



# 2012 Minerals Yearbook

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JORDAN

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# THE MINERAL INDUSTRY OF JORDAN

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Jordan was a significant supplier of bromine, phosphate rock, and potash to the world. In 2012, the country was among the world's top three producers of bromine and was the fifth-ranked producer of phosphate rock and the seventh-ranked producer of potash. Jordan also produced such mineral commodities as calcium carbonate, cement, clay, complex fertilizer (NPK), crude oil, kaolin, limestone, natural gas, phosphate and potassium fertilizers, pozzolanic materials, refined petroleum products, silica sand, steel, and zeolitic tuff (table 1; Jasinski, 2013a, b; Ober, 2013).

Jordan depended almost entirely on imported fuel to meet its increasing demand for energy. Natural gas imports from Egypt by way of the Arab gas pipeline were severely reduced for most of 2012, which resulted in expensive fuel imports. The country had been taking immediate steps to diversify its energy sources by building a new liquefied natural gas (LNG) terminal at Aqaba Port on the Red Sea, which was expected to become operational in 2015; constructing the Al-Fujeil wind farm, which would have 90 megawatts (MW) of capacity and would commence production by 2014; and creating the Quweirah PV Solar project and the Ma'an wind farm, which would have between 65 MW to 75 MW of electricity-generating capacity each. The Government was also developing the country's vast resources of shale oil, which could provide a cheap source of energy (International Monetary Fund, 2013, p. 62; Ministry of Energy and Mineral Resources, 2013b, p. 11).

## Minerals in the National Economy

Jordan's gross domestic product (GDP) increased in real terms by 2.7% in 2012 compared with an increase of 2.6% in 2011. Mineral sector activity in Jordan, which included mainly bromine, fertilizer [complex fertilizer (NPK), diammonium phosphate (DAP), and potassium sulfate], phosphate rock, and potash production, decreased in 2012 compared with increases in both 2011 and 2010. The sector's activity increased by 17.7% in 2011 (the latest year for which comprehensive information was available) 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 the revised 1.8% share 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 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; Natural Resources Authority, 2012b, p. 14–15).

## Government Policies and Programs

The Government had been actively promoting foreign investment to develop the country's shale oil resources, which were estimated to be from 90 to 100 billion barrels (Gbb1) of crude oil, and ranked Jordan as the world's fourth largest in terms of the volume of shale oil resources after the United States, China, and Russia. 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 Gbb1 of risked shale oil in-place containing 100 million barrels of risked, technically recoverable shale oil resources (Patel, 2013; U.S. Energy Information Administration, 2013, p. xxv–2).

The national comprehensive energy strategy called for using shale oil as a fuel to generate electricity or to distill it to produce crude oil. The objectives were to increase shale oil usage to meet 7% of the country's primary energy needs by 2015 and 10% by 2020 (Ministry of Energy and Mineral Resources, 2013a, p. 21).

The Prospecting Studies Division at the Natural Resources Authority (NRA) conducted exploration for copper and gold in the Wadi Abu Khsheibeh and the Umm el Amad area in southern Jordan; dolomite in the Al-Thaghra/Ras en Naqab area; feldspar in the Wadi Saqr Al-Malqan; kaolin in the Disi and the Wadi el Hafira areas in southern Jordan; pure limestone in the Al-Abyad and the Al-Hassa regions; shale oil in the Bir Khadad area of Ma'an Governorate; and volcanic tuff and zeolites in northeastern Jordan. The Government also identified the projects with potential investment opportunities, which are located largely in the eastern and southern parts of the country. These projects include the development and production of basalt, feldspar, kaolin, limestone for cement, silica sand, volcanic tuff, and zeolites (Arab Industrial Development and Mining Organization, 2012, p. 278; Natural Resources Authority, 2012a, p. 8, 16).

The 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 1988. The NRA had been promoting the country's mineral resources to attract investment in the mineral industry and increase the mineral sector's contribution to the country's economy. The NRA carried out 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. Based on Law no. 26 of 2002, which specifies the fees assessed by the Government for mining and quarrying activities, the NRA issued 21 mining permits and 14 exploration licenses for clay, phosphate rock, pozzolanic materials, and pure limestone as well as 1,988 export licenses (Natural Resources Authority, 2012a, p. 21).

## Production

The output of most mineral commodities decreased in 2012 compared with that of 2011. Production of diammonium phosphate (DAP) decreased by 22%; potash, by about 19%; phosphate rock, by 16%; phosphoric acid, by 12%; and aluminum fluoride and natural gas, by 11% each. The decreases were attributed to weak demand for phosphate rock, phosphate-based fertilizer, and potash as well as workers' strikes in the phosphate rock and fertilizer industries. Crude oil production increased by 22% compared with that of 2011. Bromine production was estimated to have increased by 35% compared with that of 2011 because of the capacity expansion at the Al-Safi plant during 2012. Cement production increased by 98% in 2012 compared with that of 2011 according to official statistics provided by the NRA; the reason for the increase was incomplete reporting of production data from new cement plants that began production in 2011 and the inclusion of production by the newly built cement plants in 2012 (table 1).

## Structure of the Mineral Industry

National Petroleum Co. and Jordan Petroleum Refinery Co. Ltd. were wholly state owned. Arab Potash Co. (APC), Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO), 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 mixed ownership whereas the remaining companies were privately owned (table 2).

## Mineral Trade

In 2012, the value of Jordan's total commodity exports decreased slightly (by 1%) to about \$7.9 billion<sup>1</sup> from \$8.0 billion in 2011, and the value of total commodity imports increased by about 10% to \$18.4 billion from \$16.8 billion. Exports and imports with Syria decreased by 22% and 37%, respectively, compared with that of 2011 owing to the war in Syria, which continued through 2012. Jordan's transit trade included trucking goods from Jordan to markets in Europe, Lebanon, and Turkey through Syria. This type of trade, which accounted for about 11% of exports and 30% of imports in 2010, was halted because trucks had to go through Syria to reach their final destinations. Trade became more costly because of heightened security concerns and an increase in the cost of alternative shipping routes. Mineral sector exports contributed 32.5% of the country's total exports in 2011 and consisted of about 70% extraction commodities and 30% manufactured commodities. In 2011, potash exports accounted for 11% of Jordan's total exports, by value, followed by phosphate rock, 9.3%; fertilizers, 5.9%; bromine, 3%; acids, 1.6%; cement, 0.4%; and others, 1.3% (Natural Resources Authority, 2012b, p. 14–15).

In 2012, the value of Jordan's phosphate rock exports decreased by 3% to \$602 million from a revised \$628 million in 2011. The quantity of phosphate rock exports decreased by 20% to 4.3 million metric tons (Mt) from 5.4 Mt in 2011. Sixty-seven percent of Jordan's phosphate rock exports, by volume, went

<sup>1</sup>Where necessary, values have been converted from Jordanian dinars (JOD) to U.S. dollars (US\$) at the rate of JOD0.709=US\$1.00.

to India, followed by Indonesia, 13.6%; Bulgaria, 8.8%; the Netherlands, 3.6%; Taiwan, 3.0%; Japan, 1.8%; and Turkey, 1.3%. One-half of JPMC's fertilizer exports were received by India, followed by Turkey, 15%; Iraq, 12%; Ethiopia, 10%; Bulgaria, 8%; and the United Arab Emirates, 3% (International Monetary Fund, 2013, p. 35; Jordan Phosphate Mines Co. p.l.c., 2013, p. 37).

In 2012, the volume of Jordan's potash exports decreased by about 25% to 1.30 Mt from 1.72 Mt in 2011. Potash exports were received by China, which accounted for 31% of total exports; Indonesia, 23%; India, 19%; Malaysia, about 11%; Egypt and Taiwan, 4% each; and Japan, Mozambique, the Philippines, and South Africa, 2% each (Arab Potash Co., 2013, p. 32).

Jordan has a free-trade agreement with the United States and was the 77th-ranked goods trading partner with the United States in 2011. U.S. exports to Jordan were valued at \$1,766 million (an increase of about 22% from that of 2011) and imports of goods from Jordan to the United States were valued at \$1,156 million (an increase of about 9% from that of 2011) (Office of the United States Trade Representative, 2013; U.S. Census Bureau, 2013).

## Commodity Review

### *Industrial Minerals*

**Bromine.**—Jordan Bromine Co. (JBC) is located at the Ghur Al-Safi area about 17 kilometers (km) from the city of Karak and 6 km from the APC plant. 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 Dead Sea waters to produce bromine and bromine compounds, such as calcium bromide, hydrogen bromide, sodium bromide, and tetra bromide, as well as potassium hydroxide. The bromine products were marketed by Albemarle Corp. In 2012, JBC invested \$160 million to double the plant's bromine capacity and increase the plant's capacity to produce bromine salts. The expansion works was expected to be completed in the first half of 2013. The country's production capacity of bromine products would increase to 200,000 metric tons per year (t/yr) from 100,000 t/yr and exports would be increased to more than \$200 million per year. JBC had 180 direct employees and planned to add another 100 employees once the expansion is completed (Multilateral Investment Guarantee Agency, 2012; Arab Potash Co., 2013, p. 23).

**Cement.**—In 2012, six companies were active in cement production in Jordan. They were Al Rajhi Cement Jordan, Arab Company for White Cement Industry, JCFC, Modern Cement and Mining Co., Northern Cement Co., and Qatrana Cement Co. The production of cement exceeded domestic consumption because Jordan's total production capacity was about 10 million metric tons per year (Mt/yr) of cement, whereas consumption decreased to 2 Mt in 2012 from 3 Mt in 2011 owing to the sluggish growth in the construction sector. 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, between 2007 and 2011.

The additional production capacity prompted cement producers such as JCFC to adopt measures to increase their share of the local market, reduce the workforce, and use coal instead of fuel oil as a source of energy to reduce operating costs. JCFC was also experimenting with using shale oil as an energy source in their cement plants (table 2, Annous, 2012; Lafarge S.A., 2012, p. 57–58).

**Phosphate Rock.**—JPMC, which was the country's only phosphate rock producer, employed 4,234 people in 2012 compared with 3,767 people in 2011. JPMC produced phosphate rock, phosphate-based fertilizers, and phosphoric and sulfuric acids. JPMC owned 70% of Nippon Jordan Fertilizer Co., 50% of Industrial Ports Co., 48% of Jordan India Fertilizer Co. (JIFCO), 34.8% of Indo-Jordan Chemicals Co. Ltd., and 26% of Manajim Mining Development Co. (table 2; Indo-Jordan Chemicals Co. Ltd., 2012; Jordan Phosphate Mines Co. p.l.c., 2013, p. 21, 24).

JPMC produced 6.4 Mt of phosphate rock in 2012, which was a 16% 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, and to internal factors, which included worker strikes and misconduct by current and former workers. Seventy percent of Jordan's phosphate rock output came from the Eshidiya Mine. The Eshidiya deposit had 1.25 billion metric tons of total ore reserves, including proven, probable, and possible reserves, at the end of 2012. The Wadi Al-Abiad Mine, which produced 1.16 Mt of phosphate rock, had 19.3 Mt of proven reserves, and the Al-Hassa Mine, which produced 882,000 t of phosphate rock, had 24.2 Mt of proven reserves at the end of 2012 (Jordan Phosphate Mines Co. p.l.c., 2013, p. 8, 12).

In May, seasonal workers and retirees held demonstrations before JPMC's headquarters in Amman to demand investigation of alleged corruption during the privatization of the company in 2006 as well as the renationalization of the company. The Anti-Corruption Commission of the Jordanian Parliament investigated the alleged corruption and referred the case to Amman Criminal Court. The court pronounced a judgment on the former chief executive officer of JPMC (who was forced to resign and later fled the country) of 37.5 years of incarceration and ordered him to pay a fine of about \$333 million to compensate for the losses JPMC had incurred as a result of his "abuse of office." In response to the pressure from the public, the Government was planning to regain its shares in JPMC, which were purchased during the privatization process. In particular, the Government planned to buy the shares held by Kamil Holdings Ltd., which constituted 37% of the company's total shares (Watts, 2012; Jordan Times, 2013; Patel, 2013).

The construction by JIFCO of the \$671 million phosphoric and sulfuric acid complex at Eshidiya in Ma'an Governorate, that began in 2010 continued through 2012. Production was expected to begin in the second quarter of 2013. 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 that would have the capacity to produce 500,000 t/yr of phosphoric acid and 1.5 Mt/yr of sulfuric acid at the Eshidiya Mine. 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 coordinators and financial advisors for the project. They agreed to finance one-half of the project's cost (\$335.5 million) whereas the sponsors (JPMC and IFFCO) were responsible for the rest of the cost (\$335.5 million) (Jordan India Fertilizer Company L.L.C., 2013).

JPMC and Petrokemia Gresik of Indonesia created a 50–50 joint venture, PT Petro-Jordan Abadi Co., to build a new plant in Indonesia that would have the capacity to produce 200,000 t/yr of phosphoric acid. Production was expected to commence in 2014. JPMC would supply phosphate rock for the plant (Jordan Phosphate Mines Co. p.l.c., 2013, p. 19).

In 2012, JPMC completed the construction of the phosphate rock terminal in Aqaba. The company began using the new \$240 million, 4-Mt/yr phosphate rock export terminal in December. The JPMC terminal was operated in conjunction with Aqaba Development Corp. and the Aqaba Special Economic Zones Authority (Jordan Phosphate Mines Co. p.l.c., 2013, p. 8).

**Potash.**—APC, which was the only producer of potash in the country, had 2,066 employees in 2012 and produced fine, granular, industrial, and standard grades of potash. APC had several subsidiaries, including Arab Fertilizers and Chemicals Industries Ltd. (Kemapco), which employed 222 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 56 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., 2013, p. 22–23).

In 2012, the APC produced about 1.8 Mt of potash compared with 2.26 Mt in 2011. The volume of potash sales decreased by 26% compared with that of 2011 owing to weak demand in the company's main market (India). APC completed its capacity expansion project in 2011, including modifying the solar ponds, building new carnallite ponds, increasing the potash storage capacity at the Safi plant, increasing the storage capacity at the 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. Von Oord B.V. of the Netherlands was carrying out a dredging contract and was expected to dredge about 30% of the salt ponds by 2013 (Arab Potash Co., 2013, p. 12, 31).

### *Mineral Fuels and Related Materials*

**Natural Gas and Oil Shale.**—The NRA offered a tender for natural gas and oil shale concessions, 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 Co. comprised several locations and covered 22,270 square kilometers (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.'s concession is located at the Attarat um Ghurdran property and covers about 42 km<sup>2</sup>. The concession held by Al Karak International Oil covers 35 km<sup>2</sup> in the Al-Lajjun area (Natural Resources Authority, 2012a, p. 10).

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

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. In September, 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-km<sup>2</sup> area (Oil and Gas Journal, 2012; Roscoe, 2013).

## Outlook

Jordan's exports of bromine, fertilizer, phosphate rock, and potash are likely to increase in the upcoming years following the completion of the export hub at Aqaba Port, which was built by APC and JPMC. The new terminal will enable the two companies to increase the volume of their fertilizer, phosphate rock, and potash exports. The Government approved a project to build the first shale-oil-fired powerplant. The plant, which would be the first of its kind in the region, would have 500 MW of capacity and is expected to be built by Enefit Co. of Estonia. The project is expected to begin production in 2017 (Roscoe, 2013).

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

(Thousand metric tons unless otherwise specified)

Commodity	2008	2009	2010	2011	2012	
<b>METALS</b>						
Steel: <sup>e</sup>						
Crude	150	150	150	150	150	
Semimanufactured	360	360	360	360	360	
<b>INDUSTRIAL MINERALS</b>						
Bromine	85	69	329	148	136	
Calcium carbonate	415	317	411	46	623	
Cement, hydraulic	4,375	3,876	3,043 <sup>r</sup>	2,816 <sup>r</sup>	5,588	
Clay:						
Common clay	762	765	929	421	1,097	
Dead Sea mud	metric tons	256	1,348	227	295	300
Kaolin	181	177	115	90	76	
Feldspar	3	--	--	--	--	
Fertilizers	802	726	812	824	640	
Fluorine, aluminum fluoride	9	9	9	11	9	
Gypsum	232	304	292	255	857	
Lime	15	8	16	18	18	
Limestone, pure	1,840	2,352	559	187	1,984	
Phosphate rock, mine output:						
Gross weight	6,266	5,282	6,529	7,594 <sup>r</sup>	6,383	
P <sub>2</sub> O <sub>5</sub> content	2,002	1,690	2,090	2,430 <sup>r</sup>	2,043	
Phosphoric acid	477	488	549	504	448	
Potash:						
Crude salts	2,005	1,120	2,141	2,259	1,824	
K <sub>2</sub> O equivalent	1,223	683	1,185	1,355	1,094	
Salt:						
Brine	25	23	33	--	32	
Dead Sea	metric tons	1,375	191	1,152	1,263 <sup>r</sup>	1,270
Sand: <sup>2</sup>						
Silica	23	298	150	88	88 <sup>e</sup>	
Other	4,400	4,620	3,930	4,000	4,000 <sup>e</sup>	
Stone:						
Basalt	thousand cubic meters	5	44	14	15	15 <sup>e</sup>
Dimension:						
Worked	thousand meters	6,053	6,356	6,356 <sup>e</sup>	4,032	8,000
Marble	thousand cubic meters	44	46	46 <sup>e</sup>	50	50 <sup>e</sup>
Gravel and crushed rock:						
Basalt <sup>e</sup>	cubic meters	1,040 <sup>3</sup>	1,092 <sup>3</sup>	1,090	1,090	1,090
Granite	do.	3,933	4,102	4,100 <sup>e</sup>	-- <sup>e</sup>	--
Marble	do.	29,343	30,809	46,000	45,961	240,000
Other	do.	14,150	14,857	31,000	30,000 <sup>e</sup>	30,000 <sup>e</sup>
Pozzolanic material		538	619	104	104 <sup>e</sup>	110
Travertine	metric tons	6,459	10,885	9,440	5,905 <sup>r</sup>	6,000
Zeolite tuff		11	12	12 <sup>e</sup>	14 <sup>r</sup>	13
Sulfuric acid:						
Gross weight		933	918	1,049 <sup>r</sup>	932	843
S content		305	300	343 <sup>r</sup>	304	275
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Natural gas, dry	million cubic meters	210	257	214	185 <sup>r</sup>	165
Petroleum:						
Crude	42-gallon barrels	15,604	9,397	8,909	7,190	8,790

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	2008	2009	2010	2011	2012	
Petroleum—Continued:						
Refinery products:						
Liquefied petroleum gas	thousand 42-gallon barrels	197 <sup>r</sup>	1,971 <sup>r</sup>	1,971 <sup>r</sup>	1,971 <sup>r</sup>	2,008
Gasoline	do.	5,986 <sup>r</sup>	5,986 <sup>r</sup>	5,986 <sup>r</sup>	5,950 <sup>r</sup>	6,022
Jet fuel and kerosene	do.	4,526 <sup>r</sup>	4,526 <sup>r</sup>	4,526 <sup>r</sup>	4,453 <sup>r</sup>	4,453
Distillate fuel oil	do.	11,278 <sup>r</sup>	11,278 <sup>r</sup>	11,388 <sup>r</sup>	11,498 <sup>r</sup>	11,461
Residual fuel oil	do.	7,957 <sup>r</sup>	7,957 <sup>r</sup>	7,519 <sup>r</sup>	7,446 <sup>r</sup>	7,848
Other	do.	2,856 <sup>r</sup>	1,082 <sup>r</sup>	1,510 <sup>r</sup>	2,282 <sup>r</sup>	2,200 <sup>c</sup>
Total	do.	32,800 <sup>r</sup>	32,800 <sup>r</sup>	32,900 <sup>r</sup>	33,600 <sup>r</sup>	34,000

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

<sup>1</sup>Table includes data available through February 27, 2014.

<sup>2</sup>Reported as cubic meters and converted to metric tons.

<sup>3</sup>Reported figure.

TABLE 2  
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(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., 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%)	Aqaba	14	
Basalt	Jordan Rock Wool Industries Co. Ltd.	Qa'a Hanna	5	
Bromine	Jordan Bromine Co. (JBC) [Arab Potash Co. (APC), 50%, and Albemarle Corp., 50%]	Ghur Al-Safi area, 17 kilometers from Karak	100	
Cement	Al Rajhi Cement Jordan	Mafraq	2,000	
Do.	Arab Company for White Cement Industry	Amman	130	
Do.	Qatrana Cement Co. (Arabian Cement Co., 100%)	Al-Qatraneh	1,800	
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	
Do.	Modern Cement and Mining Co. (Manaseer Group for Industries and Commercial Investments of Jordan, 100%)	do.	1,200	
Do.	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	Subeihi	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 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%; provate investors, 7.136%)	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. (APC), 20%; Jordan Phosphate Mines Co. p.l.c. (JPMC), 20%]	Eshidiya	300	
Phosphoric acid	Jordan Phosphate Mines Co. p.l.c. (JPMC)	Aqaba	350	
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 <sup>1</sup>	
Do.	Indo-Jordan Chemicals Co. Ltd. (Jordan Phosphate Mines Co. p.l.c. (JPMC), 87% D101 and Arab Investment Co., 13%)	do.	250	

See footnotes at end of table.



TABLE 2—Continued  
 JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Potash	Arab Potash Co. (APC) (Potash Corporation of Saskatchewan, 27.96%; Jordan Ministry of Finance, 27%; 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, 2.20%)	Ghur Al-Safi	2,450
Potassium nitrate	Arab Fertilizers and Chemicals Industries Ltd. (Kemapco) [Arab Potash Co. (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
Pozzolan material	Jordan Lafarge Cement Factories Co. P.S.C.	Tel Remah	350
Do.	do.	Rashahdieh	150
Salt	Arab Potash Co. (APC) (Potash Corporation of Saskatchewan, 27.96%; Jordan Ministry of Finance, 27%; 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, 2.20%)	Ghur 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-Homaimeh	NA
Steel:			
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. (JMPC)	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. (JMPC), 48%]	Eshidiya	1,500 <sup>1</sup>
Do.	Indo-Jordan Chemicals Co. (Jordan Phosphate Mines Co. p.l.c. (JMPC), 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.