



2009 Minerals Yearbook

BAHRAIN

THE MINERAL INDUSTRY OF BAHRAIN

By Mowafa Taib

Bahrain, which is the smallest country in the Gulf region in terms of area, had one of the largest aluminum smelters in the world; it was the world's 10th ranked producer of aluminum in 2009, accounting for 2.3% of world aluminum output. Other mineral commodities produced in Bahrain included aggregate, cement, crude oil, iron ore pellets from imported iron ore, natural gas, nitrogen fertilizer, refined petroleum products, sand, and sulfur (Aluminium Bahrain B.S.C., 2010; Bray, 2010).

Minerals in the National Economy

Bahrain's economy contracted by 6.0% at current prices in 2009 compared with an 18.6% expansion in 2008. In real terms (2000 prices), however, the economy grew at a rate of 3.1% in 2009 compared with a growth rate of 6.3% in 2008. The mining sector, which included the production of natural gas and oil as well as quarrying activity, accounted for about 20.7% of the gross domestic product (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 decreased by 38% to \$3,761 million in 2009 compared with \$6,051 million in 2008. The value of non-oil revenue was more than \$6.0 billion, which was a decrease of 26.7% compared with that of 2008. The value of petroleum products exports decreased by 35.3% to \$8.9 billion in 2009 from about \$13.8 billion in 2008, and the value of oil imports decreased by about 40% to \$4.3 billion from about \$7.2 billion in 2008 (Central Bank of Bahrain, 2010, p. 5, 11).

Production

Pellet production from imported iron ore decreased by 14% in 2009 compared with that of 2008 owing to a decrease in demand. Cement production increased by about 60% owing to the opening of a new cement plant, and urea production increased by about 16% compared with that of 2008. Outputs of aluminum, crude oil, dry gas, and refined petroleum products were slightly less than that of 2008 (table 1).

Structure of the Mineral Industry

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. Nogaholding Co. was NOGA's business and investment wing and the Government's shareholder in Bahrain Aviation Fueling Co. (Bafco), Bahrain Lube Base Oil Co., Bahrain National Gas Co. B.S.C. (Banagas), Bahrain Petroleum Co., B.S.C. (Closed) (Bapco), Gulf Petrochemical Industries Co. B.S.C. (GPIC), and Tatweer Petroleum-Bahrain Field Development Co. (Tatweer Petroleum). Bahrain Mumtalakat Holding Co. (Mumtalakat), which was the

investment company of the Government, held 77% interest in Aluminium Bahrain B.S.C. (Alba), which was Bahrain's flagship non-oil industry; the remaining shares were held by Sabic Industrial Investments Co. Ltd. of Saudi Arabia (20%) and Breton Investments Ltd. of Germany (3%). Gulf United Steel Holding Co. (Foulath), which was established in Bahrain as a holding company and an integrated steel producer, was a joint venture of Gulf Investment Corp. of Kuwait (50%), Qatar Steel Co. (25%), Kharafi Group of Kuwait and National Industries Group of Kuwait (10% each), and Kuwait Foundry Co. (5%). Foulath had majority interest in Gulf Industrial Investment Co. (GIIC), United Stainless Steel Co. (USCO), and United Steel Co. (SULB), which was a joint venture with Yamato Kogyo Co. of Japan. Star Cement Co. W.L.L. of the United Arab Emirates (UAE) and Falcon Cement Co. (a subsidiary of Cemena Holding Co. B.S.C.) 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.—Alba produced 847,738 metric tons (t) of aluminum in 2009, which was a 2.7% decrease compared with the record production achieved in 2008. The company, which employed 3,000 people and contributed about 12% of the GDP to the national economy, was considering a plan to expand the smelter to reach its maximum sustainable size by adding a sixth potline to increase the production capacity to 1.2 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 consumed 25% of the total gas used in Bahrain in 2008). The Government had been negotiating with Iran about importing 38.3 million cubic meters (1 billion cubic feet) of natural gas per day by way of a gas pipeline and collaborating with other Gulf Cooperation Council countries to develop a regional power network (MEED, 2009a, p. 8; Petroleum Economist, 2009; Baxter, 2010).

Alba imported more than 1 Mt/yr of alumina, which was supplied by Alcoa Inc. of the United States under a long-term agreement. Alba exported about 51% of its primary aluminum produced as ingots, billet, and rolling slabs to more than 35 countries. The remaining aluminum output was supplied to such Bahraini downstream industries as Gulf Aluminium Rolling Mill Co. B.S.C. (Closed), which produced 165,000 metric tons per year (t/yr) of aluminum material (35,000 t/yr of which was aluminum foil). Other Bahraini downstream companies included Bahrain Aluminium Extrusion Co. (Balxco), Bahrain Atomisers International B.S.C., and Midal Cables Ltd. (MEED, 2009b, p. 8-9).

Iron and Steel.—In 2009, Universal Rolling W.L.L. (Unirol), which was owned by Bahraini and Saudi investors and the Bahrain-based International Investment Bank, commenced steel reinforcing bar (rebar) production 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., which was a Foulath subsidiary, proceeded with building a 100,000-t/yr-capacity steel plant at the Hidd Industrial Area (Steel Guru, 2009; Universal Rolling W.L.L., 2010).

GIIC moved forward with the installment of a second pelletizing plant at the Hidd Industrial Area near the existing 5-Mt/yr-capacity pelletizing plant. The second plant, which would have the capacity to produce 6 Mt/yr of pellet, was expected to commence production in April 2010, thus increasing GIIC's pellet production capacity to 11 Mt/yr. Foulath also proceeded with building a fully integrated steel complex at the Hidd Industrial Area. The project was made up of five modules: a 1.5-Mt/yr-capacity direct-reduced iron (DRI) plant, two melt shops with a combined capacity of 1.3 Mt/yr, a 600,000-t/yr-capacity rolling mill for medium and heavy sections, and a 600,000-t/yr rolling mill for light to medium sections. GIIC imported 3.2 million metric tons (Mt) of iron ore in 2009 for the production of pellet, which was a 20.4% decrease compared with that of 2008, which had exceeded 4.0 Mt (Arab Steel, 2010a, b).

In April 2010, Foulath inaugurated a \$700 million facility that had the capacity to produce 6 Mt/yr of iron ore pelletizing, and 100,000 t/yr of stainless steel. Foulath signed contracts worth \$1.2 billion with Kobe Steel Ltd. of Japan and Samsung Engineering Co. of the Republic of Korea to build a 1.5-Mt/yr-capacity steel plant for SULB in Bahrain. The plant would produce steel from DRI and was expected to commence production in early 2013 (Mena Report, 2010; Thomson Reuters, 2010).

Industrial Minerals

Cement.—The size of Bahrain's cement market was estimated to be 4.6 Mt, of which 3 Mt was imported mainly from Saudi Arabia (60%). Star Cement was the sole cement producer in Bahrain from its clinker-grinding mill at the Hidd Industrial Area, which had a 450,000-t/yr cement production capacity. The first clinker and cement plant in Bahrain, which was located in the Hufaira Industrial Area, began operations in March. The plant, which was owned by Falcon Cement, had the capacity to produce 365,000 t/yr of cement; the capacity was expected to be increased to 1.2 Mt/yr by 2010 (Falcon Cement Co. B.S.C., 2010; World Cement, 2010, p. 31).

Mineral Fuels

Natural Gas and Petroleum.—The Government announced plans to invest \$20 billion in the development of the country's hydrocarbon sector, including \$15 billion for the development of the Bahrain oilfield and \$5 billion for expanding the Sitra oil refinery. Tatweer Petroleum was established as a joint venture of Occidental Petroleum Corp. of the United States, Mubadala Development Co. of the United Arab Emirates, and NOGA to develop and operate the Bahrain field. Tatweer Petroleum

became the operator of the Bahrain field under the terms of the development and production-sharing agreement that became effective following the Government's ratification in May 2009. Bapco signed an agreement with Chevron Lummus Global LLC of the United States to increase the production capacity at the Sitra refinery by 100,000 barrels per day (bbl/d) to 350,000 bbl/d by 2016 from 250,000 bbl/d in 2009 (Alexander's Gas & Oil Connections, 2009b; Occidental Petroleum Corp., 2009; Petroleum Economist, 2009).

In January, Bahrain and Saudi Arabia announced a plan to expand and replace the 114-kilometer pipeline that carried crude oil from Saudi Arabia to the Sitra refinery. The project was expected to be completed in 2011 at a cost of \$350 million. The new pipeline would enable Bahrain to increase its crude oil imports from Saudi Arabia to 350,000 bbl/d from 260,000 bbl/d (Alexander's Gas & Oil Connections, 2009a).

In February, NOGA and Royal Shell Dutch p.l.c. of the Netherlands signed a memorandum of understanding to evaluate options for importing natural gas to secure Bahrain's increasing demand, which was 45.9 million cubic meters per day (1.3 billion cubic feet per day) in 2007 and was expected to increase to 56.6 million cubic meters per day (2.0 billion cubic feet per day) by 2017. Shell would conduct studies on importing natural gas as liquefied natural gas and by pipeline, as well as on producing natural gas from crude oil and heavy residue (Rigzone.com, 2009).

Outlook

Bahrain, which has little hydrocarbon resources compared with its neighbors, plans to double its industrial output and enhance its economic diversification process that started in 1968 with the establishment of Alba. Aluminum production could increase as aluminum prices and demand increase. Bahrain opened a new port, Khalifa bin Salman Port, in 2009 to increase investment and make use of the country's geographic location as a potential center for northern Gulf transport shipping.

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TABLE 1
BAHRAIN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2005	2006	2007	2008	2009
METALS					
Aluminum metal, primary	750,710	860,435	865,048	871,658	847,738
Iron ore pellets ³	4,044,342	5,000,000 ^e	5,000,000 ^e	3,839,000 ^r	3,286,000
INDUSTRIAL MINERALS					
Cement	400,000	400,000	400,000	438,000 ^r	700,000
Nitrogen: N content of					
Ammonia	329,745	374,013 ^r	346,488 ^r	393,262 ^r	390,208
Urea	258,087	287,314	268,991	286,600 ^r	331,580
Sulfur	71,963	70,000	72,000 ^e	72,000 ^e	72,000
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural:					
Gross	13,320	13,817	14,376	15,241	15,388
Dry	10,278	10,700	11,100	13,400	12,477
Methanol	375,609	406,600	371,000	410,235	410,203
Natural gas plant liquids:					
Propane	1,065	1,010	944	949	953
Butane	1,015	970	896	920	907
Naphtha	1,783	1,725	1,663	1,699	1,730
Petroleum:					
Crude ⁴	68,096	66,908	67,262 ^r	66,864	66,510
Refinery products:					
Liquefied petroleum gas	438 ^r	438 ^r	950 ^r	1,095 ^r	1,132
Gasoline	7,309 ^r	7,200 ^r	6,350 ^r	7,300 ^r	7,600
Kerosene and jet fuel	20,878 ^r	19,800 ^r	21,936 ^r	21,557 ^r	21,827
Distillate fuel oil	33,982 ^r	35,040 ^r	35,332 ^r	32,850 ^r	32,886
Residual fuel oil ^e	20,148 ^r	18,542 ^r	15,768 ^r	15,002 ^r	14,856
Other ^e	17,867 ^r	15,851 ^r	17,630 ^r	17,972 ^r	17,207
Total	100,622 ^r	96,871 ^r	97,966 ^r	95,776 ^r	95,508

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

¹Table includes data available through August 31, 2010.

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 production from the Abu Saafa and the Bahrain fields.

TABLE 2
BAHRAIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(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., 77%; SABIC Industrial Investments Co. Ltd., 20%; Breton Investments Ltd., 3%) and Bahrain Recycling Plant (private, 100%)	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. (GPIC) [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. (Closed) (Bapco) (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. (GOPIC) [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	110,000 ¹
Do.	do.	Bahrain Petroleum Co. B.S.C. (Closed) (Bapco) [National Oil and Gas Authority (NOGA), 100%]	Bahrain field, Awali	11,750
Refined products	do.	do.	Sitra	250,000
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.