THE MINERAL INDUSTRY OF LIBYA

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Crude oil and natural gas were Libya's major contributions to the world's mineral production in 2008. Libya produced 2.2% of the world's crude oil output and was ranked 4th among African countries and 17th globally in terms of the volume of crude oil produced. Libya produced 15.9 billion cubic meters of natural gas, which was about 0.5% of the world supply of gas. Libya was the leading country in Africa and the world's seventh ranked country in terms of the size of its crude oil reserves, which were estimated to be 43.7 billion barrels, or 3.5% of the world's total crude oil reserves. Libya held 1.54 trillion cubic meters of natural gas reserves, which was about 0.8% of the world's total (BP p.l.c., 2009, p. 6, 8, 22, 24).

Minerals in the National Economy

The Libyan economy continued its expansion in 2008. It grew, in real terms, at a rate of 6.7% compared with a growth rate of 6.8% in 2007 and 10.3% in 2005. The growth in the hydrocarbon sector was 3.8% compared with a growth of 11.0% in the nonhydrocarbon sector in 2008. The value of exports increased to $62.0 billion from $47.0 billion in 2007. The 32% increase in the value of exports was attributable to higher crude oil prices in 2008, which averaged for Libya $96.40 per barrel compared with $71.60 per barrel in 2007. Libya's hydrocarbon exports were valued at $60.7 billion, which was 98% of the country's total exports. In 2008, the Government revenue from the hydrocarbon sector was equivalent to 57.4% of Libya's gross domestic product (GDP) compared with 6.6% of the GDP for the revenue from the nonhydrocarbon sector (International Monetary Fund, 2009a, p. 36, 38, 47; 2009b, p. 18, 20).

Petroleum Law No. 25 of 1955, the Petroleum Regulations No. 8 and 9, and the provisions of the 5-year Exploration and Production-Sharing Agreement IV govern the hydrocarbon sector. Mining and quarrying operations are covered under law No. 2 of 1971 and its amendments, whereas law No. 5 of 1997 regulates foreign investment in the non-oil sectors. Additionally, law No. 443 of 2006 also applies to international companies, including hydrocarbons and minerals companies that intend to operate in Libya. This legislation requires foreign companies to have a local partner that holds a minimum of a 35% share in any joint venture. Government-owned National Oil Corp. (NOC), which played a dual role as a regulator and a production partner in the hydrocarbon sector, had conducted four rounds of oil licensing between January 2005 and December 2007 and did not expect to conduct any further rounds in the near future. The Libyan Mining Co. was created by Decree No. 151 of the General People's Committee in 1996 to invest in the country's natural resources and minerals, to meet the national demand for minerals by the domestic industries, and to attract foreign investment in the mining sector (Middle East Economic Digest, 2009).

Structure of the Mineral Industry

In 2008, more than 50 international oil companies (IOCs) were working on oil and gas production and exploration in Libya. NOC sought to renew the 5-year Exploration and Production-Sharing Agreement IV with the IOCs before the agreements expired. It signed a renewal agreement with Eni S.p.A. of Italy in June 2008, which permitted Eni to cut production from its main fields in Libya by 50%. Production agreements between NOC and other IOCs, including OMV AG, Repsol YPF S.A. of Spain, and Total S.A. of France, were reviewed and resulted in a lower share of oil production (13%) from Block NC-115 and Block NC-186. A disagreement between NOC and China National Petroleum Corp. (CNPC) was reported in 2008 because CNPC agreed to acquire Verenex Energy Inc. of Canada, including its assets in Libya. Verenex had been working on gas and oil exploration in the Ghadames Basin since 2006 and had reported several discoveries. The Government, through NOC, objected to the acquisition and proposed to buy Venerex assets in Libya (Organization of Arab Petroleum Exporting Countries, 2008, p. 96; Middle East Economic Digest, 2009, p. 30).

The share of NOC ownership in the companies that produced oil in Libya in 2008 ranged from 50% to 100%. NOC owned 100% of both Arabian Gulf Oil Co. and Sirte Oil Co.; had 88% interest in Akakus Oil Operations (a subsidiary of Harouge Oil Co., Repsol, and Zuweitina Oil Co.); 85.5% interest in Mellitah Oil Co.; 65% interest in OMV Libya; 60% interest in Mellitah Gas Co.; 59.2% interest in Waha Oil Co.; 51% interest in Wintershall Libya; and 50% interest in Mabruk Oil Co. (a subsidiary of Total) (table 2; Central Bank of Libya, 2009).

Government-owned Libyan Iron and Steel Co. (LISCO) was the sole producer of iron and steel products in the country. LISCO had been on the Government's list for privatization since 2005. Because of its relatively large size (6,770 employees), however, privatization was not carried out as of yearend 2008.

Production

In 2008, Libya's crude oil production decreased by 10.2 million barrels (Mbbl), or by 1.6% compared with that of 2007. The decrease in crude oil production was attributable to the decision taken in October 2008 by the Organization of the Petroleum Exporting Countries (OPEC), of which Libya was a member, to cut crude oil production by 5%. Gross natural gas production increased by 3.6% compared with 2007, thus extending the upward trend in gas production that started in 2004. There was a slight decrease in the production of refined petroleum and petrochemical products in 2008 with the exception of methanol, which increased

by 12% compared with production in 2007. Cement production, which increased by 30%, continued the upward trend that started in 2003, and sulfur production increased by 20%. Notable production decreases included urea (23%), ammonia (20%), crude steel (9.0%), and direct-reduced iron (DRI) (5.5%) (table 1; Central Bank of Libya, 2009, p. 47).

Commodity Review

Metals

Iron and Steel.—According to the World Steel Association (WSA), Libya produced 1.57 million metric tons (Mt) of DRI, including hot-briquetted iron, compared with 1.66 Mt in 2007. WSA also reported that Libya's crude steel production was 1.14 Mt in 2008 compared with 1.25 Mt in 2007 (World Steel Association, 2009).

The volume of steel products exports in 2008 was 680,000 metric tons (t), including 320,000 t of hot-rolled products, 280,000 t of hot-briquetted iron, 48,000 t of DRI, 8,000 t of steel sections, 4,400 t of cold-rolled steel, 2,100 t of pickle steel coils, and 1,400 t of galvanized steel. The export volume was significantly less than that of 2007, especially for hot-rolled coils and sheets, which decreased by 15%; hot-briquetted iron, 34%; DRI, 66%; and sections, 78%. The demand increase by the local market because of the construction boom was the main reason for the decrease in steel products exports. In 2007, LISCO approved an expansion plan that was prepared by Dastur Engineering International GmbH of India to increase its crude steel production capacity to 4.2 million metric tons per year (Mt/yr) from 1.3 Mt/yr. The implementation of the expansion plan was underway in 2008 (Arab Steel, 2009; Libyan Iron and Steel Co., 2009).

Industrial Minerals

Cement.—Production of cement had been on the increase in the past few years; however, the rate of increase did not match Libya's growing demand for cement because of the extensive infrastructure development programs that the country was undertaking. Imported cement was used to satisfy the high demand of the local market. In 2008, Tunisia reported exporting about 1.7 Mt of cement, the majority of which was destined for Libya (Central Bank of Tunisia, 2009, p. 133, 137). The Government planned nearly to double its cement production capacity to 15 Mt/yr by 2011 from the current estimated capacity of 8 Mt/yr.

In October 2007, Asamer Group of Austria and the Government-owned Economic Social Development Fund (ESDF) formed a joint venture, the Libyan Manufacturing Joint Venture Co. (JLCC). In 2008, JLCC acquired 90% equity interest in the Libyan Cement Co., which owned and operated cement plants at Bengazi, El Fatayah, and Hawari, all of which are located in eastern Libya. JLCC planned to invest about $100 million on replacing outdated machinery, installing filters to reduce dust emissions, and maximizing productivity to reach full capacity by yearend 2009. In the second phase of expansion, JICC planned to double its production capacity to 6 Mt/yr by 2012 by adding a third production line to each of the three plants (Tripoli Post, The, 2008).

In 2008, Italcementi Group of Italy signed an agreement with ESDF to build a new greenfield cement plant in Al-Ghazala, which is located 53 kilometers (km) west of the city of Tubruq, northeastern Libya. The plant, which was expected to start production by yearend 2012 at a cost of between $550 million and $750 million, was expected to produce 4 Mt of portland cement with an option of producing 500,000 t of white cement annually (Maggoria, 2009).

In May 2008, state-owned African Cement Co. awarded China Building Material Co. of Hong Kong a contract to build a 1-Mt/yr clinker production capacity plant at Fezzan in the Wadi Ash-Shatti district, which is located in western Libya. The plant would take 2 years to complete at a cost of about $99 million; ESDF would have 40% interest in the project (Reuters, 2008).

Mineral Fuels

Natural Gas and Petroleum.—More than 10 companies contributed to the 643.6 Mbbl of crude oil (686 Mbbl crude plus liquids) produced by Libya in 2008. They comprised Gulf Oil Co., which produced 158.1 Mbbl; Waha Oil Co., 127 Mbbl; Akakus Oil Operations, 110.5 Mbbl; Mellitah Oil Co., 107 Mbbl; Wintershall Libya, 40 Mbbl; Harouge., 34.8 Mbbl; Sirte Oil, 33.4 Mbbl; Zuweitina Oil Co., 20.9 Mbbl; Mabruk Oil Co., 11.6 Mbbl; and OMV Libya, 0.3 Mbbl (Central Bank of Libya, 2009).

Under the Exploration and Production-Sharing Agreement IV gas exploration license bidding round that was announced in December 2007, NOC awarded an alliance of Occidental Petroleum Corp. (80%) of the United States and Liwa Energy Ltd. (20%) of the United Arab Emirates a permit to explore for gas in the onshore Block 103 of Sirte Basin. The alliance was expected to invest more than $70 million in exploration work. Occidental was the operator. Another agreement was signed between NOC and Royal Dutch Shell plc to conduct seismic mapping of a 1,750-square-kilometer (km^2) area, drill six exploration wells, and invest more than $95 million in exploration activity. Exxon Mobil Corp. (ExxonMobil) of the United States and NOC signed a production-sharing agreement to explore for gas and oil in Area 21, which consisted of four blocks and covered 100,000 km^2 offshore Sirte Basin. ExxonMobil was to conduct 4,000 km of two-dimensional (2-D) seismic mapping and 2,000 km^2 of three-dimensional (3-D) seismic mapping worth about $97 million. An alliance of Indian Oil Corp., Oil India Ltd., and Sonatrach S.p.A. of Algeria, signed a $152 million exploration and production-sharing agreement with NOC for an area located in the Ghadames Basin, which involved conducting 2,000 km of 2-D seismic mapping and 2,600 km^2 of 3-D seismic mapping.

In 2008, NOC and Shell moved forward on building a new liquefied natural gas (LNG) plant at Ras Lanuf complex, which was estimated to cost $400 million. NOC also planned to increase the capacity of its existing LNG plant in Mersa El-Brega, which was built by ExxonMobil in 1971.

Gazprom Libya BV (a subsidiary of Gazprom of Russia) was awarded an exploration license for several blocks in Libya and was expected to invest more than $100 million in exploration and discovery activities. Gazprom commissioned WesternGeco (a geophysical service unit of Schlumberger Ltd. of the United States) to carry out 3-D seismic mapping of a 3,400-km^2 area in the Ghadames Basin (LNG Journal, 2008, p. 1; Organization of Arab Petroleum Exporting Countries, 2008, p. 96).

Outlook

The rate of growth of the mineral industry of Libya will depend on the world's hydrocarbon prices and on the degree of risk that the IOCs can take by continuing to invest in Libya. Libya' ranking among oil producing countries in Africa fell to fourth (from third), following Angola, Nigeria, and Algeria, and NOC's long-term goal of reaching a production level of 3 million barrels per day (Mbbl/d) by 2015 had been revised down to 2.3 Mbbl/d by 2013 (U.S. Energy Information Administration, 2009). These developments may encourage the Government, which is planning to invest more than $10 billion in the hydrocarbon industry in 2009, to formulate a clear policy and transparent procedures that would reassure international investors and raise their confidence in the stability of the county's laws and regulations. Mining can be one aspect of achieving diversity in the Libyan economy and in reducing its dependence on the hydrocarbon industry by attracting investment in metals production, such as iron ore and steel, and industrial metals production, such as calcium carbonate, cement, fertilizer, and gypsum.

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