2011 Minerals Yearbook

LIBYA

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The Mineral Industry of Libya

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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 at the end of 2011. More than 80% of the country's crude oil reserves, which were estimated to be 47.1 billion barrels and to account for 2.9% of the world's total crude oil reserves, were located in the Sirte basin in the northeast. Libya held 1.5 trillion cubic meters of natural gas reserves, which was about 0.7% of the world's total. The country was one of the 12 members that make up the Organization of the Petroleum Exporting Countries (OPEC). Libya also produced cement, crude steel, direct-reduced iron (DRI), gypsum, lime, methanol, nitrogen fertilizer, refined petroleum products, salt, and sulfur (table 1; BP p.l.c., 2012, p. 6, 8, 22, 24; Organization of the Petroleum Exporting Countries, 2012 p. 11).

In February, popular protests erupted in the country following a wave of protests in the neighboring countries of Tunisia in the west and Egypt to the east. The "February 17 Revolution," turned into a rebellion against the ruling regime, which had been in power for more than four decades, following clashes between protesters and the Government security forces. The National Transition Council (NTC) was formed by forces opposed to the ruling regime to be Libya's interim governmental body. Also, the United Nation passed resolution 1973, which provided the legal basis for international military intervention in the Libyan civil war and established a no-fly zone. In August, the NTC forces captured the capital Tripoli and declared the "Liberation of Libya" as well as the official end of war on October 23. Most economic activity in the country, including that pertaining to hydrocarbon production and exports, was halted during most of 2011. The majority of the international companies working in Libya evacuated their expatriate employees. Although, the country's 40 main oil and gas fields were not seriously damaged in the war, substanial damage was reported at the Es Sider and Mersa Brega oil terminals, the Libyan Iron and Steel Co.'s (Lisco) facilities in Misrata, and the Ras Lanuf petroleum refinery in Ras Lanuf. Several companies, however, resumed operation in late 2011 and the first quarter of 2012. Most of the sanctions that were imposed by the United States and other countries on the previous regime in 2011 were lifted (Bahgat, 2012; U.S. Department of State, 2012).

Minerals in the National Economy

In 2011, Libya's gross domestic product (GDP) at current prices decreased by 54% to about \$36.9 billion from a revised \$80.4 billion in 2010, and the country's real economic growth rate was -61.0% compared with 4.0% in 2010. The value of hydrocarbon sector activity decreased by 70.9% in 2011 compared with a decrease of 1.2% in 2010 (International Monetary Fund, 2012, p. 3, 5; Organization of the Petroleum Exporting Countries, 2012, p. 83).

The value of the hydrocarbon sector in 2010 (the latest year for which comprehensive data were available) amounted to \$49.2 billion, which was equivalent to 71.3% of the GDP in 2010. Hydrocarbon exports accounted for 90% of the country's total exports as well as 90% of Government revenue. The sector however, employed 43,000 Libyan workers and many more expatriate workers (Central Bank of Libya, 2011; Mirza, 2012).

Government Policies and Programs

The National Mining Corp. (NMC) 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 ensure that national demand for minerals is met by the domestic industries, and to attract foreign investment to the mining sector. The shareholders of NMC included state-owned producers of cement, 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; National Mining Corp., 2012).

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 commodity production companies that intend to operate in Libya. This legislation requires foreign companies to have a local partner, either state owned or private, which holds a minimum of a 35% share in any joint venture. State-owned Al-Muassasah Al-Libiyah Lilnaft [National Oil Corp. (NOC)] played a dual role as a regulator and a production partner in the hydrocarbon sector (MEED, 2009).

Structure of the Mineral Industry

In 2011, the NOC was a full owner of nine oil and related services companies, including 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 Co. (National Oil Corp., 2012).

The NOC was also a partner in six 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 Oil Corp. of the United States; and Zuweitina Oil Co. with OMV A.G. of Austria (National Oil Corp., 2012).

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 S.p.A. 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 p.l.c. and Royal Dutch Shell p.l.c. 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., 2012).

Wintershall Holding GmbH operated eight oilfields in concessions 96 and 97, which are located about 1,000 kilometers (km) southeast Tripoli. The company was also exploring for crude oil and natural gas in southeastern Libya and in the Al Jurf (Block C 137) offshore site (Wintershall Holding GmbH).

Mineral Trade

Libya's hydrocarbon exports, which included crude oil, natural gas, and petroleum products, decreased in both value and volume in 2011 compared with those of 2010. The volume of crude oil exports decreased by 73% to 300,000 barrels per day (bbl/d) from about 1.12 million barrels per day (Mbbl/d); natural gas exports decreased by 63% to 3.67 billion cubic meters from 9.97 billion cubic meters; and the volume of petroleum products exports decreased by 57% to 20,600 bbl/d from 48,300 bbl/d in 2010. Libyan crude oil prices increased compared with those of 2010. The average price for Ess Sider crude increased to $111.90 per barrel from $79.13 per barrel in 2010, and the average price of Brega crude increased to $112.89 per barrel from $79.67 in 2010. The value of hydrocarbon exports decreased by 72% to $11.8 billion from $41.9 billion in 2010 owing to the stoppage of production because of the military operations in the country especially during the second and third quarters of 2011 (Organization of the Petroleum Exporting Countries, 2011, p. 11, 82; 2012, p. 11, 82–83).

Production

Mineral production decreased sharply in 2011 compared with that of 2010 because of the civil war that disturbed almost all economic activity and halted mineral commodity production for most of 2011. The most notable decreases in mineral commodity output in 2011 compared with that of 2010 was the decrease in ammonia, crude steel, and urea by about 88% each; direct-reduced iron, by 76%; natural gas, by 76%; and crude oil, by 71%. Production of industrial minerals, such as cement and urea, are also estimated to have decreased significantly, but no verifiable data were available (table 1; Arab Fertilizer Association, 2012, p. 21, 25; Midrex Technologies, Inc., 2012; World Steel Association, 2012).

Commodity Review

Metals

Iron and Steel.—Production of crude steel by Government-owned Libyan Iron and Steel Co. (Lisco) decreased by 88% to 100,000 metric tons (t) from 825,000 t in 2010, and the company's output of DRI decreased by 76% to 300,000 t from 1.27 million metric tons in 2010. Lisco, which was the sole producer of iron and steel products in the country, had been expanding the capacity of its bar rolling mill and the light and medium sections mill but halted production and expansion work for most of 2010 because of the military operations in the country in general and in Misrata in particular. The company planned to resume operations in 2012 (table 1; Arab Steel, 2010; World Steel Association, 2012).

Industrial Minerals

Cement.—The Government had 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%) (General People's Committee for Industry, Economy, and Commerce, 2010).

Nitrogen.—Libyan Norwegian Fertilizer Co. (Lifeco), which was a joint venture of Yara International ASA of Norway (50% interest), and Libyan Investment Authority and NOC (25% interest each), 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 km east of Tripoli. The company had 1,200 employees. NOC would supply natural gas to Lifeco's plants under a long-term agreement. In 2010, Sirte Oil (one of the oil companies that were wholly owned by NOC) handed over responsibility of 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 shiploading 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 726,000 t of ammonia and 895,000 t of urea. The company exported about 11% and 93% of its ammonia and urea production, respectively. Production was halted for most of 2011 owing to military operations and civil unrest (Libyan Norwegian Fertilizer Co., 2011; Arab Fertilizer Association, 2012, p. 21, 25).

Mineral Fuels

Petroleum.—In 2011, the number of crude oil producing wells in Libya decreased by 1,451 wells to 609 wells from 2,060 wells in 2010, and the number of completed oil wells, including development and exploration wells, decreased to 76 wells from 200 wells. Libya had 55 active rigs in 2011 compared with 60 rigs in 2010. Crude oil and natural gas production resumed in many oil and gas fields around the country, and a production rate similar to that of 2010 (1.6 Mbbl/d) was expected to be reached in June 2012. The NTC expected to increase production to 2.2 Mbbl/d by 2015 and to 3.0 Mbbl/d by 2020 (Mirza, 2012; Organization of the Petroleum Exporting Countries, 2012, p. 25–27).

Outlook

Libya is going through an extensive restructuring of its economic sector and political system following the "February 17 Revolution" that ended a 40-year old autocratic regime and began a new multiparty political system. The actions being taken include Parliamentary elections in 2012 and a new Constitution that is expected to be introduced in 2013. The NTC faces several challenges, including rebuilding infrastructure and industry structures damaged during the war. The mineral industry of Libya is likely to grow significantly in the next 5 years to rehabilitate the damaged infrastructure and facilities that were destroyed during 2011. 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]		2007	2008	2009	2010	2011
METALS						
Iron and steel, metal:						
Direct-reduced iron[3]		1,660	1,569	1,097	1,270	300 [4]
Crude steel		1,250	1,137	914	825	100 [4]
INDUSTRIAL MINERALS						
Cement, hydraulic[e]		5,500	6,000	6,500	7,000	3,500
Gypsum[e]		240	250	250	250	125
Lime[e]		250	250	250	250	125
Nitrogen:						
N content of ammonia		524	417	530	580	71
N content of urea		359	277	358	414	53
Salt[e]		40	40	40	40	20
Sulfur, byproduct of petroleum and natural gas[e]		128	142	130	132	65
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross	million cubic meters	29,008	29,786	29,316	30,548	9,861 [4]
Dry	do.	15,300 [r]	15,900 [r]	15,900 [r]	16,800 [r]	4,100 [4]
Natural gas liquids	thousand 42-gallon barrels	29,200	29,200	29,200	29,200	7,300 [4]
Methanol		618	669	664	638	85
Petroleum:						
Crude	thousand 42-gallon barrels	664,300 [r]	664,300 [r]	602,980 [r]	605,535 [r]	174,835 [4]
Refinery products:						
Liquefied petroleum gas	do.	23,080	26,777	27,453	28,453	28,000
Gasoline	do.	7,118	6,643	6,424	5,913	6,460
Naphtha	do.	22,001	21,166	20,332	21,030	20,000
Kerosene and jet fuel	do.	11,972	12,520	15,294	15,805	17,338
Distillate fuel oil	do.	32,047	30,806	32,631	35,186	28,762
Residual fuel oil	do.	48,910	51,538	47,924	51,502	50,005
Other	do.	35,872	5,550	2,942	41,328 [r]	22,153
Total	do.	181,000	155,000	153,000	199,217 [r]	172,718 [4]

[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 August 31, 2012.

[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 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 2011

(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.	726
Urea		do.	do.	895
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 2011

(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 Operations 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 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 Holding GmbH (operator)	Oilfields include the As-Sarah, the Hamid, the Jakhir, the Nakhla, and the Tauma	31,800
Do.	do.	Harouge Oil Operations Co. [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 Oil Operations [National Oil Corp. (NOC), 73%; Total S.A., 20.25%; Wintershall Holding GmbH, 6.75%]	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.