



2020–2021 Minerals Yearbook

BAHRAIN [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF BAHRAIN

By Philip A. Szczesniak

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

Bahrain is a small island nation located northeast of Saudi Arabia that, in 2020, was a member of the Cooperation Council for the Arab States of the Gulf, formerly known as the Gulf Cooperation Council (GCC). Bahrain was estimated to be the world's seventh-ranked primary aluminum producer and accounted for 2.4% of the world's total production of aluminum in 2020. The country also produced aluminum products, secondary aluminum, and steel products. Other mineral commodities produced in Bahrain included ammonia, cement, ferromanganese, ferrosilicon, iron ore pellets, methanol, stainless steel, sulfur, and urea. The country was a modest producer of crude petroleum, natural gas, and refined petroleum products in 2020 (table 1; Bray, 2022; Cooperation Council for the Arab States of the Gulf, 2022).

Minerals in the National Economy

In 2020, the real gross domestic product (GDP) of Bahrain decreased by 4.9% compared with an increase of 2.2% in 2019. The country's nominal GDP was estimated to be \$35 billion. The hydrocarbon sector accounted for 18.6% of the GDP, followed by the manufacturing sector (14.2%) and the construction sector (7.6%). The mining and quarrying sector accounted for 0.9% of the GDP. The value added of the hydrocarbon sector decreased by 0.1% in real terms compared with an increase of 2.2% in 2019. The value added of the nonhydrocarbon sectors decreased by 6.0% in real terms compared with an increase of 2.2% in 2019. The value added of the mining and quarrying sector increased by 4.5% in 2020, but that of the manufacturing sector and the construction sector decreased by 5.7% and 0.9%, respectively. The Government's hydrocarbon revenue accounted for 53.4% of the country's total revenue in 2020 compared with 61.2% in 2019 (Information and E-Government Authority, 2022; International Monetary Fund, 2022).

The value of exports from Bahrain decreased by 22.1% to \$14.1 billion in 2020 from \$18.1 billion in 2019. The value of exported crude petroleum and refined products accounted for 41.8% of total exports. The value of imports decreased to \$14.2 billion in 2020 from \$17.3 billion in 2019. The value of United States exports to Bahrain in 2020 decreased to \$885 million from \$1.4 billion in 2019. United States mineral-related exports to Bahrain included drilling and oilfield equipment (valued at \$7.7 million), finished metal shapes (\$5.9 million), jewelry (\$2.9 million), petroleum products (other) (\$1.9 million), iron and steel products (\$1.8 million), and mineral supplies (manufactured) (\$1.6 million). The value of United States imports from Bahrain decreased to \$636 million from \$1.0 billion in 2019. United States mining-related imports from Bahrain included bauxite and aluminum (valued at \$231 million), finished metal shapes (\$139 million), petroleum

products (other) (\$66 million), chemical fertilizers (\$22 million), and jewelry (\$7 million) (International Monetary Fund, 2022; U.S. Census Bureau, 2022a, b).

Government Policies and Programs

The National Oil and Gas Authority (NOGA) was the Government agency responsible for implementing policies regarding hydrocarbon resources and for regulating the use of hydrocarbon resources in Bahrain. The NOGA was established by Decree No. 63 of 2005. According to the Minister of Oil, the NOGA had undertaken initiatives to not only increase revenues through development of the crude petroleum and natural gas industry in Bahrain, but also to boost energy conservation, engage in renewable energy projects, and negotiate agreements with major international crude petroleum companies. The legislative framework for the mineral and energy sector in Bahrain is provided by law No. 21 of 2001, law No. 10 of 2006, and law No. 36 of 2014 (National Oil and Gas Authority, 2017a–d; Ministry of Industry, Commerce, and Tourism, undated).

Production

Primary aluminum production in Bahrain increased by a notable 13% in 2020 owing to the continued increase in production following Aluminium Bahrain B.S.C.'s (Alba's) capacity increase in 2018. Notable decreases in production included that of gasoline, which decreased by 29%; residual fuel oil, by 27%; kerosene (including jet fuel), by 25%; other refinery products, by 19%; iron ore pellets, by 12%; and sulfur, by 10%. Data on mineral production are provided in table 1 (Aluminium Bahrain B.S.C., 2020, p. 7, 9, 28; 2021, p. 6).

Structure of the Mineral Industry

The mineral-processing industry of Bahrain was composed mainly of the aluminum industry and the iron and steel industry, which relied on imported alumina and iron ore, respectively. Apart from quarries for limestone (used in cement production), there were no active mines in the country. The country's petrochemical sector produced nitrogen fertilizer from domestically produced crude petroleum and natural gas. Although the Government was a major investor in the country's mineral industry, companies from Kuwait, Saudi Arabia, and the United Arab Emirates (UAE) held substantial equity interests in most of the country's mineral enterprises.

Alba—a public company with interests held by Government-owned Bahrain Mumtalakat Holding Co. (69.38%), Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd. of Saudi Arabia (20.62%), and others (10%)—produced primary aluminum from its smelter at Sitra in northeastern Bahrain. Gulf Aluminium Rolling Mill Co. B.S.C. (GARMCO), which was

majority owned by Bahrain Mumtalakat Holding Co. (37%) and SABIC Industrial Investments Co. Ltd. (30%), produced downstream aluminum products, including aluminum circles, coils, and sheets. Bahrain Steel BSCC E.C., which was wholly owned by Foulath Holding B.S.C., produced iron ore pellets from its complex at Al Hidd (located about 10 kilometers east of the capital city of Manama in northern Bahrain). United Steel Co. B.S.C. (Sulb), an iron and steel company owned by Foulath Holding B.S.C. (51%) and Yamato Kogyo Co. of Japan (49%), produced direct-reduced iron and steel products at its complex in the Al Hidd Industrial Area (table 2).

NOGA Holding Co. was NOGA's business and investment branch and the Government's shareholder in such companies as Tatweer Petroleum Bahrain Field Development Co. W.L.L. (100% interest), Bahrain Petroleum Co. B.S.C. (Bapco) (100% interest), Bahrain National Gas Co. B.S.C. (Banagas) (75% interest), and Gulf Petrochemical Industries Co. B.S.C. (GPIC) (33.3% interest) (table 2; National Oil and Gas Authority, 2017e; Tatweer Petroleum Bahrain Field Development Co. W.L.L., 2019).

Commodity Review

Metals

Aluminum.—Alba, which was the country's sole primary aluminum producer, produced 1.55 million metric tons (Mt) of aluminum in 2020 compared with 1.37 Mt in 2019 and 1.01 Mt in 2018. The increase was due to capacity additions of more than 500,000 metric tons per year of aluminum, which was completed as part of Alba's Line 6 expansion project in 2018. Alba reported that about 20% of the value of the year's revenue came from domestic aluminum sales. The remaining 80% was from aluminum exports to markets in Asia (which accounted for 29% of the company's total revenue), Europe (23%), the Middle East and North Africa (17%), and the Americas (11%). Alba's total sales of aluminum products were composed of standard ingots (39%), extrusion billets (33%), liquid metals (17%), foundry alloys (10%), and rolling slabs (1%). Alba employed about 3,000 people in 2020 (table 2; Aluminium Bahrain B.S.C., 2020, p. 7; 2021, p. 21, 33, 90; Aluminium Insider, 2021).

Industrial Minerals

Cement.—In 2020, production of cement in Bahrain was estimated to be 610,000 metric tons, and the country had the capacity to produce about 2.2 million metric tons per year (Mt/yr) of cement. Falcon Cement Co., which was owned by Cemena Holding Co. B.S.C. (60%), Arab Petroleum Investments Corp. (30%), and Abu Dhabi Financial Group (10%), operated a 1.2-Mt/yr-capacity integrated plant at the Hafeera Industrial Area near Askar in central Bahrain. The other cement producer in Bahrain, UltraTech Cement Bahrain Co. W.L.L. (a wholly owned subsidiary of UltraTech Cement Ltd. of India), operated a 1.0-Mt/yr-capacity cement plant at Al Hidd. Bahrain's consumption of cement was estimated to be about 1.4 Mt, and imports were required to meet the demand; the imports were sourced primarily from Saudi Arabia and the UAE (table 2; International Cement Review, 2020).

Mineral Fuels

Crude Petroleum and Natural Gas.—In 2020, crude petroleum production in Bahrain decreased slightly to about 70.9 million barrels (Mbbbl), including about 15.8 Mbbbl from the Bahrain onshore oilfield, which was operated by Bapco, and 55.1 Mbbbl from the Government's 50% share of the Abu Saafa offshore oilfield, which was jointly owned by the Governments of Bahrain and Saudi Arabia (50% each) and was operated by Saudi Arabian Oil Co. (Saudi Aramco). Total natural gas production in the country decreased by 0.4% to about 17.2 billion cubic meters in 2020. A total of 3,847 workers were employed in the crude petroleum and natural gas sector in 2020; the majority of the workers (2,786, or about 72%) were Bahraini, whereas 1,061 (or about 28%) were foreign workers (table 1; Information and E-Government Authority, 2021; Ministry of Finance and National Economy, 2021, p. 9).

Bahrain was estimated to have about 125 Mbbbl of proven crude petroleum reserves at the end of 2020. During the year, NOGA continued with plans to further explore and develop the nonconventional crude petroleum resources discovered in 2018 in the offshore Khalij Al Bahrain basin. The 2,000-square-kilometer basin, which is located in Persian Gulf waters to the north of Bahrain, was estimated by NOGA to contain as much as 80 billion barrels of tight crude petroleum. The Government hoped to attract international companies to invest and provide energy expertise to assist in developing the new resources in the Khalij Al Bahrain basin, which was the largest crude petroleum and natural gas discovery in Bahrain since 1932 (Grewal, 2020; International Trade Administration, 2020).

In December 2020, Bapco reported that a \$6 billion upgrade and modernization project at its Sitra refinery was 60% complete. The company planned to increase the production capacity at the Sitra refinery to 380,000 barrels per day (bbl/d) from 267,000 bbl/d. The modernization project, which was initiated in 2012, was expected to include the staged implementation of a delayed coker, a diesel hydrotreater, a residue hydrocracker, a sulfur recovery unit, and a vacuum gas-oil hydrocracker. The project was expected to be completed by 2023 (table 2; Brelsford, 2015; Turner, 2020).

MINERAL INDUSTRY HIGHLIGHTS IN 2021

In 2021, the real GDP of Bahrain increased by 2.2%. The hydrocarbon sector accounted for 18.1% of the GDP, followed by the manufacturing (14.0%) and construction (7.5%) sectors. The quarrying sector accounted for 0.9% of the GDP. The hydrocarbon sector decreased in value by 0.3% in real terms. The nonhydrocarbon sector increased in value by 2.8% in real terms. The quarrying sector increased by 5.5% in 2021, and the manufacturing sector and construction sector increased by 0.5% and 0.8%, respectively. The Government's hydrocarbon revenue accounted for 58.3% (estimated) of the country's total revenue in 2021 compared with 53.4% in 2020 (Information and E-Government Authority, 2022; International Monetary Fund, 2022).

The value of the country's exports in 2021 increased by 58.9% to \$22.4 billion, as estimated by the International Monetary Fund (2022). The value of exported crude petroleum

and refined products was \$9.9 billion (estimated), accounting for 44.2% of total exports. The value of imports increased to \$17.5 billion (estimated) in 2021. The value of United States exports to Bahrain in 2021 increased to \$936 million. United States mining-related exports to Bahrain included jewelry (valued at \$45 million), gem diamond (\$11.2 million), drilling and oilfield equipment (\$6.9 million), excavating machinery (\$6.1 million), finished metal shapes (\$5.7 million), aluminum and alumina (\$3.1 million), manufactured mineral supplies (\$2.2 million), petroleum products (other) (\$2.3 million), iron and steel products (\$1.9 million), chemical fertilizers (\$1.5 million), and nonferrous metals (other) (\$1.1 million). The value of United States imports from Bahrain increased to \$1.2 billion. United States mining-related imports from Bahrain included bauxite and aluminum (valued at \$525 million), finished metal shapes (\$204 million), petroleum products (other) (\$100 million), fuel oil (\$19 million), chemical fertilizers (\$13 million), and jewelry (\$13 million) (International Monetary Fund, 2022; U.S. Census Bureau, 2022a, b).

Production of iron ore pellets in Bahrain increased by 60% in 2021 compared with that in 2020 owing to increased demand from a 20-year agreement (signed in 2019) with Anglo American Marketing Ltd. of the United Kingdom. Other significant production increases were in other refinery products, by 33%; and residual fuel oil, by 16%. Notable decreases in production included that of bitumen, which decreased by 45%; natural gas liquids, by 18%; kerosene and jet fuel, by 17%; gasoline, by 12%; and liquefied petroleum gas, by 11%. Data on mineral production are in table 1 (Bahrain Steel, 2022).

In March 2021, the Oil Minister of Bahrain announced that drilling activity for the first offshore production wells in the nonconventional fields in the Khalij Al Bahrain basin would start by the end of 2022. The Oil Minister noted that no development or production-sharing agreement had yet been reached with any international energy company that had expertise in developing nonconventional fields owing to the global economic recession, the recent fall in crude petroleum prices, and a decrease in interest in new energy investments by major international crude petroleum companies (Ghantous, 2021).

In November 2021, Bapco officials announced that the expected cost of its Sitra refinery modernization project had increased to \$7 billion and that the project completion date had been delayed until 2024 owing primarily to a labor shortage resulting from the coronavirus disease 2019 (COVID-19) pandemic. Company officials noted that the expected increase in refinery production from the modernization project was being targeted to be sold to international markets and that the modernization would allow the refinery to produce higher quality products with a lower carbon footprint (Saadi, 2021).

Outlook

Bahrain is likely to remain an important world supplier of aluminum and a regional supplier of ammonia, direct-reduced iron, iron ore pellets, natural gas, petroleum (crude and refined products), and urea. According to the International Monetary Fund (2022), the economy of Bahrain is projected to grow by 3.4% in 2022 and 3.0% in 2023. Government revenues are expected to remain dependent on exports of crude

petroleum and therefore dependent on the global economy and international commodity prices. Completion of the Sitra refinery modernization project will expand the country's role in providing clean (low sulfur) refined petroleum products to international markets. Furthermore, development of the nonconventional energy resources in the offshore Khalij Al Bahrain basin could significantly add to its energy reserves and attract significant investment in its energy sector in the coming years (International Monetary Fund, 2022).

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TABLE 1
BAHRAIN: PRODUCTION OF MINERAL COMMODITIES¹
(Thousand metric tons, gross weight, unless otherwise specified)

Commodity ²	2017	2018	2019	2020	2021
METALS					
Aluminum, metal, primary	981	1,011	1,365	1,549	1,561
Iron ore, pellets, from imported concentrates	11,000 ^e	8,200 ^e	8,500 ^e	7,500 ^e	12,000
Iron and steel, direct-reduced iron	1,260	1,600	1,450 ^r	1,380	1,380 ^e
INDUSTRIAL MINERALS					
Cement, hydraulic	1,490 ^r	1,170 ^{r,e}	670 ^r	610 ^e	610 ^e
Nitrogen, N content:					
Ammonia	382	346	383	381	378
Urea	321	303	335	331	325
Sulfur, S content, byproduct of natural gas and petroleum	147	141	141	127	132
MINERAL FUELS AND RELATED MATERIALS					
Methanol	442	425	451	450	446
Natural gas:					
Gross	million cubic meters				
	14,557	14,790	17,326	17,249	16,913
Marketable ^e	do.				
	8,400	8,550	10,000	10,000	9,900
Petroleum:					
Crude	thousand 42-gallon barrels				
	71,958	70,874 ^r	70,886 ^r	70,878	69,153
Natural gas liquids	do.				
	3,503	4,008	6,773	6,619	5,406
Refinery:					
Bitumen	do.				
	1,805	1,911 ^r	2,003 ^r	2,088	1,152
Distillate fuel oil	do.				
	30,250	29,517 ^r	30,438 ^r	28,534	31,200 ^e
Gasoline	do.				
	6,325	6,296	6,416	4,561	4,012
Kerosene, including jet fuel	do.				
	24,215	24,209	24,065	18,073	15,010
Liquefied petroleum gas	do.				
	1,739	1,938	1,584	1,442	1,278
Naphtha	do.				
	13,056	14,467 ^r	14,909 ^r	13,649	14,900 ^e
Residual fuel oil	do.				
	18,205	17,205	17,620	12,893	14,892
Other	do.				
	3,425	3,336 ^r	2,957 ^r	2,400 ^e	3,200 ^e
Total	do.				
	99,000	98,900 ^r	100,000 ^r	83,600	85,600

^eEstimated. ^rRevised. do. Ditto.

¹Table includes data available through June 30, 2022. All data are reported unless otherwise noted. Totals and estimated data are rounded to three significant digits; may not add to totals shown.

²In addition to the commodities listed, aggregate, aluminum products, ferrochrome, ferromanganese, ferrosilicon, sand, secondary aluminum, steel products, and stone may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
BAHRAIN: 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:			
Metal:			
Primary and secondary	Aluminium Bahrain B.S.C. (Alba) [Bahrain Mumtalakat Holding Co., 69.38%; Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd., 20.62%; others, 10%]	Smelter at Sitra	1,600,000
Secondary	Bahrain Recycling Plant (private, 100%)	Dross and scrap remelt facilities at Askar	15,000
Products:			
Alloys	Bahrain Alloys Manufacturing Co. (BAMCO)	Plant at Sitra	30,000
Casting, wheel casings	Aluminium Wheel Co. W.L.L. (Midal Cables Ltd., 100%)	Plant at Manama	400,000
Flat	Bahrain Aluminum Extrusion Co. (BALEXCO)	Plant at Sitra	25,000
Powder	Bahrain Atomisers International B.S.C.	Plant at East Riffa area at Manama	NA
Rolled	Gulf Aluminium Rolling Mill Co. B.S.C. (GARMCO) [Bahrain Mumtalakat Holding Co., 37%; Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd., 30%; Industrial Bank of Kuwait, 17%; Gulf Investment Corp., 6%; Government of Iraq, 5%; Government of Oman, 2.5%; Qatar Holding Co., 2.5%]	Rolling mill at Sitra	200,000
Do.	do.	Foil mill at Sitra	20,000
Do.	Midal Cables Ltd. (Intersteel W.L.L., 50%, and Saudi Cable Co., 50%)	Rolling mill at Manama	120,000
Cement	Falcon Cement Co. (Cemena Holding Co. B.S.C., 60%; Arab Petroleum Investments Corp., 30%; Abu Dhabi Financial Group, 10%)	Cement plant at Hafeera Industrial Area, near Askar	1,241,000
Do.	UltraTech Cement Bahrain Co. W.L.L. (UltraTech Cement Ltd., 100%)	Cement plant at Al Hidd	1,000,000
Ferroalloys	Bahrain Ferro Alloys B.S.C. (BAFA) (ETA Star Holdings L.L.C., 100%)	Plant at Al Hidd Industrial Area	60,000
Iron ore pellets	Bahrain Steel BSCC E.C. (Foulath Holding B.S.C., 100%)	Pellet plants at Al Hidd	12,000,000
Iron and steel:			
Direct-reduced iron	United Steel Co. B.S.C. (Sulb) (Foulath Holding B.S.C., 51%, and Yamato Kogyo Co., 49%)	Plant at Al Hidd Industrial Area	1,600,000
Steel products:			
Heavy sections	do.	do.	600,000
Hot-rolled	United Stainless Steel Co. B.S.C. (USCO) (Foulath Holding B.S.C., 100%)	do.	100,000
Stainless	Universal Rolling W.L.L.	do.	275,000
Methanol	Gulf Petrochemical Industries Co. B.S.C. (GPIC) [National Oil and Gas Authority (NOGA), 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd., 33.3%]	Plant at Sitra	450,000
Natural gas, extracted	Tatweer Petroleum Bahrain Field Development Co. W.L.L. [National Oil and Gas Authority (NOGA), 100%]	Bahrain field at Awali	22,000 million cubic meters
Nitrogen, fertilizer, N content:			
Ammonia	Gulf Petrochemical Industries Co. B.S.C. (GPIC) [National Oil and Gas Authority (NOGA), 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd., 33.3%]	Plant at Sitra	500,000
Urea	do.	do.	700,000

See footnotes at end of table.

TABLE 2—Continued
 BAHRAIN: 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
Petroleum:				
Crude	thousand 42-gallon barrels	Saudi Arabian Oil Co. (Saudi Aramco)	Abu Saafa offshore oilfield ¹	110,000
Do.	do.	Tatweer Petroleum Bahrain Field Development Co. W.L.L. [National Oil and Gas Authority (NOGA), 100%]	Bahrain onshore oilfield, Awali	16,300
Natural gas liquids:				
Butane	do.	Bahrain National Gas Co. B.S.C. (Banagas) [National Oil and Gas Authority (NOGA), 75%; Boubyan Petrochemical Co., 12.5%; Chevron Bahrain, 12.5%]	Natural gas plant at Awali	2,117
Propane	do.	do.	Natural gas plant at Awali	2,227
Refinery:				
Coke, calcined		Aluminium Bahrain B.S.C. (Alba) (Bahrain Mumtalakat Holding Co., 69.38%; Saudi Basic Industries Corp. (SABIC) Industrial Investments Co. Ltd., 20.62%; others, 10%)	Plant at Sitra	550,000
Other products	do.	Bahrain Petroleum Co. B.S.C. (Bapco) [National Oil and Gas Authority (NOGA), 100%]	Refinery at Sitra	97,500
Sulfur		do.	do.	135,000

Do., do. Ditto. NA Not available.

¹Production from the field is pumped from Saudi Arabia to Bahrain and subsequently refined and marketed by Bahrain Petroleum Co. B.S.C. (Bapco).