



# 2013 Minerals Yearbook

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## CHAD

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# THE MINERAL INDUSTRY OF CHAD

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Hydrocarbons were a leading segment of Chad's economy in 2013, accounting for about 90% of exports of goods, more than 70% of Government revenues, and about 30% of the nominal gross domestic product. This dependence made Chad's continuing economic growth prospects vulnerable to any decline in international oil prices (International Monetary Fund, 2014, p. 9).

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.

Petroleum produced in the Doba basin was exported by way of the Chad-Cameroon export pipeline to an export terminal at Kribi, Cameroon. With the exception of crude oil produced from the oilfield on Permit H (Block H), which was moved by pipeline to the Djermaya refinery, new oilfield development projects were expected to export their production through the Chad-Cameroon pipeline. Most official nonfuel exports from landlocked Chad were trucked to seaports in Cameroon and Nigeria.

## 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 2013, the output of crude petroleum was estimated to have decreased by almost 13% compared with that of 2012. 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 Cimenterie (SONACIM) was the national cement company, which also mined limestone. The private company Société Tchadienne d'Exploitation des Carrières (SOTEC) operated other large-scale industrial-mineral quarries in Chad. 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.

## Commodity Review

### *Industrial Minerals*

**Cement.**—Ciment du Tchad, which was a subsidiary of Government-owned SONACIM, operated the 200,000-metric-ton-per-year-capacity Baore cement plant, which produced cement from locally produced limestone and gypsum imported from Morocco. Domestic cement production was augmented by cement imported primarily from Cameroon and Nigeria (Xinhua News Agency, 2012; Société Nationale de Cimenterie, 2013).

### *Mineral Fuels*

**Petroleum.**—Exxon Mobil Corp. of the United States reported that Esso Exploration and Production Chad, Inc. (Esso Chad) produced an average of 73,000 barrels per day (bbl/d) of crude oil in 2013 compared with an average of 90,000 bbl/d in 2012. To offset the decreased production that was attributed to natural reservoir decline and the increased water content of the fluids produced, Esso Chad continued to drill additional development wells in the Bolobo, the Kome, and the Miandoum fields (Exxon Mobil Corp., 2014, p. 36).

CNPC International (Chad) Ltd., which was a subsidiary of China National Petroleum Corp., operated the Koudalwa and the Ronier oilfields on Block H. The petroleum refinery at Djermaya was operated by a joint venture of CNPC International and Société des Hydrocarbures du Tchad S.A. In August, the Government suspended CNPC International's crude oil exploration and production activities owing to environmental issues. Exploration and production operations resumed in October (Nako, 2014).

In January, the new management of Griffiths Energy International Inc. of Canada settled legal proceedings that had been brought against the company under the Corruption of Foreign Officials Act and subsequently took the company public. In May, the company changed its name to Caracal Energy Inc. In June, GlencoreXstrata plc of Switzerland acquired 35% working interest in the Badila and the Mangara development operations from Caracal and Société des Hydrocarbures du Tchad (Griffiths Energy International Inc., 2013; Oil & Gas Journal, 2013; Tait, 2013).

PetroChad (Mangara) Ltd., which was a subsidiary of Caracal, started production from the Badila field in September. About 529,150 barrels of crude oil was produced by yearend; initial production was used to charge the 16-kilometer (km), 30.48 centimeter (cm)-diameter pipeline spur that connected the Badila field to the Chad-Cameroon export pipeline. The spur line was expected to be filled in early 2014, after which oil could be exported (Caracal Energy Inc., 2014a).

PetroChad expected to bring the Mangara field on the DOB Block onstream in 2014. The Mangara field would be

<sup>1</sup>Deceased.

connected to the Badila field crude-oil-processing facilities by a 97-km, 30.48-cm-diameter oil pipeline and an adjacent 15.24-cm-diameter natural gas pipeline. The gas was to be used as fuel to provide electrical power for the processing terminal at Badila. Production from the two fields was projected to reach about 45,000 barrels per day (bbl/d) by the end of 2014, which was a significant increase from about 11,000 bbl/d that the Badila field was producing at yearend 2013 (Caracal Energy Inc., 2014b).

Other exploration activity in Chad included that of ERHC Energy Inc. of the United States, which continued preliminary work on the BDS–2008 Block. In 2013, EHRC relinquished its portion of the Chari Ouest Block III and the Manga Blocks. Overseas Petroleum and Investment Corp., which was a subsidiary of CPC Corp., Taiwan, continued to drill and test its exploration acreage on its portion of the Chari Ouest Block III. Activity in 2013 by Simba Energy Inc. of Canada was directed at retaining the production-sharing contracts that covered the Chari Sud I Block, the southern one-half of the Chari Sud II Block, and the Erdis III Block. United Hydrocarbon Chad Ltd., which was a subsidiary of United Hydrocarbons International Corp. of Canada, expected to begin a drill program on the DOC and the DOD Blocks in 2014. Oil had been discovered on the DOC Block in 1978 and on the DOD Block in 1994 (ERHC Energy Inc., 2013, p. 7).

## Outlook

In the past few years, the Government has resumed its encouragement of mineral exploration, especially for metals, and it 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>	2009	2010	2011	2012	2013	
Cement	--	--	10,000	200,000	200,000	
Petroleum:						
Crude <sup>4</sup>	thousand 42-gallon barrels	43,600	44,700 <sup>r</sup>	43,600 <sup>r</sup>	41,200 <sup>r</sup>	36,000
Refined	do.	--	--	1,000	4,000	4,000
Soda ash, natron		12	12	13	13	13

<sup>r</sup>Revised. 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, 2014.

<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 2013

(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 Cimenterie (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 Sdh. Bhd., 35%; Chevron Overseas Petroleum Inc., 25%)	Bolobo, Kome, Maikeri, Miandoum, Moundouli, and Nya, and Timbre fields, Doba Basin	79 <sup>e</sup>
Do.	do. CNPC International (Chad) 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 Ltd. (Caracal Energy Ltd., 50%; GlencoreXstrata plc, 35%, Société des Hydrocarbures du Tchad S.A., 15%)	Badila field	4 <sup>e</sup>
Refined products	do. CNPC International (Chad) 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>

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