



2012 Minerals Yearbook

BAHRAIN

THE MINERAL INDUSTRY OF BAHRAIN

By Mowafa Taib

The Kingdom of Bahrain, which occupies an area of 760 square kilometers, is the smallest country in the Middle East region in terms of area and population. Bahrain is one of the six countries that make the Cooperation Council for Arab States of the Gulf, better known as the Gulf Cooperation Council (GCC). In 2012, the country was the site of one of the largest aluminum smelters in the world in terms of the volume of production; it was the world's ninth-ranked producer of primary aluminum and accounted for 2.0% of the world's aluminum output. Other mineral commodities produced in Bahrain included ammonia, cement, crude oil, iron ore pellets from imported iron ore, ferromanganese, ferrosilicon, methanol, natural gas, refined petroleum products, sulfur, and urea (table 1; Mobbs and others, 2012; Bray, 2013).

Minerals in the National Economy

In 2012, Bahrain's gross domestic product (GDP) increased by 3.9% in real terms compared with a revised increase of 2.1% in 2011. In 2012, the hydrocarbon sector accounted for 19.0% of the GDP at constant prices, and the manufacturing sector, which included aluminum and iron and rolled steel production, accounted for 15.5%. The Government's gas and oil revenue accounted for 87% of the country's total revenue in 2012 compared with about 88% in 2011. Bahrain's exports of goods and services were valued at \$19.8 billion in 2012 compared with a revised \$19.6 billion in 2011. The value of petroleum products exports decreased by 2% to about \$15.2 billion in 2012 from a revised \$15.5 billion in 2011, and the volume of oil imports, which were imported from Saudi Arabia and exported after refining, increased to 80 million barrels (Mbbbl) from 79 Mbbbl in 2011 (Central Bank of Bahrain, 2013, p. 5; International Monetary Fund, 2013, p. 5, 11; Martin, 2013, p. 12; National Oil and Gas Authority, 2013).

Production

In 2012, primary aluminum output, which was produced solely by Aluminium Bahrain B.S.C. (Alba), increased slightly compared with that of 2011. Ammonia and urea production, which was solely produced by Gulf Petrochemical Industries Co. B.S.C. (GPIC), decreased by 10% and 7%, respectively, compared with that of 2011. Bahrain's crude oil production decreased by about 9%, and gross natural gas production increased by 7% compared with that of 2011 (table 1).

Structure of the Mineral Industry

Bahrain had significant mineral industries for the Gulf region but, with exception of quarrying for limestone for cement, there were no active mines in the country. The mineral industry included a petrochemical sector, which produced nitrogen fertilizer and depended on locally produced and imported crude oil, and aluminum and iron and steel sectors,

which depended entirely on imported alumina and iron ore, respectively, for their operations. Although the Government was a major investor in Bahrain's mineral industries, companies from Kuwait, Saudi Arabia, and the United Arab Emirates (UAE) held substantial equity interest in most of the country's mineral enterprises. The National Oil and Gas Authority (NOGA) was the Government agency that was responsible for making policy, issuing regulations, and controlling the use of Bahrain's hydrocarbon resources. NOGA Holding Co. was NOGA's business and investment wing and the Government's shareholder in such companies as Bahrain Petroleum Co., B.S.C. (Closed) (Bapco) (100% interest); Bahrain National Gas Co., B.S.C. (Banagas) (75% interest); Bahrain Aviation Fueling Co. (Bafco) (60% interest); Bahrain Lube Base Oil Co. (Bloc) (55% interest); Tatweer Petroleum (51% interest), Skaugen Gulf Petchem Carriers (35% interest), and GPIC (33.3% interest). Tatweer Petroleum, which was a joint venture of NOGA, Mubadala Development Co. of the UAE, and Occidental Petroleum Corp. of the United States, was created to increase crude oil production from the Bahrain oilfield and to meet Bahrain's future energy requirement according to Bahrain's Economic Vision 2030 plan (National Oil and Gas Authority, 2013, p. 8).

Alba was converted into a public company through an initial public offering in 2010 and was listed on the Bahrain Bourse and the London Stock Exchange. Alba's shares were distributed among Government-owned Mumtalakat Holding Co. (69.38%), Sabc Industrial Investments Co. Ltd. of Saudi Arabia (20.62%), and others (10%) (Aluminium Bahrain B.S.C., 2013, p. 46; Tatweer Petroleum, 2013).

Mineral Trade

The United States and Bahrain are bound by a free trade agreement that has been in effect since 2006. Under the agreement, consumer and industrial goods are traded without tariffs between the two countries. The United States-Bahrain Bilateral Investment Treaty of 2001 regulates investment matters between the two countries (Office of the U.S. Trade Representative, 2013b).

In 2012, the value of U.S. exports to Bahrain decreased to \$1,211 million from \$1,214 million in 2011, and the value of U.S. imports from Bahrain increased by 35% to \$701 million from \$518 million in 2011. U.S. exports included mainly civilian aircraft, industrial engines, and machinery. Bahrain's exports to the United States included aluminum (\$171 million), nitrogen fertilizer (\$164 million), and finished metals (\$6 million) (Office of the U.S. Trade Representative, 2013a; U.S. Census Bureau, 2013).

Commodity Review

Metals

Aluminum.—Alba produced 890,217 metric tons (t) of primary aluminum compared with 881,310 t in 2011. The output was a historical record for the company. Alba's mix of aluminum products included extrusion billet (41%), liquid metal (29%), rolling slabs (12%), foundry alloys (13%), and standard ingots (5%). Forty-six percent of the company's output was used locally, 24% was exported to other countries in the Middle East and North Africa region, 14% went to Asian markets, and 12% went to European markets. Alba imported more than 1 million metric tons per year (Mt/yr) of alumina, which was supplied by Alcoa Inc. of the United States under a long-term agreement, and consumed 22% of the natural gas produced by Bahrain (table 1; Aluminium Bahrain B.S.C., 2013, p. 25; National Oil and Gas Authority, 2013, p. 12).

Bahrain had a number of downstream aluminum companies. They included Aluminium Extrusion Co. (Balexco), Aluminium Wheel Co. W. L.L. (Aluwheel), Bahrain Atomisers International B.S.C., Bahrain and Midal Cables Ltd., Bahrain Recycling Plant, and Gulf Aluminium Rolling Mill Co. (table 2).

Ferroalloys.—Bahrain Ferro Alloys B.S.C had the capacity to produce 35,000 metric tons per year (t/yr) of ferromanganese and 250,000 t/yr of ferrosilicon at its smelter at the Hidd Industrial Area. Bahrain Ferro Alloys, which was a subsidiary of ETA Star Holdings L.L.C. of the UAE, planned to produce high-carbon ferrochrome to meet the demand of local and regional steel producers (Bahrain Ferro Alloys B.S.C., 2013).

Iron and Steel.—Gulf United Steel Holding Co. (Foulath) owned a majority interest in Gulf Industrial Investment Co. (E.C.) (GIIC), United Stainless Steel Co. B.S.C. (USCO), and United Steel Co. B.S.C. (SULB) (Closed). GIIC, which was established as an integrated iron and steel producer, operated two Allis-Chalmers (grate-kiln) pelletizing plants at the Hidd Industrial Area. GIIC's two pelletizing plants had a combined production capacity of 11 Mt/yr of iron ore pellets for use in direct-reduced iron (DRI) plants. USCO had the capacity to produce 100,000 t/yr of stainless steel from imported black hot-band coils at its plant in the Hidd Industrial Area [table 2; Gulf Industrial Investment Co. (E.C.), 2013; Universal Rolling W.L.L., 2013].

In 2012, the SULB joint venture of Foulath (51%) and Yamato Kogyo Co. Ltd. of Japan (49%) was building a \$1 billion steel mill at the Hidd Industrial Area. The SULB iron and steel complex's three-module mill included a 1.5-Mt/yr-capacity DRI plant, a melt shop with a combined capacity of 970,000 t/yr, and a 600,000-t/yr-capacity heavy-section rolling mill. Production from the complex was expected to begin in 2013. Universal Rolling W.L.L. (Unirol), which was owned by Bahraini and Saudi investors, and the Bahrain-based International Investment Bank, produced steel-reinforcing bar (rebar) from its mill at the Hidd Industrial Area. The production capacity of the mill was 200,000 t/yr of rebar (Arab Steel, 2012; Universal Rolling W.L.L., 2013).

Industrial Minerals

Cement.—Bahrain had one cement plant and one cement grinding mill in 2012. Falcon Cement Co., which was owned by Cemena Holding Company B.S.C. of Bahrain, produced cement at its plant located in the Hufaira Industrial Area and had the capacity to produce 350,000 metric tons per year (t/yr) of cement. Falcon planned to increase its capacity to 1.2 Mt/yr of cement by 2013. Arabian Gulf Cement Co. W.L.L. (Bahrain), which was a subsidiary of Star Cement Co. W.L.L. of the UAE, operated a clinker-grinding mill and had the capacity to produce 500,000 t/yr of cement. Clinker was transferred from the company's other cement plants in the UAE. Star Cement was owned by UltraTech Cement Middle East Investments Ltd. of India (Falcon Cement Co. B.S.C., 2013; UltraTech Cement Middle East Investments Ltd., 2013).

Nitrogen.—GPIC produced 411,000 t of ammonia and 626,000 t of urea in 2012. Most of the company's production of ammonia, methanol, and urea was exported. GPIC's ammonia exports amounted to 63,000 t, 42% of which went to India, 23% to Taiwan, 11% to the Republic of Korea, and 8% each to Africa, China, and Indonesia. The volume of GPIC's exports of urea was 618,000 t. Sixty-eight percent of Bahrain's urea exports went to the United States, and Thailand received 11%; Pakistan, 8%; Australia and Brazil, 6% each; Africa, 3%; and India and Uruguay, 2% each. GPIC moved forward with its \$700 million expansion plan to increase its production capacity to 766,500 t/yr of ammonia and 1.3 Mt/yr of urea (Gulf Petrochemical Industries Co. B.S.C., 2013).

Mineral Fuels

Natural Gas and Petroleum.—Bahrain's proven crude oil reserves were estimated to be 125 Mbbbl, and its proven natural gas reserves were estimated to be 200 billion cubic meters as of yearend 2012. Bahrain's produced about 15.6 Mbbbl of petroleum from the Bahrain oilfield, which was operated by Bapco, and 46.7 Mbbbl from Bahrain's 50% share of the Abu Safaa offshore oilfield; the Abu Safaa field was owned jointly by Bahrain and Saudi Arabia and was operated by Saudi Arabian Oil Co. Banagan's total natural gas production, which included dry and associated gas, increased to about 16.8 billion cubic meters in 2012 from 15.6 billion cubic meters in 2011 (table 1; National Oil and Gas Authority, 2013, p. 12–13).

The Government created Skaugen Gulf Petchem Carriers, which was a joint venture of I.M. Skaugen S.E. of Norway and NOGA Holdings (35% interest each), and Capital Management House (30% interest), to transport liquefied petroleum gas and liquefied natural gas (LNG). The Government was building an LNG import terminal to accommodate its imports of 14.2 million cubic meters per year of natural gas. In 2012, Bloc, which was a majority state-owned company, produced lube oil at its plant, which was considered the first of its kind in the region and had the capacity to produce 400,000 t/yr of high-viscosity index group III lubricant base oils. The plant commenced production at the end of 2011. Tatweer Petroleum moved forward with three crude oil and natural gas exploration and production projects. The projects would include

exploration for natural gas in the deep layers of the Bahrain field; exploration and production in the marine areas of Block 1, which is located in northern Bahrain; and exploration and production in Blocks 3 and 4 in cooperation with Occidental Petroleum (National Oil and Gas Authority, 2013, p. 16).

Bapco planned to increase the production capacity at its oil refinery in Sitra to 330,000 barrels per day (bbl/d) from 265,000 bbl/d. The expansion project was expected to cost between \$6 billion and \$8 billion to build and to be completed by 2019. Bapco began engineering work for construction of a pipeline that would transport crude oil from Saudi Arabia to the Sitra refinery in Bahrain in 2013. The pipeline would be more than 100 kilometers long and would cost \$350 million to build. Construction was expected to be completed in 2015 (Bloomberg L.P., 2013; National Oil and Gas Authority, 2013, p. 17).

Outlook

Bahrain is likely to remain a significant supplier of aluminum, ammonia, and urea. The country has been focusing on becoming a regional hub for the iron ore and steel industries. In addition to pelletized iron ore and ferroalloys, which are currently being produced, DRI production is expected to commence in Bahrain for the first time in 2013.

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TABLE 1
BAHRAIN: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012
METALS					
Aluminum metal, primary	872	848	851	881	890
Iron ore pellets ³	3,839	3,286	8,000	11,000	11,000
Ferromanganese					
metric tons	--	5,700	5,600	35,300	35,000
Ferrosilicon					
do.	--	6,500	3,700	3,000	3,000
INDUSTRIAL MINERALS					
Cement	438	700	700	800	800
Nitrogen:					
N content of ammonia	393	390	357	380	341
N content of urea	287	332	290	310	288
Sulfur ^e	72	72	137 ^r	132 ^r	135
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural:					
Gross					
million cubic meters	15,241	15,388	15,762	15,641	16,762
Dry					
do.	12,348 ^r	12,483 ^r	12,786 ^r	12,751 ^r	12,714
Methanol	410	410	417	443	416
Natural gas plant liquids:					
Propane					
thousand 42-gallon barrels	949	953	1,000 ^r	990	1,000
Butane					
do.	920	907	937 ^r	908	900
Naphtha					
do.	1,699	1,730	1,835 ^r	1,760	1,800
Petroleum:					
Crude ⁵					
do.	66,864	66,510	66,376	69,452	63,302
Refinery products:					
Liquefied petroleum gas					
do.	1,095	365	548	584	6,205
Gasoline					
do.	7,300	7,600	7,600	6,205	5,475
Kerosene and Jet fuel					
do.	2,716	1,716	1,606	1,168	24,445
Distillate fuel oil					
do.	32,850	32,120	31,755	28,470	30,295
Residual fuel oil					
do.	15,002	15,330	15,330	16,279	16,060
Other					
do.	36,813	38,377	42,523	43,320	18,623
Total					
do.	95,776	95,508	99,362	96,026	101,103

^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 June 30, 2013.

²Aggregate, sand, and rock are also produced, but available information is inadequate to make reliable estimates of output.

³Pellets were produced from imported iron ore and exported for use by direct-reduction plants.

⁴Reported figure.

⁵Includes Bahrain's share of production from the Abu Saafa field of 46,726 42-gallon barrels.

TABLE 2
BAHRAIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(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., 69.38.5%; SABIC Industrial Investments Co. Ltd., 20.62%; others, 10%)	Smelter at Sitra	880,000
Secondary		Bahrain Recycling Plant (private, 100%)	Dross and scrap remelt facilities at Askar	4,500
Rolled products		Gulf Aluminium Rolling Mill Co. B.S.C. (Closed) (Bahrain Mumtalakat Holding Co., 38%; Saudi Basic Industries Corp., 30%; Industrial Bank of Kuwait, 17%; Gulf Investment Corp., 6%; Government of Iraq, 5%; Government of Oman, 2%; Government of Qatar, 2%)	Rolling mill at Sitra	165,000
Do.		Midal Cables Ltd. (Intersteel W.L.L., 50%, and Saudi Cable Co., 50%)	Rolling mill at Manama	120,000
Flat products		Bahrain Aluminum Extrusion Co. (Closed) (BALEXCO)	Sitra	25,000
Casting	wheel castings	Aluminium Wheel Co. W.L.L. (Aluwheel)	Manama	400,000
Powder		Atomisers International B.S.C.	East Riffa Area	NA
Cement		Arabian Gulf Cement Co. W.L.L. (Star Cement Co. W.L.L.)	Clinker grinding mill at Hidd	500,000
Do.		Falcon Cement Co.	Hufaira	365,000
Iron and steel:				
Iron ore, pellets		Gulf Industrial Investment Co. (E.C.) (GIIC) [Gulf United Steel Holding Co. (Foulath)]	Pellet plant at Hidd	11,000,000
Steel, stainless, rolled		Universal Rolling W.L.L. (Unirol)	Hidd	200,000
Do.		United Stainless Steel Co. B.S.C. (USCO) [Gulf United Steel Holding Co. (Foulath)]	do.	100,000
Ferroalloys		Bahrain Ferro Alloys B.S.C. (ETA Star Holdings L.L.C.)	do.	55,000
Methanol		Gulf Petrochemical Industries Co. B.S.C. [National Oil and Gas Authority (NOGA), 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp. (Sabic), 33.3%]	Sitra	438,000
Natural gas:				
Extracted	million cubic meters	Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (Government)	Bahrain field, Awali	13,900
Liquids:				
Butane	thousand 42-gallon barrels	Bahrain National Gas Co. B.S.C. (Banagas) [National Oil and Gas Authority (NOGA), 75%; Arab Petroleum Investment Corp., 12.5%; Caltex Bahrain, 12.5%]	Natural gas plant at Awali	1,100
Naphtha	do.	do.	do.	1,020
Propane	do.	do.	do.	1,800
Nitrogen:				
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) 33.3%]	Sitra	438,000
Urea		do.	do.	621,000
Petroleum:				
Synthetic coke		Aluminium Bahrain B.S.C. (Alba) (Bahrain Mumtalakat Holding Co., 77%; SABIC Industrial Investments Co. Ltd., 20%; Breton Investments Ltd., 3%)	do.	600,000
Crude	thousand 42-gallon barrels	Saudi Arabia Oil Co.	Abu Saafa field, offshore	93,400 ¹
Do.	do.	Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (Government) [National Oil and Gas Authority (NOGA), 100%]	Bahrain field, Awali	15,600

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum—Continued:				
Refinery products	thousand 42-gallon barrels	Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (Government) [National Oil and Gas Authority (NOGA), 100%]	Sitra	265,000
Lube oil	do.	Bahrain Lube Base Oil Co. (Bloc) [National Oil and Gas Authority (NOGA), 55%; Bahrain Petroleum Co., B.S.C. (Closed) (Bapco), 27.5%; Neste Oil Corp., 27.5%]	do.	400,000
Sulfur		Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) (Government) [National Oil and Gas Authority (NOGA), 100%]	do.	135,000

Do., do. Ditto. NA Not available.

¹Production from the field is pumped to Bahrain and subsequently refined and marketed by Bahrain Petroleum Co.