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The Mineral Industry of Jordan

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Note: In this chapter, information for 2020 is followed by information for 2021.

Jordan was a global supplier of bromine, phosphate rock, potash, and their derivatives in 2020. Excluding the United States, Jordan was the world's second-ranked producer of bromine and accounted for 24% of the world's output. Jordan was the world's fifth-ranked producer of phosphate rock and accounted for 4.1% of world's production in 2020. The country was the world's seventh-ranked producer of potash and accounted for 3.6% of the world's output. Other mineral commodities produced by Jordan included aluminum fluoride, basalt, calcium carbonate, Dead Sea mud and salt, kaolin, marble, pozzolanic materials, pure limestone, salt, industrial sand, travertine, and zeolites (Energy and Minerals Regulatory Commission, 2021, p. 44; Jasinski, 2022a, b; Schnebele, 2022).

Minerals in the National Economy

The nominal gross domestic product (GDP) of Jordan was $43.7 billion[1] in 2020, which was a decrease of 1.6% in real terms compared with an increase of 2.0% in 2019. In 2020, the mining and quarrying sector accounted for 2.4% of the GDP; the manufacturing sector, which included cement, fertilizer, and iron and steel production, 19.7%; and the construction sector, 3.0%. The value of mining and quarrying sector activity increased by 0.8% in 2020 compared with an increase of 5.5% in 2019; that of the manufacturing sector decreased by 2.7% in 2020 compared with an increase of 1.2% in 2019; and that of the construction sector, decreased by 3.8% in 2020 compared with a decrease of 0.4% in 2019 (Central Bank of Jordan, 2021, p. 5, 9, 93).

Royal Decree No. 19 of April 10, 2018, also known as Natural Resources Law of 2018, replaced law No. 12 of 1968, also known as the Organization of Natural Resources Affairs Law. The Natural Resources Law of 2018 entrusts the Ministry of Energy and Mineral Resources (MEMR) with the development of natural resources and implementing policies related to exploration and mining of the country's natural resources. The MEMR is also in charge of conducting exploration studies and geologic surveys, identifying natural resources, and promoting resource development locally and abroad. Under this law, the Council of Energy and Minerals Regulatory Commission's (EMRC's) Board of Commissioners is tasked with issuing mining and quarrying permits. The EMRC is an autonomous agency responsible for overseeing electricity, minerals, and nuclear installations in the country; it is the legal successor of the Electricity Regulatory Commission (ERC), the Jordan Nuclear Regulatory Commission (JNRC) and the Natural Resources Authority (NRA) (Ministry of Energy and Mineral Resources, 2018).

In 2020, the EMRC issued 3,405 permits, including 2,054 mineral export permits, 1,152 mineral import permits, 151 quarrying permits, and 2 exploration permits. The MEMR issued an international bid in 2020 for investment and development of several mineral commodities in Jordan, including such metals as copper, gold, and zirconium and such industrial minerals as basalt, chalk, calcium carbonate, dolomite, feldspar, industrial sand (silica), kaolin, oil shale, rare earth elements, and zeolites. In 2020, the MEMR finalized a study to extract lithium from Dead Sea brine (Ministry of Energy and Mineral Resources, 2020b, p. 3, 10, 14, 16, 18, 20, 22, 24, 28, 30, 32; 2021a, p. 39; Energy and Minerals Regulatory Commission, 2021, p. 42–43).

In 2020, the Government issued Regulation No. (76) of 2020, also known as Regulation for Exploitation Projects of Petroleum, Oil Shale, Coal and Strategic Minerals. The regulation tasked the MEMR with forming a committee to study and approve applications for the development of coal, oil shale, petroleum, and strategic mineral projects in the country. The regulation does not specify which minerals are considered strategic; however, a list of strategic minerals is expected in the future executive regulation. The MEMR planned to issue an international bid for hydrocarbon exploration in the Azraq, Dead Sea, Jafr, North Highlands, Petra, Rum, Sirhan Development Area, and West Safawi areas (Ministry of Energy and Mineral Resources, 2020c; 2021b, p. 3).

Production

Mineral commodities for which production in Jordan increased notably in 2020 compared with that in 2019 included crude petroleum, which increased 90-fold; sulfur as a byproduct of petroleum production, by 100%; aluminum fluoride, by 67%; basalt, by 57%; calcium carbonate, by 35%; fertilizers, by 24%; natural gas, by 21%; and sulfuric acid, by 11%. Mineral commodities for which production decreased notably in 2020 included industrial sand and gravel, which decreased by 15%; residual fuel oil, by 52%; semimanufactured iron and steel products, by 50%; jet fuel, including kerosene, by 42%; asphalt and gypsum, by 30% each; total refined petroleum products, by 28%; distilled fuel oil, by 24%; limestone, by 23%; sand and gravel for construction, by 21%; and semifinished steel products, by 14%. Data on mineral production are provided in table 1.

Structure of the Mineral Industry

Except for the National Petroleum Co. (NPC) and Jordan Petroleum Refinery Co. Ltd. (JPRC), which were Government owned, all mining and manufacturing companies in Jordan had mixed ownership or were privately owned.

[1]When necessary, values have been converted from Jordanian dinars (JOD) to U.S. dollars (US$) at the annual average exchange rate of JD1.41=US$1.00 for 2020 and 2021.

Arab Company for White Cement, Arab Potash Co. (APC), Attarat Power Co., Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO), Jordan Bromine Co. Ltd. (JBC), 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 in 2020 whereas the remaining companies were privately owned. In 2020, there were 85 mining companies in operation; they produced granite, gypsum, industrial (silica) sand, kaolin clay, limestone, marble, phosphate rock, potash, pure limestone (calcium carbonate), travertine, volcanic tuff, and zeolites (table 2; Ministry of Energy and Mineral Resources, 2021a, p. 17).

Mineral Trade

In 2020, the value of the total exports from Jordan decreased to $8.0 billion from $8.3 billion in 2019. Potash exports, which went mainly to China (26%), India (24%), and Malaysia (9%), decreased by 9.3% to $536 million from $591 million in 2019. Phosphate rock exports decreased in value to $343 million in 2020 from $389 million in 2019 and decreased in tonnage to 4.5 million metric tons (Mt) in 2020 from 5.0 Mt in 2019. The main destinations for these exports were India (63%), Turkey (26%), and Iraq (5%). Fertilizer exports increased to $273 million in 2020 from $270 million in 2019. The main destinations for phosphate fertilizer exports were India (66%) and Indonesia (26%) (Arab Potash Co., 2021, p. 69–72, 78; Central Bank of Jordan, 2021, p. 79–80; Jordan Phosphate Mines Co. p.l.c., 2021, p. 18–19).

Jordan exported various quantities of other industrial minerals in 2020, including basalt blocks [46,000 metric tons (t)], calcium carbonate (387,000 t), construction sand (514,000 t), crushed basalt stone (20,000 t), crushed marble (1,300 t), Dead Sea mud (90 t), Dead Sea salt (1,600 t), granite (1,800 t), gypsum (90 t), industrial (silica) sand (2,600 t), kaolin (2,300 t), marble blocks (6,100 t), brine salt (1,200 t), travertine (4,300 t), and pozzolanic materials (volcanic tuff) (33,100 t) (Arab Potash Co., 2021, p. 78; Energy and Minerals Regulatory Commission, 2021, p. 44).

Exports to the United States from Jordan decreased in value to $1.9 billion in 2020 from $2.2 billion in 2019. The main mineral commodities exported by Jordan to the United States included fuel oil, which decreased in value to $21 million in 2020 from $60 million in 2019, and inorganic chemicals, which decreased in value to $15 million from $21 million in 2019. Jordan exported $10 million worth of chemical fertilizers to the United States for the first time in 2020. Other mineral commodity exports included $2 million worth of bauxite and aluminum (aluminum fluoride). The value of imports to Jordan from the United States decreased to $1.3 billion in 2020 from $1.5 billion in 2019. The top mineral and mineral-related commodities imported by Jordan from the United States included natural gas (valued at $117 million), natural gas liquids ($73 million), finished metal shapes ($70 million), petroleum products ($6 million), coal and fuels ($4 million), and iron and steel products ($2 million) (U.S. Census Bureau, 2022a–c).

Commodity Review

Industrial Minerals

Bromine.—The sole producer of bromine in the country in 2020 was JBC; it produced 12,902 t of elemental bromine and bromine derivatives in 2020 compared with 12,681 t in 2019. Production of bromine in 2019 by JBC increased by 27% from the 89,000 t it produced in 2018. That notable increase was attributed to the completion of JBC's capacity expansion project in 2019. The company also produced 29,541 t of chloride in 2020 compared with 27,971 t in 2019. The company was a 50–50 joint venture of Albemarle Holdings Ltd., which was a 100% affiliate of Albemarle Corp. of the United States, and APC. The company, which employed 350 people in 2020, had the capacity to produce 120,000 metric tons per year (t/yr) of bromine from the Dead Sea. Calcium bromide, sodium bromide, tetra bromide, and potassium hydroxide were also produced by JBC. The value of bromine production accounted for 9% of the total value of mining sector activity in 2018 (tables 1, 2; Ministry of Energy and Mineral Resources, 2020a, p. 11, 34; Jordan Bromine Co. Ltd., 2021; oral commun. Mr. Haitham Sabah, Technical Resources Manager, Jordan Bromine Co., November 13, 2022).

Phosphate Rock.—In 2020, JPMC's phosphate rock production decreased by 3% to 8.9 Mt from 9.2 Mt in 2019. The production came from four mines: the Eshidiya Mine, which produced 5.9 Mt of phosphate ore, or 66.4% of the company's total production in 2020; the Wadi Al Abiad Mine, 1.4 Mt or 16.1%; the Al Hassa Mine, 1.1 Mt, or 12.8%; and the Al Ruseifa Mine, 415,000 t or 4.6%. By yearend 2020, JPMC held more than 650 Mt (reported as 370 million cubic meters) of phosphate rock reserves, of which the Eshidiya Mine accounted for more than 568 Mt; the Al Hassa Mine, 42 Mt; and the Wadi Al Abiad Mine, 39 Mt. In 2020, JPMC's fertilizers unit produced 863,000 t of sulfuric acid, 707,000 t of diammonium phosphate (DAP), 282,000 t of phosphoric acid, and 10,000 t of ammonium fluoride at its industrial complex in Aqaba (Jordan Phosphate Mines Co. p.l.c., 2021, p. 12–14).

Nippon Jordan Fertilizer Co. (NJFC) was a joint venture of JPMC (70% interest), APC (20%), and Mitsubishi Corp. of Japan (10%). In 2020, NJFC employed 98 people and had the capacity to produce 300,000 t/yr of DAP and compound nitrogen-phosphorus-potassium (NPK) fertilizers. The company increased its DAP and NPK production to 225,000 t in 2020 from 197,000 t in 2019.

Indo-Jordan Chemicals Co. (IJC), which was wholly owned by JPMC, had the capacity to produce 224,000 t/yr of phosphoric acid and employed 313 people at its plant in Eshidiya, Ma'an Province. In 2020, the company was working on increasing its capacity to 237,000 t/yr by building a third filtration unit. The construction of the filtration unit was expected to be completed in February 2021. In 2020, IJC produced 250,000 t of phosphoric acid compared with 259,000 t in 2019 (table 2; Jordan Phosphate Mines Co. p.l.c., 2021, p. 12–15, 23, 25).

Potash.—In 2020, APC's production of potash increased to 2.6 Mt from 2.5 Mt in 2019, which was a record production for the company. About 46% the potash produced was a standard grade; 41%, fine grade; and 12%, granular grade. The company

employed 1,742 people in 2020 and had several subsidiaries, including Arab Fertilizers and Chemicals Industries Ltd. (Kemapco), which produced potassium nitrate and employed 255 people, and Numiera Mixed Salts and Mud Co., which produced Dead Sea mud and employed 41 workers. In 2020, JBC produced 94,217 t of potassium hydroxide (KOH, 50%) compared with 89,343 t in 2019 (table 1; Arab Potash Co., 2021, p. 29, 56).

Mineral Fuels

Natural Gas.—Production of natural gas from the Risha Gasfield was 150 million cubic meters in 2020, which was a 21% increase from that in 2019 and a 60% increase from that in 2018. However, Jordan depended on imports for 98% of its natural gas needs for electricity generation, which came from Egypt and Israel by pipelines, and by way of the Sheikh Sabah Al Ahmad Liquefied Natural Gas Terminal at Aqaba Port on the Red Sea. In December 2020, NPC announced a new natural gas discovery at the Risha Gasfield, which is located along Jordan's eastern border with Iraq. The company planned to continue exploration in Wells 50, 51, and 52 in its concession area (table 1; NS Energy, 2020).

Oil Shale.—The MEMR continued to promote foreign investment in large oil shale resources in Jordan in 2020. Oil shale, also known as black 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. As of 2020, the MEMR had identified about 26.4 billion metric tons (Gt) of oil shale resources at five main deposits in Jordan (Attarat El-Ghudran, El-Lajjun, Jurf Ed-Darawish, Sultani, and Wadi Maghar) (Ministry of Energy and Mineral Resources, 2020b, p. 32).

In 2020, Attarat Mining Co. (AMCO) held the Attarat concession, which is located at the Attarat Um Ghudran property and covers 42 square kilometers in central Jordan and holds 2 Gt of oil shale reserves. Attarat Power Co. (APCO), which was owned by YLT Power International Berhad of Malaysia (45%), Yudeam Group Co. Ltd. of China (45%), and Eesti Energia Consortium of Estonia (10%), was building the first oil shale-fired powerplant in the country and in the Middle East and North Africa region. The $2.1 billion plant would have 470 megawatts (MW) of capacity and was expected to account for 15% of the country's consumption of electricity. The project was financed by the Bank of China and the Industrial and Commercial Bank of China. Construction of the powerplant was 87% complete by yearend 2019; the plant was initially expected to begin its first phase of electricity production in June 2020 and the second phase in October 2020, but it was delayed owing to the coronavirus disease 2019 (COVID-19) pandemic. The APCO powerplant was expected to be connected to the national grid of Jordan in the third quarter of 2021. Attarat Operation and Maintenance Co. (OMCO) was responsible for the operations and maintenance of the APCO powerplant. The plant consisted of two boilers and two steam turbine generators; each turbine had a net generation capacity of 235 MW (Attarat Power Co., 2020, 2022; Ministry of Energy and Mineral Resources, 2020b, p. 32).

Petroleum.—In 2020, NPC started a two-phase rehabilitation project at the Hamza Oilfield to increase crude petroleum production to a maximum of 2,000 barrels per day (bbl/d) from 5 bbl/d. The project was expected to be completed in 2021. Crude petroleum production in Jordan from this oilfield increased to 183,000 barrels in 2020 from 2,000 barrels in 2019. The country imported more than 15.2 million barrels (Mbbl) of crude petroleum from Iraq in 2020. The country's sole refinery was JPRC, which is located at Zarqa City; it refined both imported and locally produced crude petroleum to meet the country's demand for petroleum products, which decreased to 24.7 Mbbl in 2020 from 30.6 Mbbl in 2019 (table 1; Jordan Times, The, 2021; Ministry of Energy and Mineral Resources, 2021a, p. 33, 60).

MINERAL INDUSTRY HIGHLIGHTS IN 2021

Excluding the United States, Jordan was the world's second-ranked producer of bromine and accounted for 28% of the world's output in 2021. The country also was the world's fifth-ranked producer of phosphate rock and accounted for 4.2% of the world's production, and the seventh-ranked producer of potash and accounted for 3.5% of the world's output. In 2021, The mining and quarrying sector of Jordan comprised 85 mining companies that mainly produced 12 industrial mineral commodities: calcium carbonate (pure), gypsum, granite, kaolin, limestone, marble, phosphate rock, potash, travertine, industrial sand (silica), volcanic tuff (pozzolan), and zeolites (Ministry of Energy and Mineral Resources, 2022b, p. 19; Jasinski, 2023a, b; Schnebele, 2023).

The real GDP of Jordan increased by 2.2% in 2021 compared with a decrease of 1.6% in 2020. The nominal GDP was $45.3 billion in 2021. The value of the mineral sector activities, which included mining and quarrying and mineral manufacturing (including cement and fertilizer production), increased to $2.75 billion in 2021 from $2.62 billion in 2020. The contribution of mineral sector activities, which included the activities of the mining and quarrying sector in addition to mineral manufacturing, to the GDP increased to 9.1% in 2021 from 7.2% in 2020. The value of the mining and quarrying sector activities increased by 8.8% in 2021 compared with 0.8% in 2020. The value of the manufacturing sector activities increased by 2.3% in 2021 compared with a decrease of 2.7% in 2020. The value of construction sector activities increased by 3.8% in 2021 compared with a decrease of 3.8% in 2020 (Central Bank of Jordan, 2022, p. 5, 14, 95; Ministry of Energy and Mineral Resources, 2022c, p. 3, 25).

Mineral commodities for which production in Jordan increased notably in 2021 compared with that in 2020 included travertine (increased by 553%), gypsum (116%), pozzolan (41%), limestone (36%), natural gas (23%), calcium carbonate (22%), aluminum fluoride (20%), fertilizers (14%), cement and phosphate rock (12% each), and Dead Sea salt and phosphoric acid (11% each). Notable decreases in mineral commodity production in 2021 compared with that in 2020 included that of industrial sand (silica) (decreased by 67%); construction sand and gravel (by 51%), basalt (by 50%), kaolin (by 46%),

asphalt (by 23%), liquefied petroleum gas (by 19%), and crude petroleum (by 15%) (table 1).

The value of mineral sector exports amounted to about $2.6 billion in 2021 and accounted for 30.4% of the total exports from Jordan; this was a 54% increase over the export value of $1.7 billion in 2020, which accounted for 23.4% of total exports in 2020. In terms of tonnage, phosphate rock exports increased to 5.3 Mt in 2021 from 4.5 Mt in 2020 and potash exports increased to 2.4 Mt in 2021 from 2.3 Mt in 2020. Construction sand exports increased to 616,000 t in 2021 from 514,000 t in 2020; calcium carbonate exports increased to 570,000 t from 387,000 t; and dimension stone exports decreased to 172,000 t from 222,000 t (Energy and Minerals Regulatory Commission, 2022, p. 37; Ministry of Energy and Mineral Resources, 2022c, p. 3, 8, 11, 25).

In 2021, JPMC increased its phosphate rock output to a record level of 10.0 Mt from 8.9 Mt in 2020. The company expected to increase its production to 11.0 Mt in 2022 to benefit from the favorable world market prices. The value of phosphate exports increased to $532 million in 2021 from $343 million in 2020, and accounted for 6.2% of the total export value in 2021 compared with 4.8% in 2020. India was the leading destination for phosphate rock exports from Jordan, followed by Indonesia, Brazil, Taiwan, Bangladesh, Japan, and Saudi Arabia (International Fertilizers Association, 2022; Jordan Phosphate Mines Co. p.l.c., 2022, p. 23, 50; Ministry of Energy and Mineral Resources, 2022c, p. 8).

In 2021, APC produced about 2.56 Mt of potash compared with 2.62 Mt in 2020. The company exported 2.4 Mt in 2021 compared with 2.3 Mt in 2020. The main destinations for APC potash exports were (in descending order of exports volume) India, China, Indonesia, Egypt, the Americas, Malaysia, Saudi Arabia, Spain, and Morocco (table 1; Arab Potash Co., 2022, p. 94).

In 2021, NPC produced 156,000 barrels of crude petroleum from the Hamza Oilfield and 184 million cubic meters of natural gas from the Risha Gasfield compared with about 183,000 barrels and 150 million cubic meters in 2020. The same year, JPRC produced 13.1 Mbbl of refined petroleum products compared with 13.4 Mbbl in 2020. Jordan imported 11.8 Mbbl of crude petroleum by ship through Aqaba Port and 8.7 Mbbl from Iraq by truck in 2021 compared with 15.2 Mbbl and 2.2 Mbbl, respectively, in 2020. In addition to crude petroleum imports, the country imported 35.5 Mbbl of refined petroleum products in 2021 (tables 1, 2; Ministry of Energy and Mineral Resources, 2022b, p. 54).

In 2021, the MEMR continued to focus on increasing domestic and foreign investment in the mining sector; it carried out exploration studies for phosphate rock deposits at the Al-Risha area to evaluate phosphate ore reserves. The project was located in the Al-Ruwaished region in northeastern Jordan close to the borders of Iraq and Saudi Arabia. The MEMR also conducted second-phase exploration studies for rare-earth elements in the southern part of the Debedeeb region in southern Jordan. Additionally, the MEMR carried out an exploration study for lithium deposits in the Lesan area of the Dead Sea, which indicated high lithium concentration in the carnallite minerals at depths of between 149 and 163 meters (Ministry of Energy and Mineral Resources, 2022a, p. vi; 2022b, p. 37–38).

Outlook

Jordan is expected to remain a global supplier of bromine products, fertilizers, phosphate rock, and potash in the next 5 years; its production of these mineral commodities and their derivatives is expected to increase if world markets remain favorable to Jordan's producers in terms of demand and prices. The Government continues to focus on developing its metallic mineral resources, such as copper, gold, and lithium; industrial mineral resources, such as basalt, dolomite, kaolin, phosphate rock, and potash; and mineral fuel materials, such as crude petroleum, natural gas, and oil shale. The Attarat powerplant, which would be the country's first oil-shale-fired powerplant, is expected to commence commercial production in 2022, which will lead to increases in the extraction of the country's oil shale resources in the coming years.

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TABLE 1

JORDAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity		2017	2018	2019	2020	2021
METALS						
Iron and steel, steel:						
Raw steel[e]		33 [r]	350 [r]	350 [r]	350	350
Products, semimanufactured		200	300 [r, e]	200 [r, e]	100 [e]	100 [e]
INDUSTRIAL MINERALS						
Bromine		85	89	113 [r]	113	115
Cement:						
Hydraulic		4,680	4,940 [r]	3,470 [r]	3,320 [e]	3,720 [e]
Clinker		543	587	282	293	216
Clay:						
Common clay		364	365 [e]	360 [r, e]	360 [e]	360 [e]
Dead Sea mud	metric tons	245	276	222 [r]	--	NA
Kaolin		712	188	479 [r]	499	268
Fertilizers		695	882	748	929	1,055
Fluorspar, products, aluminum fluoride		6	6	6	10	12
Gypsum, mine		344	191	265 [r]	185	400
Phosphate rock:						
Mine:						
Gross weight		8,688	8,022	9,223	8,938	10,015
P_2O_5 content		2,780	2,567	2,955	2,860	3,205
Compounds:						
Diammonium phosphate		696	882	748	707	728
Phosphoric acid		945	995	987 [r]	1,008	1,114
Potash:						
Crude salts		2,230	2,436	2,486	2,620	2,563
K_2O content		1,392	1,486	1,516	1,598	1,563
Pumice and related materials, pozzolan		804	917	683 [r]	711	1,006
Salt:						
Brine		41	49	37 [r]	39	42
Dead Sea salt	metric tons	1,048	1,266	1,976	1,619	1,800 [e]
Sand and gravel, industrial, unspecified		564	136	249 [r]	212	69
Stone, sand, and gravel, construction:						
Sand and gravel		3,610	3,800	3,150 [r]	2,500	1,220
Stone:						
Crushed:						
Basalt		63	563	90 [r]	141	71
Limestone, calcium carbonate		4,087	2,739	2,989 [r]	2,307	3,134
Dimension:						
Granite, slab	metric tons	-- [r]	200 [r]	3,400 [r]	--	--
Marble	do.	80,000	17,500	25,000 [r]	--	--
Travertine	do.	11,542	18,520	8,931 [r]	1,650	10,781
Other, size and shape unspecified, calcium carbonate		418	530	583 [r]	901	1,099
Sulfur:						
Byproduct, natural gas and petroleum		3	4	2	4	4
Compounds, sulfuric acid[2]		839 [r]	856 [r]	780 [r]	863	968
Zeolites, tuff, crude[e]		1 [r]	1 [r]	1 [r]	1	1
MINERAL FUELS AND RELATED MATERIALS						
Natural gas	million cubic meters	102	94	124 [r]	150	184
Petroleum:						
Crude	thousand 42-gallon barrels	2 [r]	7 [r]	2 [r]	183	156

See footnates at end of table.

TABLE 1—Continued

JORDAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, gross weight, unless otherwise specified)

Commodity		2017	2018	2019	2020	2021
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum:—Continued						
Refinery:						
Asphalt	thousand 42-gallon barrels	1,344	1,000	1,066	743	569
Gasoline	do.	4,734	4,108	4,320	4,049	3,686
Distillate fuel oil	do.	6,304	5,508	5,950	4,494	4,762
Jet fuel, including kerosene	do.	2,902	2,568	2,934	1,709	1,804
Liquefied petroleum gas	do.	831	690	777	729	588
Residual fuel oil	do.	3,756	3,049	3,467	1,681	1,707
Total	do.	19,900	16,900	18,500	13,400	13,100

[e]Estimated. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through November 17, 2022. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]From imported sulfur.

TABLE 2
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(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) (Indian Potash Ltd., 27.380%; Government Shareholdings' Management Co., 25.655%; Social Security Corp., 16.527%; Kisan International Trading FZE, 9.620%; Government of the State of Kuwait, 9.333%; other investors, 11.485%)	Plant at Aqaba	14,000
Bromine		Jordan Bromine Co. Ltd. (JBC) [Arab Potash Co. Ltd. (APC), 50%, and Albemarle Corp., 50%]	Plant at Ghor Al Safi, Dead Sea	120,000
Cement		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%]	Plant at Amman	130,000
Do.		Cementra Jordan (Al Rajhi Cement Holding Ltd.)	Plant at Al Mafraq	2,400,000
Do.		Jordan Lafarge Cement Factories Co. P.S.C. (JCFC) (Lafarge S.A., 50.28%; Social Security Corp., 21.86%; others, 27.87%)	Plant at Ar-Rashadiya	4,000,000
Do.		Modern Cement and Mining Co. (Manaseer Group, 100%)	Plant at Al Qatranah	3,500,000
Do.		Northern Cement Co.	Plant at Muwaqar	1,000,000
Do.		Qatrana Cement Co. (Arabian Cement Co., 100%)	do.	1,800,000
Clay:				
Dead Sea mud		Numiera Mixed Salts and Mud Co. (Arab Potash Co. Ltd., 100%)	Plant at Ghor Al Safi	200
Feldspar		General Mining Co. Ltd.	Mine at Al-Jaishiah	10,000
Do.		Jordanian Company for Mining and Processing of Kaolin and Feldspar	Mine at Qanasieh	216,000
Kaolin		Al-Faori Enterprise for Mining	Mine at Al-Adasieh	110,000
Do.		Jordan Lafarge Cement Factories Co. P.S.C. (JCFC) (Lafarge S.A., 50.28%; Social Security Corp., 21.86%; others, 27.87%)	Plant at Ar-Rashadiya	300,000
Do.		Jordanian Company for Mining and Processing of Kaolin and Feldspar	Mine at Qanasieh	216,000
Do.		Manaseer Cement and Mining (Manaseer Group, 100%)	Mine at Al Qatranah	400,000
Do.		Middle East Regional Development Enterprises	Mine at Ras En Naqab	10,000
Do.		Qatrana Cement Co. (Arabian Cement Co., 100%)	Mine at Al Qatrana	400,000
Do.		Public Mining Co. Ltd.	Mine at Fuaheis	38,000
Do.		do.	Mine at Batn el-Ghoul	31,000
Gypsum		Al-Nasr Mining Establishment	Mines at 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.	Mine at Zarqa	73,000
Do.		Mansour Al Shoabaki Establishment	Mines at Mujib	2,000
Do.		Public Mining Co. Ltd.	do.	68,000
Do.		Shaker Al-Talib Establishment	Mine at Subeihi	15,000
Limestone		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%]	Mine at Khalidiah	500,000
Do.		Sufian Nusair Assoc.	do.	NA
Do.		Khaled Shamayleh Co.	Mine at Siwaqa	NA
Magnesium oxide		Manaseer Magnesia Co. (Manaseer Group, 100%)	Plant at Ghor Al Safi[1]	60,000
Natural gas	million cubic meters	National Petroleum Co. (NPC) (Government, 100%)	Risha gasfield	200
Petroleum:				
Crude	thousand 42-gallon barrels	do.	Hamza oilfield	330
Oil shale	do.	Attarat Power Co. (APCO) (YLT Power International Berhad, 45%; Yudean Group Co. Ltd., 45%; Eesti Energia Consortium, 10%)	Mine and plant at Attarat um Ghudran, Al Qatranah	73,300
Refined	do.	Jordan Petroleum Refinery Co. Ltd. (JPRC) (Government, 100%)	Refinery at Zarqa	90,400

See footnotes at end of table.

TABLE 2—Continued
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Phosphate:			
Phosphate rock	Jordan Phosphate Mines Co. p.l.c. (JPMC) (Indian Potash Ltd., 27.380%; Government Shareholdings' Management Co., 25.655%; Social Security Corp., 16.527%; Kisan International Trading FZE, 9.620%; Government of the State of Kuwait, 9.333%; other investors, 11.485%)	Mines at Al Hassa, Al Russeifa, Eshidiya, and Wadi Al Abiad	8,500,000
Phosphate, compounds:			
Diammonium phosphate	do.	Plant at Industrial Fertilizer Complex, Aqaba	650,000
Do.	Nippon Jordan Fertilizer Co. (NJFC) [Jordan Phosphate Mines Co. p.l.c. (JPMC), 70%; Arab Potash Co. Ltd. (APC), 20%; Mitsubishi Corp., 10%]	Plant at Eshidiya, Ma'an	300,000
Dicalcium phosphate	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) [Jafco 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 Co., 5%; Al-Faris Investments, 2.81%]	Plant at Al Wadi Al Abyad, Karak	15,000
Phosphoric acid	Jordan Phosphate Mines Co. p.l.c. (JPMC) (Indian Potash Ltd., 27.380%; Government Shareholdings' Management Co., 25.655%; Social Security Corp., 16.527%; Kisan International Trading FZE, 9.620%; Government of the State of Kuwait, 9.333%; other investors, 11.485%)	Plant at 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%]	Plant at Eshidiya, Ma'an	475,000
Do.	Indo-Jordan Chemicals Co. (IJC) [Jordan Phosphate Mines Co. p.l.c. (JPMC), 100%]	do.	237,000
Triple superphosphate	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) (Jaffco Bahrain Co., 42.79%; Jordan Phosphate Mines Co. p.l.c. (JMPC), 27.38%; Venture Capital Bank, 19.83%; Arab Mining Co., 10%)	Plant at Al Wadi Al Abiad, Karak	65,000
Potash:			
Crude salts	Arab Potash Co. (APC) (Man Jia Industrial Development Ltd., 28%; Government Investments Management Co., 26%; Arab Mining Co., 20%; Social Security Corp., 10%; Iraqi Government, 4%; Libyan Company for Foreign Investments, 4%; private investors, 2%; Ministry of Finance, 1%)	Plant at Ghor Al Safi	2,500,000
Potassium fertilizers:			
Potassium nitrate	Arab Fertilizers and Chemicals Industries Ltd. (Kemapco) [Arab Potash Co. Ltd. (APC), 100%]	Plant at Aqaba	175,000
Potassium sulfate	Jordan Abyad Fertilizers and Chemicals Co. P.S.C. (JAFCCO) (Jaffco Bahrain Co., 42.79%; Jordan Phosphate Mines Co. p.l.c. (JMPC), 27.38%; Venture Capital Bank, 19.83%; Arab Mining Co., 10%)	do.	80,000
Pumice, pozzolanic material	Jordan Lafarge Cement Factories Co. P.S.C. (JCFC) (Lafarge S.A., 50.28%; Social Security Corp., 21.86%; others, 27.87%)	Quarry at Tell Remah	350,000
Do.	do.	Quarry at Aarityan	150,000
Do.	Alialeel for Mining and Extraction of Raw Materials	Quarry at Mafraq	NA
Do.	Modern Cement and Mining Co. (Manaseer Group, 100%)	Quarries at Karak, Tafilah	NA
Salt	Arab Potash Co. Ltd. (APC), 100%	Brines at Ghor Al Safi	17,000
Do.	Amra Salt Co.	Dead Sea Salinas	365,000
Do.	Amra Salt Co.	Plant at Abdullah II Ibn Al-Hussein Industrial Estate, Sahab	360,000

See footnotes at end of table.

TABLE 2—Continued
JORDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Sand, industrial	Middle East Regional Development Enterprises	Mine at 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.	Green Technology Group of Jordan for Mining Co. Ltd.	Mine at Al-Homaimeh	NA
Do.	Travertine Co. PLC	Mine at Dabbat Hanout, Aqaba	NA
Steel:			
Raw	Jordan Steel Co. p.l.c. (Jordan Steel Group, 100%)	Plant at Amman	360,000
Do.	Manaseer Iuron and Steel Co. (Manaseer Group)	Billet plant at Amman	200,000
Do.	Jordan Steel Co. p.l.c. (Jordan Steel Group, 100%)	do.	250,000
Processed	National Steel Industry Co.	do.	400,000
Do.	Manaseer Iron and Steel Co. (Manaseer Group)	Plant at Amman	200,000
Do.	Petra Steel Industry Co.	do.	120,000
Do.	Taybeh Metal Industries (Taybeh Steel Group, 100%)	Plant at Mowagar Industrial Zone, Amman	300,000
Stone:			
Basalt	Jordan Rock Wool Industries Co. Ltd.	Quarry at Qa'a Hanna	5,000
Calcium Carbonate	Jana Carbonate Co.	Mines at Al Qatranah area	70,000
Do.	Jordan Carbonate Co.	Mine at Zeezia, Amman	400,000
Do.	Manaseer Carbonate Co. (Manaseer Group, 100%)	Mines at Al Qatranah area, Karak	350,000
Do.	do.	Plant at Mnaseer Industrial Complex, Al Damkhi, Karak	350,000
Do.	National Carbnate Co.	Plant at Damkhi, Amman	60,000
Do.	Petra Calcium Carbonate Co.	do.	NA
Do.	do.	Plant at Amman	NA
Do.	Qatrana Cement Co. (Arabian Cement Co., 100%)	Mine at Al Qantara, Karak	NA
Granite	Manaseer Marble & Granite Co. (Manaseer Group, 100%)	Quary at Zarqa	5,000
Marble	Al Zammar Group	Quarries at Ajloun, Jordan Valley, Karak	NA
Travertine	Alghor Alawsat Mining Establishment	Quarry at Balqa	NA
Do.	Travertine and Granite Co.	do.	NA
Sulfuric acid	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 Co., 5%; Al-Faris Investments, 2.81%]	Plant at Industrial Fertilizer Complex, 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. (JPMC), 48%]	Plant at Eshidiya, Ma'an	1,485,000
Do.	Indo-Jordan Chemicals Co. Ltd. [Jordan Phosphate Mines Co. p.l.c. (JPMC), 87%, and Arab Investment Co., 13%]	do.	660,000
Zeolites	Amana Agricultural & Industrial Co.	Mine at Tel Hesban	NA
Do.	Green Technology Group of Jordan for Mining Co. Ltd.	Mine at Al Aritayn/Marfaq	NA
Do.	Jordanian Factory for Soil Development & Moisture Drying Co.	do.	NA

Do., do. Ditto. NA Not available.
[1]Plant was closed for reconstruction in 2021.