. Exports of phosphate fertilizers increased, by 25% to \$470 million in 2014 from \$377 million in 2013. In terms of quantity, Jordan exported 782,000 metric tons (t) of diammonium phosphate, 138,000 t of compound fertilizer (NPK), 134,000 t of potassium nitrate, 132,000 t of phosphoric acid, and 15,000 t of triple superphosphate. The major export destinations included India, which received 27% of Jordan's fertilizer exports; Turkey, 20%, and Ethiopia, 15%. In 2014, Jordan's potash exports were valued \$593 million, which was about 1% more than those of 2013, which were valued at \$588 million. Potash exports were received by China, 30%; India, 26%; and Malaysia, 8% (Arab Fertilizer Association, 2015, various pages; Jordan Phosphate Mines Co. p.l.c., 2015, p. 25, 36; United Nations Statistics Division, 2015, p. 210–211).

In 2014, Jordan's imports increased by about 3.1% to \$22.7 billion (\$6.1 billion of which were fuel oil and natural gas imports) from about \$21.6 billion in 2013 (about \$5.4 billion of which were fuel oil and natural gas imports). In addition to crude oil and refined petroleum products, Jordan imported such mineral commodities as aluminum, copper, other base metals, precious metals, iron and steel, and liquid ammonia and sulfur for use in fertilizer manufacturing. In 2014, Jordan imported 854,000 t of finished and semifinished steel products, which was 54% less than in 2009, when the country's steel imports reached a record high of more than 1.5 Mt (World Steel Association 2015, p. 57).

The value of United States exports to Jordan decreased slightly to \$2,050 million in 2014 from \$2,084 million in 2013, and the value of imports from Jordan to the United States increased by about 17% to \$1.4 billion in 2014 from \$1.2 billion in 2013. The top United States export categories in 2014 were excavating machinery, \$24 million; gold, \$15 million; aluminum and alumina, \$14 million; other petroleum products, \$10 million; drilling and oilfield equipment, \$6 million; and copper, \$3 million. The main United States mineral commodity import from Jordan was inorganic chemicals (such as bromine), which increased to \$6 million in 2014 from \$3 million in 2013 (U.S. Census Bureau, 2015a, b).

## Commodity Review

### Industrial Minerals

**Bromine.**—In 2014, production of bromine by Jordan Bromine Co. Ltd. (JBC) increased by 25% compared with that of 2013. JBC invested \$169 million to double the plant's bromine production capacity and to increase its capacity to produce bromine salts and other bromine-based products.

The expansion work was completed in 2013, and the company's production capacity of bromine increased to 100,000 metric tons per year (t/yr) from 50,000 t/yr and to 200,000 t/yr of bromine salts from 100,000 t/yr. JBC was a joint venture of the Albemarle Holding Co. Ltd., which was a wholly owned subsidiary of Albemarle Corp. of the United States, and the APC. The company extracted bromine from Dead Sea waters to produce elemental bromine and bromine compounds, such as calcium bromide, which is used in oilfield drilling; hydrogen bromide gas, which is used as a catalyst and reducing agent; sodium bromide, which is used in photography; and tetrabromobisphenol-A, which is used for flame retardation. The bromine products were marketed by Albemarle Corp. (table 1; Arab Potash Co., 2015, p. 27; Jordan Bromine Co. Ltd., 2015).

**Cement.**—Output of cement increased by 6% in 2014 compared with that of 2013. Clinker production decreased to 876,500 t in 2014 from 906,100 t in 2013. More than 93% of cement production was consumed by the domestic market and the remainder was exported to the neighboring countries of Iraq and Saudi Arabia. Six companies produced cement in Jordan in 2014; they were Al Rajhi Cement—Jordan, Arab Company for White Cement Industry, Jordan Lafarge Cement Factories Co. P.S.C. (JCFC), Modern Cement and Mining Co., Northern Cement Co., and Qatrana Cement Co. The high cost of energy prompted cement producers, such as JCFC, which had two cement plants with a combined cement production capacity of 4.8 million metric tons per year (Mt/yr) and a 33% share of the domestic market, to switch to using coal instead of fuel oil as a source of energy to reduce operating costs. JCFC was also experimenting with the direct burning of oil shale as an energy source in its cement plants in 2013 but stopped in 2014 owing to a decrease in the price of fuel oil (table 2; Lafarge Group S.A., 2014, p. 57–58; International Cement Review, 2015, p. 192–193).

**Phosphate Rock.**—In 2014, JPMC, which was the country's only phosphate rock producer, produced 7.1 Mt of phosphate rock, which was a 32% increase compared with 2013 production of 5.4 Mt. About 71% of Jordan's phosphate rock output came from the Eshidiya Mine, 17% from the Wadi Al Abiad Mine, and 13% from the Al Hassa Mine. The Eshidiya Mine contained 1.2 billion metric tons (Gt) of total ore reserves, including proved, probable, and possible reserves. The Wadi Al Abiad Mine held 14.5 Mt of proved reserves, and the Al Hassa Mine had 28.7 Mt of proved reserves. JPMC also produced 932,000 t of sulfuric acid, 590,000 t of diammonium phosphate fertilizer, and 292,000 t of phosphoric acid at its fertilizer complex in Aqaba (Jordan Phosphate Mines Co. p.l.c., 2015, p. 19–21).

In December 2014, commercial production of phosphoric acid by Jordan India Fertilizer Co. (JIFCO) started following the completion of the construction of a \$860 million phosphoric acid and sulfuric acid complex at Eshidiya in Ma'an Governorate. JIFCO was a joint venture formed by Indian Farmers Fertilizers Cooperative of India (IFFCO) (52% interest) and JPMC (48% interest) to build a phosphoric acid plant, which had the capacity to produce 475,000 t/yr of phosphoric acid and 1.5 Mt/yr of sulfuric acid. JPMC committed to supply JIFCO with 2 Mt/yr of low-grade phosphate ore. Most of the phosphoric acid produced was exported to India where it was used as feedstock for IFFCO's Kandla fertilizer plant, which is located

in the State of Gujarat (Jordan India Fertilizer Company L.L.C., 2014, Jordan Phosphate Mines Co. p.l.c., 2015, p. 27).

Production at a new 200,000-t/yr-capacity phosphoric acid plant in Indonesia commenced in October by PT Petro-Jordan Abadi Co., which was a 50–50 joint venture of JPMC and Petrokemias Gresik of Indonesia. JPMC would supply 800,000 t/yr of phosphate rock for the plant (Jordan Phosphate Mines Co. p.l.c., 2015, p. 27).

**Potash.**—In 2014, APC produced about 2.09 Mt of potash compared with 1.74 Mt in 2013. More than one-half (53%) of the potash produced, which was classified according to the Australian Quarantine and Inspection Service, was a standard grade; 38%, fine grade; 8%, granular grade; and 1% industrial grade. APC had several subsidiaries, including Arab Fertilizers and Chemicals Industries Ltd. (Kemapco), which produced 125,800 t of potassium nitrate in 2014; Jordan Dead Sea Industries Co.; Jordan Magnesia Co., which was under liquidation; and Numiera Mixed Salts and Mud Co., which employed 73 workers. APC was also affiliated with JBC; Jordan Industrial Ports Co.; Jordan Safi Salt Co., which was under liquidation in 2009; and Nippon Jordan Fertilizer Co. (Arab Potash Co., 2015, p. 11, 16, 18, 26–27).

### ***Mineral Fuels, Related Materials, and Other Sources of Energy***

**Oil Shale.**—The Government had been actively promoting foreign investment to develop the country's oil shale resources, which were estimated to be from 90 to 100 billion barrels (Gbb) of crude oil and ranked Jordan as the world's fourth largest country in terms of the volume of oil shale resources after the United States, China, and Russia. Oil shale, also known as black shale, is a solid hydrocarbons rock whereas shale oil, or tight oil, is a light crude oil confined to such sedimentary formations as limestone, sandstone, or shale. The U.S. Energy Information Administration estimated that the Batra shale, which lies in the Hamad and the Wadi Sirhan basins in eastern Jordan, contains about 1 trillion cubic meters of risked shale gas in-place, including 198 billion cubic meters of risked, technically recoverable gas resources. Shale oil estimates within the Batra shale were 4 Gbb of risked shale oil in-place, containing 100 million barrels of risked, technically recoverable shale oil resources (Tar Sands World, 2013; Natural Resources Authority, 2014, p. 28–30; U.S. Energy Information Administration, 2015, p. XXV–2).

In 2014, GSEC and other companies continued oil shale exploration in Jordan under the supervision of the MEMR in four areas covering 2,700 square kilometers (km<sup>2</sup>), which are located in the Ma'an Governorate in southern Jordan. Sixty-four wells were drilled at Al Jaffr and Jibal Al Adhriyat, 50 wells at Adh Dhirwa, 35 wells at Isfir Al Mahatta, and 20 wells at Al Jaffr (Ministry of Energy and Mineral Resources 2015a, p. 47).

As of yearend 2014, the MEMR offered concessions for oil shale exploration and production, through commercial agreements, to Al Karak International Oil Co., Jordan Oil Shale Energy Co. (a subsidiary of Eesti Energia of Estonia), Jordan Oil Shale Co. (a subsidiary of Royal Dutch Shell p.l.c. of the United Kingdom), and Saudi Arabian Corp. for Oil Shale. The concession held by Jordan Oil Shale Co. comprised

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, which would eliminate the need to transport oil shale to processing plants. Jordan Oil Shale Energy's concession, which is located at the Attarat um Ghudran property, covers 42 km<sup>2</sup> in central Jordan and holds 2 Gt of oil shale resources. The concession area could be increased in the future to include 4 Gt of oil shale resources. The company was expected to build the first oil-shale-fired powerplant in the region. The plant would have 500 megawatts (MW) of capacity. The project was expected to begin production in 2017 (Roscoe, 2013; Jordan Oil Shale Co., 2014).

As of yearend 2014, the Government signed six memoranda of understanding (MOU's) with local and international companies to develop oil shale production projects in Jordan. The companies were Al Qamar for Energy and Infrastructure Ltd. of India, Aqaba Petroleum for Oil Shale Co. (which was owned by the Jordanian armed forces and Marvol Holdings of Germany), Fushun Mining Group of China, Global Oil Shale Holdings of Canada, National Oil and Electricity from Oil Shale Co., and Whitehorn Resources Inc. of Canada (Ministry of Energy and Mineral Resources, 2015a, p. 36–38).

In addition to extracting crude oil from oil shale deposits, the Government also pursued projects that involved direct burning of oil shale deposits with a high concentration of crude oil to produce electricity. The Attarat Power Co., which was owned by companies from Estonia, Jordan, and Malaysia, was building a 470 MW powerplant at Attarat that would generate and sell electricity to the National Electric Power Co. El-Lajjun Company for Investment in Oil Shale and Mineral Resources also signed a MOU with the Government to produce 30,000 barrels per day of oil shale for use by direct burning in the Attarat and El-Lajjun regions (Ministry of Energy and Mineral Resources, 2015a, p. 38).

**Nuclear Energy and Uranium.**—In 2014, the Nuclear Power Plant Commission chose Rosatom Group of Russia to build and operate the country's first nuclear powerplant at Az-Zarqa, in the central region of Jordan. In March, the Governments of Jordan and Russia signed an agreement that established the legal basis for building a nuclear powerplant that would have two third-generation nuclear reactors that would have the capacity of 1 gigawatt each. The Government would hold a slight majority ownership of 50.1% in the plant, and Rosatom, 49.9%. The \$10 billion powerplant was expected to begin production from its first reactor in 2022 (Ministry of Energy and Mineral Resources, 2015a, p. 45; World Nuclear News, 2015).

Jordanian Uranium Mining Co. conducted exploration works to identify deep and surface uranium mineralization in areas that had been studied by Areva Group of France between 2009 and 2012. Based on the results of assays that covered 40% of the study area in central Jordan, the company estimated uranium resources to be 36,000 t of uranium oxide (Ministry of Energy and Mineral Resources, 2015a, p. 45).

**Renewable Energy.**—The Government awarded 12 photovoltaic solar permits to generate electricity from 200 MW of capacity in Ma'an Governorate. The solar power projects were expected to commence production by yearend 2015. Wind energy projects included a \$187 million contract with

Korea Electric Power Co. to construct the Al Fujeil wind farm, which would have 89 MW of power-generation capacity and would commence production by 2015. The Quweirah photovoltaic solar project and the Ma'an wind farm would have between 65 MW to 75 MW of electricity-generating capacity each. Jordan Wind Project Co. (JWPC) was a joint venture of E.P. Global Energy of Cyprus (51% interest) and InfraMed Infrastructure Fund of France (49% interest) formed to develop a wind farm at Tafila, which is located 180 kilometers south of Amman. The International Finance Corp. of the World Bank, agreed to loan up to \$75 million to JWPC and to arrange for an additional \$141 million to fund the project, which required \$302 million to build. The 117-MW-capacity Tafila wind farm was expected to be completed in the second half of 2015. The project would be operated as an independent power producer that was expected to sell all its generated electricity to Jordan's electricity network (National Electric Power Co.). In March, the Government awarded Elecnor S.A. of Spain an engineering and procurement contract to build a 66-MW wind farm in Ma'an Governorate. The \$112 million project would be funded by the Kuwait Fund for Arab Economic Development and was expected to become operational in 2016 (International Finance Corp., 2014; Zawya, 2014; Ministry of Energy and Mineral Resources, 2015a, p. 11).

## Outlook

Jordan, which imports petroleum products to meet virtually all its energy needs, has been implementing plans to develop its conventional, nonconventional, and renewable sources of energy to meet increased demand by the commercial, industrial, and residential sectors. The country's export capacity of bromine, fertilizer, phosphate rock, and potash has increased following the completion of the export hub at the Port of Aqaba, which was built jointly by APC and JPMC. Output of fertilizer, phosphate rock, and potash is likely to increase during the next 5 years, but the rate of increase will depend largely on increased global demand for such commodities in general and in the Asian markets in particular.

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

(Thousand metric tons unless otherwise specified)

Commodity	2010	2011	2012	2013	2014
METALS					
Steel:					
Crude	150	150	150	150	150
Semimanufactured	960	850	850	850	850
INDUSTRIAL MINERALS					
Bromine <sup>2</sup>	50	50	60	80	100
Calcium carbonate	411	46	623	620	620
Cement, hydraulic	3,043	2,816	4,000 <sup>r</sup>	4,200 <sup>r</sup>	4,450
Clay:					
Common	929	421	1,097	1,100	1,100
Dead Sea mud	metric tons	227	295	300	300
Kaolin	115	90	76	80	80
Fertilizers <sup>3</sup>	812	824	640	678	678
Fluorine, aluminum fluoride	9	11	9	8	9
Gypsum	292	255	857	857	900
Lime	16	18	18	20	20
Limestone, pure	559	187	1,984	2,000	2,000
Phosphate:					
Phosphate rock, mine output:					
Gross weight	6,529	7,594	6,383	5,399	7,144
P <sub>2</sub> O <sub>5</sub> content (32%)	2,090	2,430	2,043	1,728	2,286
Diammonium phosphate	753	710	601	606	606
Phosphoric acid	549	504	448	463	463
Potash:					
Crude salts	1,943 <sup>r</sup>	2,259	1,824	1,744	2,091
K <sub>2</sub> O equivalent	1,166 <sup>r</sup>	1,355	1,094	1,046	1,255
Salt:					
Brine	33	32 <sup>r</sup>	32	32	32
Dead Sea <sup>4</sup>	metric tons	1,152	1,263	1,270	1,250
Sand: <sup>5</sup>					
Silica	150	88	88 <sup>e</sup>	90	90
Other	3,930	4,000	4,000 <sup>e</sup>	4,000	4,000
Stone:					
Basalt	thousand cubic meters	14	15	15 <sup>e</sup>	15
Dimension:					
Worked	thousand meters	6,356	4,032	8,000	8,000
Marble	thousand cubic meters	46	50	50 <sup>e</sup>	50
Gravel and crushed rock:					
Basalt <sup>e</sup>	cubic meters	1,090	1,000 <sup>r</sup>	1,000 <sup>r</sup>	1,000 <sup>r</sup>
Granite	do.	4,100	--	--	--
Marble	do.	46,000	45,961	240,000	250,000
Other <sup>e</sup>	do.	31,000	30,000	30,000	30,000
Pozzolan material <sup>e</sup>		104	104	110	110
Travertine	metric tons	9,440	5,905	6,000	6,000
Zeolite tuff		12	14	13	13
Sulfuric acid:					
Gross weight		1,680	1,539	1,419	1,488
S content		549	502	460	486
MINERAL FUELS AND RELATED MATERIALS					
Natural gas:					
Gross	million cubic meters	184 <sup>r</sup>	181	164	150

See footnotes at the end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity	2010	2011	2012	2013	2014	
<b>Petroleum:</b>						
Crude	thousand 42-gallon barrels	8,909	7,190	8,790	8,000	8,000
<b>Refinery products:</b>						
Asphalt	do.	909	648	588	575	612
Distillate fuel oil	do.	6,736	7,684	8,273	7,448	6,938
Gasoline	do.	5,976	5,788	6,086	5,870	5,408
Jet fuel and kerosene	do.	3,381	3,057	3,579	2,970	2,983
Liquefied petroleum gas	do.	986	974	1,183	1,010	1,056
Residual fuel oil	do.	7,193	5,781	6,653	6,649	5,408
Total	do.	25,181	23,932	26,362	24,522	22,405

<sup>6</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>7</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through January 15, 2016.

<sup>2</sup>Revised to report quantities of elemental bromine rather than quantities of bromine salts and other products.

<sup>3</sup>Includes compound fertilizer (NPK), potassium nitrate, and potassium sulfate.

<sup>4</sup>Extracted from the Dead Sea for therapeutic use; contains bromide, calcium chloride, magnesium, and potassium and sodium salts.

<sup>5</sup>Reported as cubic meters and converted to metric tons.

TABLE 2  
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(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., 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%; private investors, 7.136%)	Aqaba	14,000	
Basalt	Jordan Rock Wool Industries Co. Ltd.	Qa'a Hanna	5,000	
Bromine	Jordan Bromine Co. Ltd. (JBC) [Arab Potash Company Ltd. (APC), 50%, and Albemarle Corp., 50%]	Ghur Al Safi	100,000	
Cement	Al Rajhi Cement-Jordan (Al Rajhi Cement Holding )	Al-Mafraq	2,000,000	
Do.	Arab Company for White Cement Industry [Jordanian Syrian Company for Industry, 50%; General Establishment for Cement (Syria), 25%; Jordan Finance Ministry, 15%, Social Security Corp., 10%]	Amman	130,000	
Do.	Jordan Lafarge Cement Factories Co. P.S.C. (JCFC) (Lafarge S.A., 50.28%; Social Security Corp., 21.86%; others, 27.87%)	Ar-Rashadiya and Fuheis	4,800,000	
Do.	Modern Cement and Mining Co. (Manaseer Group for Industries and Commercial Investments of Jordan, 100%)	Al Qatranah	1,200,000	
Do.	Qatrana Cement Co. (Arabian Cement Co., 100%)	do.	1,800,000	
Do.	Northern Cement Co.	Mill at Muwaqar	1,000,000	
Feldspar	General Mining Co. Ltd.	Al-Jaishiah	10,000	
Gypsum	Al-Nasr Mining Establishment	Mujib	31,000	
Do.	Al-Nisr/Ali Manaseer	do.	89,000	
Do.	Al-Noor Mining Co.	do.	11,000	
Do.	Falahat Mining Establishment	do.	25,000	
Do.	Isam Alshoouly & Maksim	do.	13,000	
Do.	Jordan Lafarge Cement Factories Co. P.S.C.	Zarqa	73,000	
Do.	Mansour Al Shoabaki Establishment	Mujib	2,000	
Do.	Public Mining Co. Ltd.	do.	68,000	
Do.	Shaker Al-Talib Establishment	Subeihi	15,000	
Kaolin	Al-Faori Enterprise for Mining	Al-Adasieh	110,000	
Do.	Jordanian Company for Mining and Processing of Kaolin and Feldspar	Qanasieh	216,000	
Do.	Public Mining Co. Ltd.	Fuaheis	38,000	
Do.	do.	Batn el-Ghoul	31,000	
Lime	Arab Company for White Cement Industry [Jordanian Syrian Company for Industry, 50%; General Establishment for Cement (Syria), 25%; Jordan Finance Ministry, 15%; Social Security Corp., 10%]	Khalidiah	NA	
Natural gas	million cubic meters	National Petroleum Co. (Government, 100%)	Risha	210
Petroleum:				
Crude	thousand 42-gallon barrels	do.	Hamza	8,000
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%)	Wadi Al-Abiad, Al-Hassa, Eshidiya Mines	7,000,000	
Phosphatic fertilizers	do.	Aqaba	650,000	
Do.	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) (Jaffco Bahrain Co., 42.79%; Jordan Phosphate Mines Co. p.l.c. (JMPC), 25%; Venture Capital Bank, 14.4%; Arab Mining Co., 10%; Sea Field Trading, 5%; Al-Fares Investments, 2.81%)	do.	80,000	
Do.	Nippon Jordan Fertilizer Co. [Asahi Industries Co. 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	300,000	
Phosphoric acid	Jordan Phosphate Mines Co. p.l.c. (JPMC)	Aqaba	350,000	
Do.	Jordan India Fertilizer Co. (JIFCO) [Indian Farmers Fertilizers Cooperative of India (IFFCO), 52%, and Jordan Phosphate Mines Co. p.l.c. (JPMC), 48%]	Eshidiya	475,000	
Do.	Indo-Jordan Chemicals Co. Ltd. (Jordan Phosphate Mines Co. p.l.c. (JPMC), 87%, and Arab Investment Co., 13%)	do.	200,000	

See footnotes at end of table.



TABLE 2—Continued  
 JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash	Arab Potash Co. Ltd. (APC) (Potash Corporation of Saskatchewan, 27.96%; Arab Mining Co., 19.92%; Islamic Development Bank, 5.16%; Social Security Corp., 5.04%; Iraqi Government, 4.71%; Libyan Arab Company for Foreign Investments, 4.06%; Kuwait Investment Authority, 3.95%; other investors, 2.32%)	Ghur Al Safi	2,450,000
Potassium nitrate	Arab Fertilizers and Chemicals Industries Ltd. (Kempaco) [Arab Potash Co. Ltd. (APC), 100%]	Aqaba	150,000
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.	80,000
Pozzolanic material	Jordan Lafarge Cement Factories Co. P.S.C. (CFC)	Tel Remah	350,000
Do.	do.	Ar-Rashadiya	150,000
Salt	Arab Potash Co. Ltd. (APC), 100%	Ghur al Safi	17,000
Sand, silica	Middle East Regional Development Enterprises	Ras en-Naqab	530,000
Do.	Al-Hababbeh and Sons Company for Mining	do.	28,000
Do.	Al-Rehab for Industrial and Trading Establishment	do.	27,000
Do.	Al-Fares Company for Glass Sand Mining	do.	17,000
Do.	International Silica Industries	Ras En Nagab/ Dabbet Hanot	NA
Do.	Green Technology Group	AL-Homaimeh	NA
Steel:			
Crude	Jordan Steel Co. p.l.c.	Amman	360,000
Semimanufactured	do.	do.	300,000
Do.	National Steel Industry Co.	Awajan	100,000
Do.	Jordan Steel Co. p.l.c.	Amman	506,000
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	132,000
Do.	Jordan Indian Fertilizer Co. (JIFCO) [Indian Farmers Fertilizers Cooperative of India (IFFCO), 52%, and Jordan Phosphate Mines Co. p.l.c. (JMPC), 48%]	Eshidiya	1,485,000
Do.	Indo-Jordan Chemicals Co. (Jordan Phosphate Mines Co. p.l.c. (JMPC), 87%, and Arab Investment Co., 13%)	do.	66,000
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.