



# 2014 Minerals Yearbook

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## CHAD

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# THE MINERAL INDUSTRY OF CHAD

By Philip M. Mobbs<sup>1</sup> and Mowafa Taib

Hydrocarbons were a leading segment of Chad's economy, accounting for most of the country's exports of goods and Government revenues. The economy was significantly affected by the collapse in international oil prices in the last half of 2014. This dependence made Chad's continuing economic growth prospects vulnerable to lower than expected international oil prices (International Monetary Fund, 2015).

Exploration and production of hydrocarbons were covered by the conventions governing research, exploration, production, and transportation of hydrocarbons dated December 19, 1988, and May 10, 2004, and amendments, including law No. 028/PR/00 of December 5, 2000. The Petroleum Revenue Management Law (law No. 001/PR/99 of 1999) and amendments, such as law No. 002/PR/06 of 2006, defined the allocation of petroleum revenues. Mining of minerals, which was a negligible contributing sector of the national economy, was regulated by the Mining Code (law No. 011/PR/95 of 1995). Law No. 014/PR/98 of 1998 covered the general principles for the protection of the environment. Law No. 002/PR/2008 of 2009 addressed the production and the utilization of radioactive minerals and general nuclear security. In 2014, Chad became a full member of the Extractive Industries Transparency Initiative, which is an international effort to promote accountable management of natural resources, such as metals, natural gas, petroleum, and other minerals.

Most official nonfuel exports from landlocked Chad were trucked to seaports in Cameroon and Nigeria. Crude petroleum produced in the Doba Basin by Esso Exploration and Production Chad, Inc. (Esso Chad) was exported by way of the Chad-Cameroon export pipeline to an export terminal at Kribi, Cameroon, as was production from other oilfield development projects in Chad. Most of the crude oil produced from the oilfield on Permit H (Block H) by CNPC International (Chad) Co. Ltd. was moved by pipeline to the Djermaya refinery, but in 2014, CNPC also received approval to export crude petroleum through the Chad-Cameroon export pipeline (Petroleum Africa, 2014).

## Production

The value and volume of production of crude oil far exceeded the output of the country's limited suite of other mineral commodities, which included aggregates, cement, clay, gold, lime, limestone, salt, sand, soda ash (natron), and stone. In 2014, the output of crude petroleum was estimated to have decreased by about 3% compared with that of 2013. The estimated rate of decline in petroleum production decreased significantly owing to a full year of production from the Badila field. Estimates of Chad's mineral production are in table 1.

## Structure of the Mineral Industry

The Ministère des Mines et de la Géologie and the Ministère du Pétrole et de l'Énergie monitored the activity of various sectors of the mineral industry. Société des Hydrocarbures du Tchad S.A. was the national oil company. Société Nationale de Ciment (SONACIM) was the national cement company, which also mined limestone. The private company Société Tchadienne d'Exploitation des Carrières (SOTEC) operated a large-scale quarry. Small-scale domestic mining and quarrying operations produced the country's other nonfuel minerals. International companies were involved in the exploration for and production of crude oil and petroleum refining.

## Commodity Review

In May 2014, the Government signed a contract valued at about \$28 million with Bureau de Recherches Géologiques et Minières of France (BRGM) to review existing geologic and metallurgical information on the Enedi and Wadi Fira areas in eastern Chad. BRGM also planned to interpret existing satellite imagery; to collect and to interpret airborne geophysical surveys; to sample outcrops, soils, and trenches; to prepare surface geologic maps; and to disseminate the results of the project. The assignment was expected to last 3½ years (Bureau de Recherches Géologiques et Minières, 2014).

## Industrial Minerals

**Cement.**—Ciments de l'Afrique –Tchad (CIMAF-Tchad), which was a subsidiary of the Addoha Group of Morocco, started building a 500,000-metric-ton-per-year (t/yr)-capacity cement plant at N'Djamena. Initial production was expected to begin in December 2015. Ciment du Tchad, which was a subsidiary of Government-owned SONACIM, had opened a cement plant at Baore in 2013 (CEMAC Business/Mediaside Austria GmbH, 2014).

## Mineral Fuels

**Petroleum.**—Exxon Mobil Corp. of the United States reported that Esso Exploration and Production Chad, Inc. (Esso Chad) produced an average of about 70,000 barrels per day (bbl/d) of crude oil in 2014 compared with 81,570 bbl/d in 2013. To offset the decreased production that was attributed to natural reservoir decline, Esso Chad continued to drill additional development wells in the Bolobo and the Miandoum fields (Esso Exploration

<sup>1</sup>Deceased.

and Production Chad, Inc., 2014, p. 42; Exxon Mobil Corp., 2015, p. 37).

In June, Chevron Global Energy Inc., which was a subsidiary of Chevron Corp. of the United States, sold its 25% interest in Cameroon Oil Transportation Co., in Esso Chad, and in Tchad Oil Transportation Co. to the Government of Chad (Chevron Corp., 2014).

CNPC International (Chad) Ltd., which was a subsidiary of China National Petroleum Corp., operated the Koudalwa and the Ronier oilfields on Block H. In March, the Government announced that it had fined CNPC International \$1.2 billion owing to previous environmental violations. In August, the Government announced that it had initiated arbitration proceedings owing to CNPC International's failure to pay the fine and that it had canceled five of CNPC International's exploration permits; but in October, CNPC International agreed to pay \$400 million and the Government restored CNPC International's licenses (Nako, 2014; Petroleum Africa, 2014).

Glencore plc of Switzerland acquired Caracal Energy Inc. of Canada, which held 50% interest in PetroChad (Mangara) Ltd. Commercial production from the Mangara field began in December. The Mangara field was connected to the Badila field crude-oil-processing facilities and crude oil output was exported through the Chad-Cameroon export pipeline. The company's annual production in Chad was expected to more than double as production from the Mangara field was ramped up with the completion of an additional 20 oilwells (Glencore plc, 2015, p. 64).

Other petroleum exploration activity in Chad included that of ERHC Energy Inc. of the United States; OPIC Africa Corp., which was a subsidiary of CPC Corp., Taiwan; Simba Energy Inc. of Canada; and United Hydrocarbon Chad Ltd., which was a subsidiary of United Hydrocarbons International Corp. of Canada.

## Outlook

In the past few years, the Government has expressed interest in diversifying the country's mineral output. In addition to new

cement plants, the Government has issued several permits for gold and uranium exploration, primarily in southwestern Chad.

In the short term, production from new oilfields is expected to offset partially the notable decline in production from the more mature fields in the Doba Basin. Petroleum exploration is expected to continue in southern Chad, which, if successful, could lead to the development of additional crude oil and natural gas deposits.

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TABLE 1  
CHAD: ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

| Commodity <sup>3</sup> | 2010                       | 2011   | 2012    | 2013    | 2014    |        |
|------------------------|----------------------------|--------|---------|---------|---------|--------|
| Cement                 | --                         | 10,000 | 200,000 | 200,000 | 200,000 |        |
| Petroleum:             |                            |        |         |         |         |        |
| Crude <sup>4</sup>     | thousand 42-gallon barrels | 44,700 | 43,600  | 41,200  | 36,000  | 35,000 |
| Refined                | do.                        | --     | 1,000   | 4,000   | 4,000   | 4,000  |
| Soda ash, natron       | thousand metric tons       | 12     | 13      | 13      | 13      | 13     |

do. Ditto. -- Zero.

<sup>1</sup>Estimated data are rounded to no more than three significant digits.

<sup>2</sup>Table includes data available through May 8, 2015.

<sup>3</sup>In addition to the commodities listed, other minerals and construction materials, such as aggregate, clay, gold, lime, limestone, salt, sand, and stone are produced, but information is inadequate to make reliable estimates of output.

<sup>4</sup>Includes reported crude shipments from the Doba Basin in Chad, which was metered on a floating storage-and-offloading vessel that was located offshore Kribi, Cameroon.

TABLE 2  
CHAD: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

| Commodity        |                           | Major operating companies and major equity owners   | Location of main facilities  | Annual capacity     |
|------------------|---------------------------|---|--|---------------------|
| Cement           |                           | Ciment du Tchad [Société Nationale de Ciment (SONACIM)]   | Baore plant, Bisi Keda, Mayo-Kebbi Ouest Department                                | 200,000             |
| Gold             | kilograms                 | Artisanal placer operations   | Mayo Dala Department   | 150 <sup>e</sup>    |
| Petroleum:       |                           |   |  |                     |
| Crude            | million 42-gallon barrels | Esso Exploration and Production Chad, Inc. (Esso Chad) (Exxon Mobil Corp., 40%; Petronas Carigali Overseas Sdn. Bhd., 35%; Government, 25%) | Bolobo, Kome, Maikeri, Miandoum, Moundouli, and Nya, and Timbre fields, Doba Basin | 79 <sup>e</sup>     |
| Do.              | do.                       | CNPC International (Chad) Co. Ltd. (a subsidiary of China National Petroleum Corp.)   | Permit H, which includes the Koudalwa and the Ronier fields                        | 22 <sup>e</sup>     |
| Do.              | do.                       | PetroChad Mangara Ltd. (Glencore plc, 85%, and Société des Hydrocarbures du Tchad S.A., 15%)  | Badila and Mangara fields  | 20 <sup>e</sup>     |
| Refined products | do.                       | CNPC International (Chad) Co. Ltd. (a subsidiary of China National Petroleum Corp., 60%, and Société des Hydrocarbures du Tchad S.A., 40%)  | Djermaya refinery, about 30 kilometers north of N'Djamena                          | 7                   |
| Salt             |                           | Various local operators   | Various locations  | 10,000 <sup>e</sup> |
| Soda ash         |                           | do.   | Lake Chad, near Liwa   | 13,000 <sup>e</sup> |
| Stone, crushed   |                           | Société Tchadienne d'Exploitation des Carrières (SOTEC)   | Mani rhyolite quarry, Dandi  | 600,000             |

<sup>e</sup>Estimated. Do., do. Ditto.