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The Mineral Industry of Libya

By Mowafa Taib

Hydrocarbons were Libya's major contributions to the world supply of minerals in 2010. Libya's crude oil output averaged about 1.7 million barrels per day (Mbbl/d) in 2010 and accounted for 2.0% of the world's total crude oil production. Libya was the fourth ranked African country in terms of the volume of crude oil production after Nigeria, Algeria, and Angola (in order of production). Libya was the leading country in Africa and the world's seventh ranked country in terms of the size of its proved crude oil reserves. More than 80% of the country's crude oil reserves, which were estimated to be 46.4 billion barrels and to account for 3.4% of the world's total crude oil reserves, were located in the Sirte Basin in the northeast. Libya produced about 30.6 billion cubic meters of natural gas, including 16.8 million cubic meters of marketed (dry) gas, which accounted for 0.56% of the world supply of natural gas, and held 1.5 trillion cubic meters of natural gas reserves, which was about 0.8% of the world's total. Libya also produced cement, direct-reduced iron (DRI), gypsum, lime, methanol, nitrogen fertilizer, refined petroleum products, salt, steel, and sulfur (BP p.l.c., 2011, p. 6, 8, 22, 24; Central Bank of Libya, 2011a, p. 51; Organization of Arab Petroleum Exporting Countries, 2011, p. 34, 36).

Minerals in the National Economy

In 2010, Libya's gross domestic product (GDP) at current prices was estimated to have increased to $74.2 billion from $60.2 billion in 2009, and its real economic growth was 4.2% compared with a contraction of 2.3% in 2009. The value of hydrocarbon sector activity increased by 1.6% in 2010 compared with a decrease of 8.9% in 2009. Libya, which was a member of the Organization of the Petroleum Exporting Countries (OPEC), complied with the decision by OPEC to reduce crude oil production to prevent crude oil prices from further decreases. Crude oil prices for Libya averaged $79.50 per barrel in 2010 compared with $61.44 per barrel in 2009. The share of the mining and quarrying sector (excluding hydrocarbons) was 0.3% of the real GDP between 2007 and 2009 (the latest year for which comprehensive data were available) (Central Bank of Libya, 2011a, p. 53; International Monetary Fund, 2011, p. 74).

In 2010, Libyan crude oil exports increased in value and volume compared with those of 2009. The volume of crude oil exports increased by about 2.7% to 1.34 million barrels (Mbbl) from 1.31 Mbbl in 2009. The value of hydrocarbon exports increased by 27% to about $41.9 billion (90% of total exports) from $32.9 billion in 2009. The increase was attributable to higher crude oil prices and to an increased volume of exports in 2010. The country's total petrochemical exports decreased in volume by 1.8% to 2,489,300 metric tons (t) from 2,535,700 t in 2009, and included a 57% decrease in ammonia exports and a 4% decrease in methanol exports, as well as a 23% increase in urea exports and a 1% increase in sulfur exports. The Government revenue from the hydrocarbon sector increased by 47% to $49.2 billion, which was equivalent to 71.3% of the GDP, from a revised $33.4 billion in 2009, which was equivalent to 55.5% of the GDP (Central Bank of Libya, 2011b, p. 32, 35–37).

In 2010, the United States imported 3% of Libya's crude oil exports, which averaged 71,000 barrels per day (bbl/d) and was a decrease of about 39% in volume compared with an average rate of 117,000 bbl/d imported in 2007. Most of Libya's petroleum exports went to Europe, including Italy (28%), France (15%), Germany and Spain (10% each), Greece (5%), and the United Kingdom (4%). China was a significant importer of petroleum from Libya and accounted for 11% of Libya's oil exports (U.S. Energy Information Administration, 2011).

Government Policies and Programs

Law No. 2 of 1971 and its amendments regulate mining and quarrying activity in Libya, and law No. 5 of 1997 regulates foreign investment in the nonoil sectors. Petroleum law No. 25 of 1955, Petroleum Regulations Nos. 8 and 9, and the provisions of the 5-year Exploration and Production-Sharing Agreement IV govern the hydrocarbon sector. Additionally, law No. 443 of 2006 also applies to international companies, including hydrocarbon and mineral production commodity companies that intend to operate in Libya. This legislation requires foreign companies to have a local partner, either state owned or private, that holds a minimum of a 35% share in any joint venture. State-owned National Oil Corp. (NOC) played a dual role as a regulator and a production partner in the hydrocarbon sector. Decree No. 151 of the General People's Committee created the Libyan Mining Co. in 1996 to invest in the country's natural resources and minerals, to ensure that national demand for minerals are met by the domestic industries, and to attract foreign investment to the mining sector (MEED, 2009).

In 2009, the Government outlined the objectives of Libya's industrial development program for the period 2010–13, which included achieving economic diversity by expanding production of mineral resources to all the geographic regions of the country. The Government identified sites of minable mineral commodities throughout the country. The mineral commodities that were identified to have potential for economic mining included clays, coal, dimension stone, diatomite, dolomite, gold, gypsum, iron ore, limestone, salt, silica sand, and travertine (General People's Committee for Industry, Economy and Commerce, 2010, p. 5–12).

Structure of the Mineral Industry

In 2010, the NOC was a full owner of Arabian Gulf Oil Co., Azzawiya Oil Refining Co., Brega Petroleum Marketing

Co., Jwofe Oil Technology, National Oil Fields and Terminals Catering Co., National Oil Well Drilling and Workover Co., North Africa Geophysical Exploration Co., Ras Lanuf Oil and Gas Processing Co., and Sirte Oil and Gas Co. The NOC was also a partner in several joint-venture companies, including Akakus Oil Operations A.G. with Repsol YPF S.A. of Spain; Eni Gas Co. and Eni Oil Co. with Eni S.p.A. of Italy; Harouge Oil Operations Co. with Petro-Canada (a subsidiary of Suncor Energy Inc. of Canada); Waha Oil Co. with ConocoPhillips Co., Hess Corp., and Marathon Corp. of the United States; and Zuweitina Oil Co. with OMV A.G. of Austria.

Twenty-eight international oil companies were working in Libya under exploration and production-sharing agreements that they had signed with the NOC. These companies included, in alphabetical order of their country of registration, Sonatrach of Algeria; Woodside Petroleum Ltd. of Australia; Petróleo Brasileiro S.A. of Brazil; Petro Canada Libya Co. of Canada; Great Wall Drilling Co. (a subsidiary of China National Petroleum Corp.) of China; Total E&P Libye (a subsidiary of Total S.A.) of France; RWE Dea North Africa/Middle East GmbH and Wintershall Holding GmbH of Germany; Inpex Corp., Japan Petroleum Exploration Co. Ltd., and Nippon Oil Exploration Ltd. of Japan; Oil India Ltd. and ONGC Videsh Ltd. of India; Pertamina E & P Libya Ltd. Co. of Indonesia; Statoil ASA of Norway; OAO Gazprom and OAO Tatneft of Russia; Turkish Petroleum Overseas Co. (TPOC) of Turkey; BG plc and Royal Dutch Shell plc of the United Kingdom; and Amerada Hess Libya Exploration Ltd., Chevron Co., ExxonMobil Libya Ltd., and Occidental Petroleum Corp. of the United States (National Oil Corp., 2011).

Government-owned Libyan Iron and Steel Co. (Lisco) was the sole producer of iron and steel products in the country. Lisco planned to offer 10% of its shares on the Libyan Stock Exchange to Libyan investors as an introduction to a larger privatization process (Arab Steel, 2009).

The Government planned to increase the country's cement production capacity to 8 million metric tons per year (Mt/yr) by yearend 2011 and to 15 Mt/yr by 2015. The Economic and Social Development Fund, which was the Government's investment company, had ownership shares in several cement production projects, including Italcementi Libya (50%), Libyan Cement Manufacturing Joint Venture Manufacturing Co. (44%), African Cement Co. (40%), and Alahliya Cement Co. (32.9%) (Economic and Social Development Fund, 2009, p. 13).

National Mining Corp. (NMC) was a public company established by the General Peoples Committee for Industry, Economy and Commerce's Decree No. 151 of 1996. The shareholders of NMC included state-owned producers of cement, chemicals, iron and steel, and paints as well as local banks and investment agencies. In 2010, the company was pursuing establishing joint ventures with other companies to produce calcium carbonate, dimension stone, gypsum, iron ore, kaolin, and silica. The NMC called for bidding rounds to explore mineral resources in the Jabal Al-Uwaynat region and in the area of Jabal Arkenu in southeastern Libya near the border with Egypt. Previous exploration work at Jabal Arkenu indicated the presence of anomalous gold in quartz veins and banded-iron and iron-bearing quartzite. Exploration work at the Al Uwaynat area, which is located in the Al Kufrah basin in southeastern Libya, indicated the presence of gabbro deposits, iron-bearing quartzite, marble, quartz-magnetite gneiss, and quartz veins (World Investment News, 2010).

Employment in the mining and quarrying sector had been increasing in recent years. It accounted for 2.8% of the total number of workers in Libya's economic sectors in 2009 (the latest year for which comprehensive data were available) compared with 2.5% in 2008 and 2.2% in 2007. The number of people working in the mining and quarrying sector increased by 19% to 44,190 in 2009 from 35,654 workers in 2008 and by 45% from 30,466 workers in 2007 (Central Bank of Libya, 2011a, p. 49).

Production

Libya's crude oil and natural gas production increased slightly in 2010 compared with that of 2009. Production of refined petroleum and petrochemical products increased significantly compared with that of 2009. Production of DRI and urea also increased notably by about 16% each, and production of crude steel decreased by about 10% (table 1).

Commodity Review

Metals

Iron and Steel.—Production of crude steel by Lisco decreased to 825,000 t in 2010 from 914,000 t in 2009 despite a 12% increase during the first half of 2010. The company's output of DRI, however, increased to 1.3 million metric tons (Mt) in 2010 from 1.1 Mt in 2009. Production levels of both crude steel and DRI remained significantly less than production in the period from 2006 through 2008, which averaged about 1.6 Mt/yr and 1.2 Mt/yr for crude steel and DRI, respectively. The company completed 80% of the expansion work for its bar rolling mill and 92% of the light and medium sections mill, and this first phase of expansion was expected to be completed in early 2011 (table 1; Arab Steel, 2010a, b; World Steel Association, 2011, p. 19).

Industrial Minerals

Nitrogen.—Libyan Norwegian Fertilizer Co. (Lifeco), which was a joint venture of Yara International ASA of Norway (50% interest), Libyan Investment Authority (25% interest) and NOC (25% interest), was established in 2009 to operate two ammonia and two urea plants at Marsa El Brega, which is located on the Mediterranean Sea coast about 700 kilometers east of Tripoli. The company had 1,200 employees. NOC would supply natural gas to Lifeco's plants under a long-term agreement. Sirte Oil and Gas Co. (one of the oil companies that was wholly owned by NOC) handed over responsibility for several plants and facilities at the Marsa El Brega complex, including ammonia plants 1 and 2, urea plants 1 and 2, the urea bagging plant, the ammonia and urea storage buildings, and the ship-loading terminal, to Lifeco. The plants had a combined production capacity of 2,200 metric tons per day (t/d) of liquid ammonia and 2,750 t/d of granular urea.

In 2010, Lifeco's output was 700,000 t of ammonia and 900,000 t of urea. The company exported about 11% and 93% of its ammonia and urea production, respectively (Libyan Norwegian Fertilizer Co., 2011).

Mineral Fuels

Petroleum.—The volumes of crude oil production at most of the oil companies that were operating in Libya were at about the same levels as in 2009. The number of crude oil producing wells in Libya increased by 4 to 2,064 from 2,060 in 2009. The number of completed oil wells, including development and exploration wells, decreased by 19% to 200 wells from 247 wells in 2009 (Organization of the Petroleum Exporting Countries, 2011, p. 26–27).

In the period from 2006 through 2010, 32 crude oil discoveries were reported in Libya, including 6 in each of 2010 and 2009, 8 in 2008, 5 in 2007, and 7 in 2006. In 2010, one natural gas discovery was reported in Libya compared with zero discoveries in both 2009 and 2008, two discoveries in 2007, and three discoveries in 2006 (Organization of Arab Petroleum Exporting Countries, 2011, p. 20, 22).

Outlook

The "February 17th Revolution" erupted in the country following a wave of protests in the neighboring countries of Tunisia to the west and Egypt to the east. Mineral industry activities, including those pertaining to crude oil production and exports, were halted in early 2011, and most of the international companies working in Libya evacuated their expatriate employees. The new Government has several challenges, including rebuilding damaged infrastructure and industry structures in 2011 because of the military operations, and revamping hydrocarbon production to the levels of 2010 or more. The mineral industry of Libya is likely to grow at a fast pace to rehabilitate the damaged infrastructure in the near future, and ample investment opportunities in the country's construction, hydrocarbon, industrial minerals, and metals sectors are also expected to become available.

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TABLE 1

LIBYA: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons unless otherwise specified)

Commodity[2]		2006	2007	2008	2009	2010
METALS						
Iron and steel, metal:						
Direct-reduced iron[3]		1,663	1,660	1,569	1,097 [4]	1,270 [4]
Crude steel		1,151	1,250	1,137	914	825
INDUSTRIAL MINERALS						
Cement, hydraulic[e]		5,300	5,500	6,000	6,500	7,000
Gypsum[e]		200	240	250	250 [r]	250
Lime[e]		250	250	250	250 [r]	250
Nitrogen:						
N content of ammonia		518	524	417	530 [r]	580
N content of urea		381	359	277	358 [r]	414
Salt[e]		40	40	40	40	40
Sulfur, byproduct of petroleum and natural gas[e]		128	128	142	130	132
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross	million cubic meters	26,847	29,008	29,786	29,316	30,548
Dry	do.	15,229 [r]	17,253 [r]	17,658 [r]	17,177 [r]	18,159
Natural gas liquids	thousand 42-gallon barrels	21,900	29,200	29,200	29,200	29,200
Methanol		641	618	669	664	638
Petroleum:						
Crude	thousand 42-gallon barrels	643,000 [r]	653,800 [r]	643,600	592,500 [r]	616,000
Refinery products:						
Liquefied petroleum gas	do.	22,740 [r]	23,080 [r]	26,777 [r]	27,453 [r]	28,453
Gasoline	do.	6,716 [r]	7,118 [r]	6,643 [r]	6,424 [r]	5,913
Naphtha	do.	23,162 [r]	22,001 [r]	21,166 [r]	20,332 [r]	21,030
Kerosene and jet fuel	do.	11,607 [r]	11,972 [r]	12,520 [r]	15,294 [r]	15,805
Distillate fuel oil	do.	32,010 [r]	32,047 [r]	30,806 [r]	32,631 [r]	35,186
Residual fuel oil	do.	49,677 [r]	48,910 [r]	51,538 [r]	47,924 [r]	51,502
Other	do.	25,088	35,872	5,550	2,942	41,111
Total	do.	171,000 [r]	181,000 [r]	155,000 [r]	153,000 [r]	199,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto.

[1]Table includes data available through December 31, 2011.

[2]In addition to the commodities listed, a variety of clay, dolomite, limestone, sand, and crushed construction stone was produced, and natron (soda ash) may have been produced, but available information is inadequate to make reliable estimates of output. Natural gas liquids also were produced but were blended with crude petroleum and reported as part of that total.

[3]Includes hot-briquetted iron.

[4]Reported figure.

TABLE 2
LIBYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		Joint Libyan Cement Co. (JLCC) [Libyan Manufacturing Joint Venture Co., 90%, and plant employees, 10%]	Benghazi	1,000
Do.		do.	El Fataih, Derna	1,000
Do.		do.	El Hawari	1,000
Do.		Arab Union Contracting Co.	Burj Cement 1 at Zliten	1,400
Do.		do.	Burj Cement 2 at zliten	1,600
Do.		Alahliya Cement Co. [National Investment Co., 64.9%; Economic and Social Development Fund (ESDF), 32.8%; employees, 1.7%; indvidual investors, 0.6%]	Lubda	1,000
Do.		do.	Souk el Khamis	1,000
Do.		do.	Zliten	1,000
Do.		do.	El Margueb	300
Gypsum		Alahliya Cement Co.	Ghadames	100
Do.		do.	Souk el Khamis	9
Do.		Arab Union Contracting Co.	Burj Cement 1, Zliten	35
Iron and steel:				
Iron:				
Hot-briquetted iron		Libyan Iron and Steel Co. (Government, 100%)	Misuratah	650
Sponge iron		do.	do.	1,100
Steel:				
Crude		do.	do.	1,241
Rolled:				
Bar and rod		do.	do.	800
Cold-rolled strip		do.	do.	140
Hot-rolled strip		do.	do.	580
Methanol		Sirte Oil Co. [National Oil Corp. (NOC), 100%]	Marsa El Brega	665
Natural gas, liquefied		do.	do.	700
Nitrogen:				
Ammonia		Libyan Norwegian Fertilizer Co. (LIFECO) [Yara International ASA, 50%; National Oil Corp. (NOC), 25%; Libyan Investment Authority, 25%]	do.	700
Urea		do.	do.	900
Petroleum:				
Crude	thousand 42-gallon barrels	Mellitah Oil Co. [National Oil Corp. (NOC), 85%, and Eni S.p.A., 15%]	Oilfields include the Bhar Essalam, the Bouri, the Bu Attifel, the El Feel, KK, NC-125, NC-169, NC-174, OO-82, the Rimal, UU-82, XX-82, the Wafa	107,000

See footnotes at end of table.

TABLE 2—Continued
LIBYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum—Continued:				
Crude—Continued	thousand 42-gallon barrels	National Oil Corp. (NOC) (Government, 100%)	Oilfields include the Ali, the Almas, the Amal, the Ar Rchmat, the Aswad, the Balat, the Beda, the Belhedan, the Bualwan, the Bu Mras, the Choboc, the Deba, the Dahra, the Dor Mansour, the Ed Dib, the El-Meheiriga, the Eteila, the Facha, the Farigh, the Farrud, the Fidaa, the Ghani, the Ghazzaun, the Gsur, the Hakim, the Hamada NC5, the Hamada NC8, the Harash, the Jebel, the Jofra, the Khalifa, the Kotla, the the Lehib Dor Marada, the Mabruk, the Magid, the Masrab, the Maeghil, the Mellugh, the Messla, the Nafoora Non-unit, the Nasser, the Rakb, the Ralah, the RR-82, Sabah, the Safsaf, the Sahabi, the Samah, the Shatirah, the Tibisti, the Tmed, the Wadi, the Zaggut, the Zella, and the Zenad	NA
Do.	do.	Arabian Gulf Oil Co. [National Oil Corp. (NOC), 100%]	Oilfields include the Sarir and the Nagoora Augila	146,600
Do.	do.	Akakus Oil Operatins A.G. [National Oil Corp. (NOC), 88%, and Repsol YPF S.A., 12%]	NR-186 oilfield in Murzuq Basin	101,200
Do.	do.	Waha Oil Co. [National Oil Corp. (NOC), 59.2%, and ConocoPhillips Co., Marathon Oil Corp., and Amerada Hess Corp., 40.8%]	Oilfields include the Bahi, the Defa, the Gialo, and the Waha	121,100
Do.	do.	Sirte Oil Co. [National Oil Corp. (NOC), 100%]	Oilfields include the Assumud, the Attahadi, and the Raguba	31,400
Do.	do.	Wintershall Libya [National Oil Corp. (NOC), 51%, and Wintershall A.G., 49%]	Oilfields include the As-Sarah, the Hamid, the Jakhir, the Nakhla, and the Tauma	31,800
Do.	do.	Harouge [National Oil Corp. (NOC), 88%, and Petro-Canada, 12%]	Oilfields include the En Naga North and the En Naga West	27,300
Do.	do.	Zuweitina Oil Co., [National Oil Corp. (NOC), 88%, and OMV A.G., 12%]	Intisar oilfield	19,700
Do.	do.	Mabruk [National Oil Corp. (NOC), 50%, and Total S.A., 50%]	Al Jurf oilfield	18,200
Refined	do.	Ras Lanuf Oil and Gas Processing Co. [National Oil Corp. (NOC)]	Ras Lanuf	80,300
Do.	do.	Azzawiya Oil Refining Co. [National Oil Corp. (NOC)]	Az Zawiya	44,000
Do.	do.	Arabian Gulf Oil Co. [National Oil Corp. (NOC)]	Tobruk	7,300
Do.	do.	do.	Sarir	3,650
Do.	do.	National Oil Corp. (NOC)	Marsa el Brega	3,000

Do., do. Ditto. NA Not available.