



2013 Minerals Yearbook

JORDAN

THE MINERAL INDUSTRY OF JORDAN

By Mowafa Taib

In 2013, Jordan continued to be a significant supplier of such industrial mineral commodities as bromine, phosphate rock, phosphate fertilizers, and potash to the world. The country was among the world's top ten producers of bromine, phosphate rock, and potash. Jordan also produced modest quantities of calcium carbonate, cement, clay, crude oil, steel, kaolin, limestone, natural gas, pozzolanic materials, refined petroleum products, silica sand, and zeolitic tuff mainly for domestic use (table 1; Jasinski, 2014a, b; Ober, 2014).

Minerals in the National Economy

Jordan's gross domestic product (GDP) increased in real terms by 2.8% in 2013 compared with an increase of 2.7% in 2012. The GDP in nominal value was \$33.6 billion in 2013 compared with \$31.0 billion in 2012. The mining and quarrying sector, which included bromine, phosphate rock, and potash production, contributed 2.5% to the country's GDP in 2013. The manufacturing sector, which included cement, fertilizer, and iron and steel production, contributed 19.2% to the country's GDP, and the construction sectors contributed 5.0% to the GDP. The mining and quarrying sector activity decreased in value at both constant and current prices in 2013 compared with the previous 2 years. Compared with a growth rate of 19.4% and 17.7% at constant basic prices in 2010 and 2011, respectively, the mining and quarrying sector registered a negative growth of 10.9% and 17.1% in 2013 and 2012, respectively. The decrease was attributable to decreased production volume of both phosphate rock and potash. The growth rate of the industry sector, however, has maintained positive values annually since 2009. The construction sector reversed its negative growth rate, which averaged 3.3% per year at constant prices from 2010 to 2012 and showed an 8.7% increase in 2013. The increase in construction sector activity was attributed to accommodations made for the increased flow of refugees from Syria (Bank Audi, S.A.L., 2014, p. 2; Central Bank of Jordan, 2014, p. 8–9, 85–86; International Monetary Fund, 2014, p. 42).

Government Policies and Programs

Jordan imported about 97% of its fuel to meet the country's increasing demand for energy. A long-term national energy policy had not been formulated until recently as the country previously received some of its crude oil imports in the form of grants from Iraq and other Arab Gulf countries. The increase in crude oil prices and the unreliability of crude oil grants made it necessary for Jordan to have a long-term plan to address its high energy costs. Much emphasis was initially placed on building a nuclear powerplant, but then it was shifted to using the country's abundant oil shale reserves, and more recently, to developing renewable sources of energy, such as 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, 2013, p. 21).

Jordan's natural gas imports from Egypt by way of the Arab gas pipeline were severely reduced from 2011 to 2013 because of several attacks on the pipeline in the Sinai Peninsula. Therefore, the Government took immediate steps to offset natural gas shortages from Egypt. These steps included building a new liquefied petroleum gas (LPG) terminal at the Port of Aqaba on the Red Sea; constructing a floating liquefied natural gas (LNG) receiving terminal near the Port of Aqaba that could be connected to the shore by way of a pipeline; building a storage facility for petroleum products near Amman that would have the capacity to store 250,000 to 300,000 metric tons (t) of refined petroleum products; and negotiating a long-term contract with Noble Energy Inc. of the United States to supply natural gas to Arab Potash Co. (APC) and Jordan Bromine Co. (JBC) plants on the east coast of the Dead Sea from Noble's offshore gasfield by way of Israel (Song Loong, 2014, p. 52).

Production

Bromine production was estimated to have increased by one-third in 2013 compared with that of 2012. The increase was attributable to the completion of an expansion project at JBC. Notable decreases in mineral commodity production output in 2013 compared with that of 2012 included the decrease in phosphate rock output (by 15%), aluminum fluoride (11%), potash (4%), crude oil and natural gas (9%), and refined petroleum products (7%) (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, APC, Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO), JBC, Jordan Indian 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 joint private and public ownership, whereas other companies were privately owned (table 2).

The Natural Resources Authority (NRA), which is an autonomous Government agency under the Ministry of Energy and Mineral Resources, was responsible for the development and regulation of the country's mineral resources in accordance with mining law No. 12 of 1968. The NRA promotes the country's mineral resources to attract investment in the mineral industry and to increase the mineral sector's contribution to the country's economy. The NRA conducts geochemical and geophysical surveys as well as the national geologic mapping project; issues exploration licenses, export permits, and mining

rights; and undertakes geologic studies and surveys (Natural Resources Authority, 2014a).

Mineral Trade

In 2013, the value of Jordan's total exports was \$7.9 billion, which was nearly unchanged from that of 2012, and the value of imports increased by about 5% to \$19.6 billion (of which \$5.2 billion was fuel oil and natural gas imports) from about \$18.5 billion in 2012 (of which about \$5.9 billion was fuel oil and natural gas imports). The destinations of exports included Iraq, 18.4% of total exports; the United States, 17.6%; Saudi Arabia, 13.6%; India, 7.3%; the United Arab Emirates, 4.0%; and Indonesia, 3.4%. Crude materials exports, which included phosphate rock and potash exports, contributed 15.7% of the country's total exports in 2013, and chemical exports, which included fertilizer and bromine salts, contributed 25.9% (Department of Statistics, 2014, p. 232; International Monetary Fund, 2014, p. 24).

Phosphate rock exports decreased in tonnage by 25% in 2013 compared with those of 2012, which was 20% less than that of 2011. The quantity of phosphate rock exports decreased to 3.2 million metric tons (Mt) in 2013 from 4.3 Mt in 2012. More than 71% of those phosphate rock exports went to India, followed by Indonesia, 13.6%; Bulgaria, 4.6%; Japan, 3.9%; and Taiwan, 3.5%. JPMC's fertilizer exports were received by India and Turkey, 28% each; Ethiopia, 17%; Bulgaria, 13%; Iraq, 7%; and the United Arab Emirates, 3% (Jordan Phosphate Mines Co. p.l.c., 2014, p. 36).

In 2013, Jordan's potash sales (including domestic sales) increased by about 12% to 1.77 Mt from 1.64 Mt in 2012. Potash exports were received by India, which accounted for 19.8% of Jordan's total potash exports; Indonesia, 17.6%; Malaysia, 14.3%; China, 14.0%; other African countries, 4.8%; Egypt and European countries, 4.4% each; Arab Gulf countries, 3.4%; and Japan, 2.4% (Arab Potash Co., 2014, p. 36).

In addition to crude oil and refined petroleum products, Jordan imported liquid ammonia and sulfur for use in fertilizer manufacturing as well as iron and steel. In 2013, Jordan imported 868,000 t of finished and semifinished steel products compared with about 1.2 Mt in 2012 and about 1.1 Mt in 2011. Sulfur imports, which were used as feedstock for sulfuric acid, phosphate fertilizers, and phosphoric acid production, amounted to 409,000 t in 2012 compared with 508,500 t in 2011. Imports of liquid ammonia, which were used in diammonium phosphate (DAP) production, decreased to 180,900 t in 2012 compared with 197,300 t in 2011 (Department of Statistics, 2014, p. 138; World Steel Association, 2014, p. 55).

Jordan has a free-trade agreement with the United States, and was the United States 68th-ranked trading partner in 2013. The value of U.S. exports to Jordan increased by 18% to \$2.1 billion in 2013 from \$1.8 billion in 2012, and the value of imports from Jordan to the United States increased by about 4% to \$1.20 billion in 2013 from \$1.16 billion in 2012. The top U.S. export categories in 2013 included fuel minerals and other petroleum products, \$399 million; excavating machinery, \$34 million; aluminum and alumina, \$15 million; drilling and oilfield equipment, \$9 million; and copper and iron and steel

products, \$2 million each (Office of the United States Trade Representative, 2014; U.S. Census Bureau, 2014).

Commodity Review

Industrial Minerals

Bromine.—Bromine production data in table 1 were revised to report quantities of elemental bromine rather than quantities of bromine salts and other products. Bromine was produced by JBC, which is located at the Ghur Al Safi area about 17 kilometers (km) from the city of Karak. JBC was a joint venture of 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 waters of the Dead Sea to produce elemental bromine and such bromine compounds 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. JBC invested \$169 million to double the plant's bromine production capacity and increase its capacity to produce bromine salts and other bromine-based products. The expansion work was completed in the second quarter of 2013, and the company's production capacity doubled to 100,000 metric tons per year (t/yr) of bromine from 50,000 t/yr and to 200,000 t/yr of bromine salts from 100,000 t/yr. JBC had 280 employees (table 2; Arab Potash Co., 2014, p. 23).

Cement.—According to the Arab Union for Cement and Building Materials, Jordan's cement production capacity was 10.9 million metric tons per year (Mt/yr) in 2012 (the latest year for which comprehensive information was available). Six companies produced an estimated 5 Mt of cement in Jordan in 2013. They included 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 production capacity of 4.8 Mt/yr and 33% of the domestic market share, to switch to coal instead of fuel oil as a source of energy to reduce operating costs. JCFC was also experimenting with using oil shale as an energy source in its cement plants (table 2; Arab Union for Cement and Building Materials, 2013; Lafarge Group S.A., 2014, p. 57–58).

Magnesium Compounds.—Jordan Magnesia Co. (JORMAG) was a public shareholding company created in 1997 to produce magnesium oxides and magnesium hydroxide. Production at the company, which had eight employees in 2013, has been idle since 2005. JORMAG's losses at the end of 2013 were about \$88 million. APC planned to increase its share in JORMAG's capital to 93% from 55% in 2014 (Arab Potash Co., 2014, p. 24).

Phosphate Rock.—In 2013, JPMC, which was the country's only phosphate rock producer, employed 4,056 people compared with 4,234 people in 2012. JPMC produced phosphate rock, phosphate-based fertilizers, and phosphoric and sulfuric acids. JPMC produced 5.4 Mt of phosphate rock in 2013, which was a 29% decrease from the record output of about 7.6 Mt in 2011. The decrease was attributed to external factors, such

as international market volatility and weak demand for phosphate-based fertilizers and products, especially by India. The decrease in India's phosphate rock imports from Jordan was attributed to the decreased fertilizer subsidy given to farmers by the Indian Government and to the lower exchange rate of India's rupee against the U.S. dollar. Sixty-seven percent of Jordan's phosphate rock output came from the Eshidiya Mine, 20% from the Wadi Al-Abiad Mine, and 13% from the Al-Hassa Mine. The Eshidiya Mine, which produced 3.6 Mt of phosphate rock in 2013, had 1.23 billion metric tons (Gt) of total ore reserves including proved, probable, and possible reserves. The Wadi Al-Abiad Mine, which produced about 1.1 Mt of phosphate rock, had 14.4 Mt of proved reserves, and the Al-Hassa Mine, which produced 724,000 t of phosphate rock, had 22.3 Mt of proved reserves (Jordan Phosphate Mines Co. p.l.c., 2014, p. 8, 12).

Jordan India Fertilizer Co. (JIFCO) completed the construction of a \$671 million phosphoric 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 phosphate rock. 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).

PT Petro-Jordan Abadi Co., which was a 50–50 joint venture of JPMC and Petrokemika Gresik of Indonesia, formed to build a new 200,000-t/yr capacity phosphoric acid plant in Indonesia. JPMC would supply 500,000 t/yr of phosphate rock for the plant, and production was expected to begin in mid-2014 (Jordan Phosphate Mines Co. p.l.c., 2014, p. 19).

Potash.—APC, which was the only producer of potash in Jordan, employed 2,176 people in 2013 and produced fine, granular, industrial, and standard grades of potash. In 2013, APC produced about 1.74 Mt of potash compared with 1.82 Mt in 2012. The volume of potash sales decreased by 4% compared with that of 2012 owing to weak demand in the company's main market (India). APC had several subsidiaries, including Arab Fertilizers and Chemicals Industries Ltd. (Kemapco), which employed 228 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 55 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., 2014, p. 12, 22–23, 31).

Mineral Fuels and Related Materials

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 is a solid hydrocarbon 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 under 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; U.S. Energy Information Administration, 2013, p. XXV–2).

As of yearend 2013, the NRA offered concessions for oil shale exploration and production, through commercial agreements, to Jordan Oil Shale Co. (a subsidiary of Royal Dutch Shell p.l.c. of the United Kingdom), Jordan Oil Shale Energy Co. (a subsidiary of Eesti Energia of Estonia), and Al Karak International Oil Co. The concession held by Jordan Oil Shale comprised several locations and covered 22,270 square kilometers (km²). 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 km² in central Jordan and holds 2 Gt of oil shale reserves. The concession area could be increased in the future to include 4 Gt of oil shale reserves. 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. The third concession, which was held by Al Karak International Oil Co., covers 35 km² in the Al Lajjun area (Jordan Oil Shale Co., 2014; Natural Resources Authority, 2014b).

The NRA signed a memorandum of understanding with Global Petroleum Corp. of the Republic of Korea to explore for oil shale in the Dead Sea region. The NRA awarded Global Oil Shale Holdings of Canada 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. The 2-year agreement would cover exploration in a 221-km² area. In 2013, the NRA called on international oil and gas companies to participate in a bid round for the exploration and exploitation of crude oil and natural gas in the South Jordan Block, which covers an area of 10,416 km² under production-sharing agreements (Natural Resources Authority, 2012; Oil and Gas Journal, 2012; Roscoe, 2013).

Renewable Energy.—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 to approve proposed renewable energy projects and to grant tariff exemptions on imported renewable energy equipment. In 2013, the Government awarded several contracts to international companies to develop solar and wind energy generation projects. They included a \$187 million contract with Korea Electric Power Co. to construct the Al Fujeil wind farm, which would have 90 MW of power generation capacity and would start production by 2015. Other projects included the Quweirah

photovoltaic solar project and the Ma'an wind farm, which would have from 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 km 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. Development of the 117-MW-capacity Tafila wind farm was expected to be completed by yearend 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. (Ministry of Energy and Mineral Resources, 2013, p. 11, 14; 2014, p. 11; International Finance Corp., 2014; Zawya, 2014).

Outlook

The Arab Gulf countries allocated a \$5 billion projects-specific grant to Jordan to support the country's economy, which was negatively affected by political unrest in Syria and Egypt. Jordan's export capacity of bromine, fertilizer, phosphate rock, and potash is expected to increase in 2014 following the completion of the export hub at Aqaba Port, which was built by APC and JPMC. In February 2014, APC and JBC signed an agreement with Noble Energy to import 2 billion cubic meters of natural gas from the Tamar field, located off the coast of Israel, for a period of 15 years. By the end of the first quarter of 2014, the Government approved 12 power purchase agreements for 12 photovoltaic solar power projects, which would have 200 MW of generating capacity, but in August the Government canceled 4 of the approved renewable energy power projects because of lack of funding (Ministry of Energy and Mineral Resources, 2014, p. 11; Zawya, 2014).

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TABLE 1
JORDAN: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013 ^e
METALS					
Steel: ^e					
Crude	150	150	150	150	150
Semimanufactured	1,630 ^r	960 ^r	850 ^r	850 ^r	850
INDUSTRIAL MINERALS					
Bromine ²	50 ^r	50 ^r	50 ^r	60 ^r	80
Calcium carbonate	317	411	46	623	620
Cement, hydraulic	3,876	3,043	2,816	4,900 ^r	5,000
Clay:					
Common	765	929	421	1,097	1,100
Dead Sea mud	1,348	227	295	300	300
metric tons					
Kaolin	177	115	90	76	80
Fertilizers ³	726	812	824	640	678 ⁴
Fluorine, aluminum fluoride	9	9	11	9	8 ⁴
Gypsum	304	292	255	857	860
Lime	8	16	18	18	20
Limestone, pure	2,352	559	187	1,984	2,000
Phosphate:					
Phosphate rock, mine output:					
Gross weight	5,282	6,529	7,594	6,383	5,399 ⁴
P ₂ O ₅ content	1,690	2,090	2,430	2,043	1,728 ⁴
Diammonium phosphate	648 ^r	753 ^r	710 ^r	601 ^r	606 ⁴
Phosphoric acid	488	549	504	448	463 ⁴
Potash:					
Crude salts	1,120	2,141	2,259	1,824	1,744 ⁴
K ₂ O equivalent	683	1,185	1,355	1,094	1,046 ⁴
Salt:					
Brine	23	33	32 ^r	32	32
Dead Sea ⁵	191	1,152	1,263	1,270	1,250
metric tons					
Sand: ⁶					
Silica	298	150	88	88 ^e	90
Other	4,620	3,930	4,000	4,000 ^e	4,000
Stone:					
Basalt	44	14	15	15 ^e	15
thousand cubic meters					
Dimension:					
Worked	6,356	6,356	4,032	8,000	8,000
thousand meters					
Marble	46	46 ^e	50	50 ^e	50
thousand cubic meters					
Gravel and crushed rock:					
Basalt ^e	1,092 ⁴	1,090	1,090	1,090	1,090
cubic meters					
Granite	4,102	4,100	--	--	--
do.					
Marble	30,809	46,000	45,961	240,000	250,000
do.					
Other	14,857	31,000	30,000 ^e	30,000 ^e	30,000
do.					
Pozzolanic material	619	104	104 ^e	110	110
Travertine	10,885	9,440	5,905	6,000	6,000
metric tons					
Zeolite tuff	12	12 ^e	14	13	13
Sulfuric acid:					
Gross weight	1,370 ^r	1,680 ^r	1,539 ^r	1,419 ^r	1,488 ⁴
S content	447 ^r	549 ^r	502 ^r	460 ^r	486 ⁴

See footnotes at the end of table.

TABLE 1—Continued
 JORDAN: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013 ^e	
MINERAL FUELS AND RELATED MATERIALS						
Natural gas:						
Gross	million cubic meters	221 ^r	229 ^r	181 ^r	164 ^r	150 ⁴
Petroleum:						
Crude	thousand 42-gallon barrels	9,397	8,909	7,190	8,790	8,000 ⁴
Refinery products:						
Asphalt	do.	1,170	909	648	588	575 ⁴
Distillate fuel oil	do.	8,751 ^r	6,736 ^r	7,684 ^r	8,273 ^r	7,448 ⁴
Gasoline	do.	6,435 ^r	5,976 ^r	5,788 ^r	6,086 ^r	5,870 ⁴
Jet fuel and kerosene	do.	3,073 ^r	3,381 ^r	3,057 ^r	3,579 ^r	2,970 ⁴
Liquefied petroleum gas	do.	1,241 ^r	986 ^r	974 ^r	1,183 ^r	1,010 ⁴
Residual fuel oil	do.	6,127 ^r	7,193 ^r	5,781 ^r	6,653 ^r	6,649 ⁴
Total	do.	26,797 ^r	25,181 ^r	23,932 ^r	26,362 ^r	24,522 ⁴

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through August 12, 2014.

²Revised to report quantities of elemental bromine rather than quantities of bromine salts and other products.

³Includes compound fertilizer [nitrogen, phosphorus, and potassium (NPK)], potassium nitrate, and potassium sulfate.

⁴Reported figure.

⁵Extracted from the Dead Sea for therapeutic use; contains bromide, calcium, chloride, magnesium, and potassium salts.

⁶Reported as cubic meters and converted to metric tons.

TABLE 2
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(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. (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.	Qatrana Cement Co. (Arabian Cement Co., 100%)	Al Qatraneh	1,800,000	
Do.	Jordan Lafarge Cement Factories Co. P.S.C. (JCFCC) (Lafarge S.A., 50.28%; Social Security Corp., 21.86%; others, 27.87%)	Fuheis and Ar-Rashadiya	4,800,000	
Do.	Modern Cement and Mining Co. (Manaseer Group for Industries and Commercial Investments of Jordan, 100%)	do.	1,200,000	
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 Company 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, and Russeifa 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. (JPMC), 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 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		300,000

See footnotes at end of table.

TABLE 2—Continued
 JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Phosphate—Continued:			
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
Potash	Arab Potash Co. Ltd. (APC) (Potash Corporation of Saskatchewan Inc., 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. (Kemapco) [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. (JPMC), 15%; Arab Mining Co., 10%]	do.	80,000
Pozzolanic material	Jordan Lafarge Cement Factories Co. P.S.C.	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-Habahbeh 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	Dabbet Hanot/ Ras En Naqab	NA
Do.	Green Technology Group of Jordan for Mining	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
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. (JPMC), 15%; Arab Mining Co., 10%]	Aqaba	132,000
Do.	Jordan Phosphate Mines Co. p.l.c. (JPMC)	do.	1,100,000
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	1,500,000
Do.	Indo-Jordan Chemicals Co. [Jordan Phosphate Mines Co. p.l.c. (JPMC), 87%, and Arab Investment Co., 13%]	do.	730,000
Zeolites	Amana Agricultural & Industrial Co.	Tel Hesban	NA
Do.	Green Technology Group of Jordan for Mining	Al Aritayn/Al-Mafraq	NA
Do.	Jordanian Factory for Soil Development & Moisture Drying Co.	do.	NA

Do., do. Ditto. NA Not available.