



# 2007 Minerals Yearbook

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**CHAD [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF CHAD

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Hydrocarbons remained by far the leading segment of the economy of Chad. In 2006, which was the latest year for which data were available, petroleum accounted for about 47% of Chad's real gross domestic product and about 71% of Government revenue. In 2006, Esso Exploration and Production Chad, Inc. (Esso Chad) began corporate income tax payments, which increased Chad's revenue from the Chad-Cameroon pipeline project by 158% to \$774 million<sup>1</sup> from \$300 million in 2005. In 2007, Chad's oil revenue jumped by nearly 58% to \$1.22 billion, which was nearly 49% of total oil revenues paid to Chad since initial oil production began in 2003 (Banque des États de l'Afrique Centrale, 2008a, p. 277, 290; BP p.l.c., 2008, p. 8; Esso Exploration and Production Chad, Inc., 2008, p. 83).

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. In 2007, Chad was the 10th ranked petroleum producer in Africa. Mining of solid minerals, which was a negligible contributor to the national economy, was regulated by the Mining Code (law No. 011/PR/1995 of 1995).

Most formal international trade with landlocked Chad was funneled through seaports in Cameroon and Nigeria. Petroleum was exported via the Chad-Cameroon pipeline to an export terminal at Kribi, Cameroon. Informal trade moved across the borders into the neighboring central African countries of the Central African Republic, Libya, Niger, and Sudan. In 2007, the value of exports of crude oil was estimated to be \$3.1 billion and accounted for 87% of total official exports from Chad (Banque des États de l'Afrique Centrale, 2008b).

## Production

Crude oil overshadowed the country's limited suite of other mineral commodity production, which included clay, gold, lime, limestone, salt, sand, soda ash (natron), and stone. National oil production declined slightly in 2007, despite the addition of the Maikeri Field. Estimates of Chad's mineral production are provided in table 1.

## Structure of the Mineral Industry

Small-scale domestic mining operations produced most of the country's nonfuel minerals. International oil companies were involved in the exploration for and the production of crude oil. Société des Hydrocarbures du Tchad, which was the national oil company, was expected to acquire interest in petroleum production-sharing contracts. Esso Chad and Tchad Oil Transportation Co. S.A. operated a portion of about 200 kilometers (km) of the 1,070-km crude oil pipeline that originated in Chad and ended at an offshore terminal in Cameroon.

<sup>1</sup>Where necessary, values have been converted from Communauté Financière Africaine francs (XAF) to U.S. dollars (US\$) at the average rate of XAF492.7=US\$1.00 for 2007 and XAF522.8=US\$1.00 for 2006.

## Commodity Review

Potential mineral exploration activity in Chad was inhibited by armed factions that engaged in hostilities along the eastern and the northern borders. Exploration also was inhibited in eastern Chad by social instability, which was associated with ongoing military action in the Darfur region of Sudan.

## Mineral Fuels

**Petroleum.**—In 2007, Esso Chad drilled an additional 60 production and water-injection wells at its Doba Basin oilfields. Esso Chad also began production from the Maikeri Field and completed the initial phase of a high-pressure water-injection project. Esso Chad also drilled exploration wells at East Doeso, Mangara, and Timbre (Esso Exploration and Production Chad, Inc., 2008, p. 7-8).

Export pipeline capacity constraints of 250,000 barrels per day (bbl/d) had proved to be less a problem than originally envisioned, as Esso Chad's crude oil production peaked in 2004 at an average of about 217,000 bbl/d. Unexpected reservoir conditions resulted in the rapid decline of production. Esso Chad reported that production averaged 170,000 bbl/d in 2005, 155,000 bbl/d in 2006, and 143,600 bbl/d in 2007 (Esso Exploration and Production Chad, Inc., 2005, p. 14; 2006, p. 14; 2007, p. 10; 2008, p. 8).

In January 2007, EnCana Corp. of Canada finalized the sale of EnCana International Ltd. of Chad (which held 50% interest in the Permit H concession) to CNPC International Ltd. of Chad, which was a subsidiary of China National Petroleum Corp. (CNPC). The transfer of interest was effective on October 1, 2006. CNPC subsequently drilled a successful exploration well in the Bongor Basin. CNPC and the Government also agreed that CNPC would build a 20,000-bbl/d-capacity petroleum refinery in N'Djamena by 2011 (Petroleum Africa, 2008).

## Outlook

Esso Chad's production enhancement program of new oil wells, a new high-pressure water injection system, and workovers of existing oil wells has slowed the rapid production decline observed since 2004. Development of CNPC International's Bongor Basin oil reservoirs would provide additional crude oil for export and input feedstock for the proposed N'Djamena oil refinery.

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

(Thousand metric tons unless otherwise specified)

Commodity <sup>3</sup>	2003	2004	2005	2006	2007
Aggregate, sand, and stone	300	300	300	300	300
Gold, mine output, Au content kilograms	150	150	150	150	150
Petroleum, crude <sup>4</sup> thousand 42-gallon barrels	8,600	61,400	63,300	55,900	52,400
Salt	9	9	10	10	10
Soda ash, natron	12	12	12	12	12

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

<sup>2</sup>Table includes data available through November 10, 2008.

<sup>3</sup>In addition to the commodities listed, other industrial minerals and construction materials (clay, lime, and limestone) are produced, but information is inadequate to make reliable estimates of output.

<sup>4</sup>Reported figure. Production volume was metered on the floating storage-and-offloading vessel which was located offshore Kribi, Cameroon.

TABLE 2  
 CHAD: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold kilograms	Artisanal placer operations	Mayo Dala Department	150
Petroleum, crude 42-gallon barrels per day	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 Fields, Doba Basin	217,000
Salt	Various local operators	Various locations	10,000
Soda ash	do.	Lake Chad, near Liwa	12,000