



2010 Minerals Yearbook

BAHRAIN [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF BAHRAIN

By Mowafa Taib

The Kingdom of Bahrain, which is the smallest country in the Gulf region in terms of area, was the site of one of the largest aluminum smelters in the world in terms of the volume of production and the world's ninth ranked producer of aluminum in 2010. Bahrain accounted for 2.4% of the world's aluminum output. Mineral commodities produced in Bahrain included aggregate, aluminum, cement, crude oil, iron ore pellets from imported iron ore, methanol, natural gas, nitrogen fertilizer, refined petroleum products, sand, and sulfur (Bray, 2011).

Minerals in the National Economy

In 2010, Bahrain's gross domestic product (GDP) increased by 4.1% in real terms compared with an increase of 3.1% in 2009. The mining sector, which included the production of natural gas and oil as well as quarrying activity, accounted for about 20.7% of the GDP at current prices; the manufacturing sector, which included aluminum production, accounted for 15.8% of the GDP; and the construction sector accounted for about 6.6% of the GDP. The Government's gas and oil revenue increased by 53% to \$5.8 billion in 2010 from about \$3.8 billion in 2009. The value of nonoil revenue was 19.8% of the GDP in 2010 compared with 18.5% of the GDP in 2009. Bahrain's exports of goods and services were valued at \$18.4 billion in 2010 compared with \$15.5 billion in 2009. The value of petroleum products exports increased by 29% to about \$11.5 billion in 2010 from about \$8.9 billion in 2009; and the value of oil imports increased by 34% to \$5.8 billion from \$4.3 billion in 2009 (Central Bank of Bahrain, 2011, p. 5, 11; International Monetary Fund, 2011a, p. 74, 76, 87).

Production

Iron ore pellet production from imported iron ore increased by 144% in 2010 compared with that of 2009 owing to the start of production at the country's second iron ore pelletizing plant in September. Production of urea decreased by about 13%, and ammonia, by 9%, compared with that of 2009 (table 1).

Structure of the Mineral Industry

The National Oil and Gas Authority (NOGA) was the Government agency that was responsible of 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. (55% interest); Gulf Petrochemical Industries Co. B.S.C. (GPIC) (33.3% interest); and Tatweer Petroleum-Bahrain Field

Development Co. (undisclosed interest). In October 2010, Bahrain Mumtalakat Holding Co. (Mumtalakat), which was the investment company of the Government that held 77% interest in Aluminium Bahrain B.S.C. (Alba), offered up to 11.5% of its stake in the smelter to the public. In November, Alba was converted into a public company through an initial public offering and was listed on the Bahrain Bourse and the London Stock Exchange. Alba's shares were distributed among Mumtalakat (69.38%), Sabic Industrial Investments Co. Ltd. of Saudi Arabia (20.62%), and others (10%). Gulf Industrial Investment Co. E.C. (GIIC), which was established in Bahrain by Foulath Holding Co. as an integrated steel producer, was a joint venture of Gulf Investment Corp. of Kuwait (50%), Qatar Iron & Steel Co., (25%), M.A. Al-Kharafi Group of Kuwait and National Industries Group of Kuwait (10% each), and Kuwait Foundry Co. (5%). GIIC operated two Allis-Chalmers (Grate-Kiln) pelletizing plants with a combined production capacity of 11 Mt/yr of iron ore pellets for use in direct reduction plants (Aluminium Bahrain B.S.C., 2011, p. 4, 9).

Foulath owned majority interest in GIIC, United Stainless Steel Co. B.S.C. (USCO), and United Steel Co. B.S.C. (SULB) (a joint venture with Yamato Kogyo Co. of Japan). Falcon Cement Co. (a subsidiary of Cemena Holding Co. B.S.C.) and Star Cement Co. W.L.L. of the United Arab Emirates were the only cement producers in Bahrain [Aluminium Bahrain B.S.C., 2010; Gulf Industrial Investment Co. (E.C.), 2010; Mena Report, 2010; National Gas and Oil Authority, 2010].

Commodity Review

Metals

Aluminum.—2010 was a year of financial recovery for Alba in particular and the aluminum industry in general after 2009, which was a year of production decline and reduced demand for aluminum. Alba produced 850,700 metric tons (t) of finished aluminum products in 2010, which was slightly more than in 2009. The company, which employed more than 3,000 people and contributed about 12% of the GDP, was considering a plan for the smelter to reach maximum sustainable size by adding a sixth potline to increase the production capacity to 1.29 million metric tons per year (Mt/yr). Implementing the expansion plan, however, would depend on the company's ability to secure adequate gas feedstock. Alba, which used natural gas as a feedstock, consumed 25% of the total gas used in Bahrain and was the leading consumer of natural gas in the country (Aluminium Bahrain B.S.C., 2011, p. 5).

About one-half of Alba's output of aluminum products, which included extrusion billets, ingots, molten aluminum, and rolling slabs, was used by Bahrain's downstream industries. Alba exported 18% of its aluminum production to Gulf Cooperation Council countries and other Middle East markets,

19% to Asian markets, and 14% to European markets. The remaining aluminum output was supplied to such Bahraini downstream companies as Gulf Aluminium Rolling Mill Co., which produced 165,000 metric tons per year (t/yr) of aluminum material (35,000 t/yr of which was aluminum foil), Bahrain Aluminium Extrusion Co. (Balexco), Bahrain Atomisers International B.S.C., and Midal Cables Ltd. Alba imported more than 1 Mt/yr of alumina, which was supplied by Alcoa Inc. of the United States under a long-term agreement (Aluminium Bahrain B.S.C., 2011, p. 17).

Pearl Industrial Chemical Co., which was a \$100 million joint venture of EBH Holding and Archeon Group of India that was established in 2009 to build an aluminum fluoride plant in Bahrain, continued construction work for the 60,000-t/yr-capacity plant, which was expected to be completed in 2011. The plant was expected to produce 30,000 t/yr of aluminum fluoride in the first phase, 18,000 t/yr of which would be sold to Alba (Baby, 2009; Zawya, 2011).

Iron and Steel.—In 2010, 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 the country's first mill at the Hidd Industrial Area. The production capacity of the mill was 200,000 t/yr of rebar. United Stainless Steel Co. B.S.C. (a subsidiary of Foulath) proceeded with building a 100,000-t/yr-capacity steel plant at the Hidd Industrial Area (Mathew, 2010; Universal Rolling W.L.L., 2010).

In April, GIIC inaugurated the \$700 million pelletizing plant no. 2 at the Hidd Industrial Area near the existing 5-Mt/yr-capacity pelletizing plant no. 1; the new plant had the capacity to produce 6 Mt/yr of iron ore pellets and 100,000 t/yr of stainless steel. The combined capacity of the two iron pelletizing plants was 11 Mt/yr of iron ore pellets (ABB S.p.A., 2010; Arab Steel, 2010a; Mena Report, 2010).

Foulath and Yamato Kogyo Co. Ltd. of Japan moved forward with building a \$1.2 billion steel mill at the Hidd Industrial Area. The SULB joint venture was made up of a three-module mill, which included a 1.8-Mt/yr-capacity direct-reduced iron plant, a melt shop with a combined capacity of 1.3 Mt/yr, and a 1-Mt/yr-capacity heavy-section rolling mill. Development of the SULB iron and steel complex was expected to be completed by the end of 2012 (Arab Steel, 2010b; Thomson Reuters, 2010).

Industrial Minerals

Cement.—Bahrain does not have sufficient raw materials for its cement production and imported most of the raw materials needed to produce cement from India and the United Arab Emirates. Bahrain depended on imports, mainly from Saudi Arabia, to meet the demand for cement.

The Falcon cement factory, which was owned by Capivest Islamic Investment Bank, started production in 2009 at the Hufaira Industrial Area. In 2010, the plant increased its capacity to 1.2 Mt/yr of cement from 438,000 t/yr. Star Cement, which operated a clinker-grinding mill in Bahrain and had the capacity to produce 500,000 t/yr of cement, was acquired by UltraTech Cement Middle East Investments Ltd. of India (Gerbach, 2010; Falcon Cement Co. B.S.C., 2011).

Saudi Arabia banned cement and sand transport to Bahrain over the King Fahad Causeway starting in October 2009. Therefore, Bahrain became dependent on the sea route to receive its cement export quota from Saudi Arabia of 1.3 Mt/yr. As a result, cement prices in Bahrain were vulnerable to marine transportation costs and supply disruptions, especially because Bahrain imported cement almost exclusively from Saudi Arabia. The dependence on Saudi cement imports could be reduced after the completion of the causeway to Qatar in 2012.

Nitrogen.—GPIC, which produced ammonia and urea, had the capacity to produce 400,000 t/yr of ammonia and 600,000 t/yr of urea at its petrochemical plant in Sitra. The company, which employed 574 people, 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. The volume of GPIC's exports of ammonia was about 79,000 t in 2010. Fifty-two percent of Bahrain's ammonia exports went to India; 22%, to the Republic of Korea; 19%, to countries in Africa; and 7%, to Jordan. GPIC exported about 632,000 t of urea in 2010. The United States and Canada received 56% of Bahrain's urea exports followed by India, which received 23%; Argentina and African countries, 9% each; and Thailand, 3% (Gulf Petrochemical Industries Co. B.S.C., 2011).

Mineral Fuels

Natural Gas and Petroleum.—Bahrain's proven crude oil reserves were estimated to be 125 million barrels and its proven natural gas reserves were estimated to be 92 billion cubic meters as of yearend 2010. BAPCO moved forward with implementing several ongoing projects in the country, including a new \$350 million Arabia pipeline construction project with Saudi Arabian Oil Co., a \$15 billion Bahrain field phased development project, construction of a \$1 billion liquefied natural gas import terminal and a \$431 million low-sulfur diesel production facility, and a \$2 billion upgrade and expansion of the Sitra refinery. BANAGAS continued building a \$100 million gas compressor station. NOGA continued with exploration and expansion activity at the Awali oilfield. Bahrain Base Oil Co. was building a \$430 million lube oil refinery. Yateem Oxygen was building a plant for the separation and extraction of carbon dioxide. BAPCO canceled a project to build a \$95 million oil storage and export facility at Sitra and BANAGAS cancelled a \$90 million project to update liquefied petroleum gas process and storage facilities (Zawya, 2011).

In 2010, the Tatweer Petroleum Co. investment project was officially launched. Tatweer was a joint venture of NOGA Holding Co., Occidental Petroleum Corp. of the United States, and Mubadala Development Co. of the United Arab Emirates to manage the Bahrain Field and to use the latest recovery technology to double the production capacity of the field during the next 20 years. Bapco opened its refinery gas desulfurization project at a cost of \$150 million. Bapco and Goldstar Co. Ltd. of the Republic of Korea signed an agreement to build a water treatment unit for the Sitra refinery. The \$120 million facility was aimed at eliminating all chemical contaminants in the refinery cooling water.

Outlook

The International Monetary Fund reduced its economic growth forecast for Bahrain in 2011 to 1.5% from 3.1%. The reduction was attributable to the effect of civil unrest that started in the first quarter of 2011 (International Monetary Fund, 2011b, p. 184; U.S. Department of State, 2011).

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TABLE 1
BAHRAIN: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

| Commodity ² | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|--------------------|--------------------|--------|--------|--------|
| METALS | | | | | |
| Aluminum metal, primary | 860 | 865 | 872 | 848 | 851 |
| Iron ore pellets ³ | 5,000 ^e | 5,000 ^e | 3,839 | 3,286 | 8,000 |
| INDUSTRIAL MINERALS | | | | | |
| Cement | 400 | 400 | 438 | 700 | 700 |
| Nitrogen, N content of: | | | | | |
| Ammonia | 374 | 346 | 393 | 390 | 581 |
| Urea | 287 | 269 | 287 | 332 | 414 |
| Sulfur ^e | 70 | 72 | 72 | 72 | 72 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Gas, natural: | | | | | |
| Gross | | | | | |
| million cubic meters | 13,817 | 14,376 | 15,241 | 15,388 | 15,762 |
| Dry | | | | | |
| do. | 10,700 | 11,100 | 13,400 | 12,477 | 12,331 |
| Methanol | 407 | 371 | 410 | 410 | 417 |
| Natural gas plant liquids: | | | | | |
| Propane | | | | | |
| thousand 42-gallon barrels | 1,010 | 944 | 949 | 953 | 990 |
| Butane | | | | | |
| do. | 970 | 896 | 920 | 907 | 908 |
| Naphtha | | | | | |
| do. | 1,725 | 1,663 | 1,699 | 1,730 | 1,760 |
| Petroleum: | | | | | |
| Crude ⁴ | | | | | |
| do. | 66,908 | 67,262 | 66,864 | 66,510 | 66,376 |
| Refinery products: | | | | | |
| Liquefied petroleum gas | | | | | |
| do. | 438 | 950 | 1,095 | 1,132 | 1,132 |
| Gasoline | | | | | |
| do. | 7,200 | 6,350 | 7,300 | 7,600 | 7,600 |
| Kerosene and jet fuel | | | | | |
| do. | 19,800 | 21,936 | 21,557 | 21,827 | 21,827 |
| Distillate fuel oil | | | | | |
| do. | 35,040 | 35,332 | 32,850 | 32,886 | 32,886 |
| Residual fuel oil ^e | | | | | |
| do. | 18,542 | 15,768 | 15,002 | 14,856 | 14,856 |
| Other ^e | | | | | |
| do. | 15,851 | 17,630 | 17,972 | 17,207 | 21,061 |
| Total | | | | | |
| do. | 96,871 | 97,966 | 95,776 | 95,508 | 99,362 |

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

¹Table includes data available through May 31, 2011.

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

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

⁴Includes Bahrain's share of production from the Abu Saafa field of 1,095,000 barrels.

TABLE 2
BAHRAIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(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 | NA |
| 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 |
| Cement | | Star Cement Co. W.L.L. | Clinker grinding mill at Hidd | 450,000 |
| Do. | | Falcon Cement Co. | Hufaira | 365,000 |
| Iron and steel: | | | | |
| Iron ore, pellets | | Gulf Industrial Investment Co. (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. [Gulf United Steel Holding Co. (Foulath)] | do. | 100,000 |
| 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., 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. [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. [National Oil and Gas Authority (NOGA), 33.3%; Petrochemical Industries Co., 33.3%; Saudi Basic Industries Corp., 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 | 54,741 ¹ |
| Do. | do. | Bahrain Petroleum Co., B.S.C. (Bapco) (Closed) [National Oil and Gas Authority (NOGA), 100%] | Bahrain field, Awali | 11,635 |
| Refined products | do. | do. | Sitra | 99,362 |
| Sulfur | | do. | do. | 72,000 |

Do., do. Ditto. NA Not available.

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