



# 2005 Minerals Yearbook

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BENIN, BURKINA FASO, AND SAO TOME E PRINCIPE

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# THE MINERAL INDUSTRIES OF BENIN, BURKINA FASO, AND SAO TOME E PRINCIPE

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## BENIN

Benin is a West African country bounded by Togo to the west, Burkina Faso and Niger to the north, Nigeria to the east, and the Bight of Benin to the south. In 2005, Benin's mineral industry was a minor component of the national economy; production of mineral commodities was limited to cement, clay, gold, and sand and gravel. Cement was produced by Ciments du Benin S.A., Société des Ciments du Benin, and Société des Ciments d'Onigbolo. These companies had a combined cement production capacity of 925,000 metric tons per year (t/yr) (table 2).

Gold was produced by artisanal miners from gold veins near the villages of Kwatena and Tchantangou, in the Atakora Mountains in northwestern Benin, and from alluvial sediments along the Perma River and its tributaries. Benin ceased producing petroleum from its Seme oilfield in 1998; however, at least four petroleum companies were engaged in exploration activities within the country in 2005. One of these companies was Korea National Oil Corporation (KNOC), which held an 80% interest in two petroleum exploration blocks offshore Benin. In October 2005, KNOC contracted The Peak Group of the United Kingdom to conduct a drilling program for Block 2. Block 2 is located about 24 kilometers offshore Benin. Drilling operations began in October (Korea National Oil Corporation, 2006, p. 29, 44-45; Rigzone.com, 2006<sup>1</sup>).

Another company exploring for petroleum in Benin was Kosmos Energy LLC of the United States. In 2005, Kosmos, through its subsidiary Kosmos Energy Benin HC, acquired a 40% working interest in an exploration license for Block 4 offshore Benin in the Gulf of Guinea. Kosmos venture partners were Kerr-McGee Benin Consortium S.A. (an affiliate of Kerr-McGee Corporation) (40%) and Petronas Carigali Overseas Sdn Bhd (20%). Kerr-McGee was the operator (Kosmos Energy LLC, 2005).

More-extensive coverage of the mineral industry of Benin can be found in the 2003 and 2004 U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Africa and the Middle East, which are available on the Internet at URL <http://minerals.usgs.gov/minerals/pubs/country>.

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<sup>1</sup>References that include a section mark (§) are found in the Internet Reference Cited sections.

## References Cited

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Rigzone.com, 2006, The Peak Group wins its first contract from KNOC, accessed June 26, 2006, at URL [http://www.rigzone.com/news/article\\_pf.asp?a\\_id=26138](http://www.rigzone.com/news/article_pf.asp?a_id=26138).

## BURKINA FASO

Burkina Faso is a landlocked West African country bordered by Benin to the southeast, Côte d'Ivoire, Ghana, and Togo to the south, Mali to the north, and Niger to the northwest. In 2005, Burkina Faso's mineral industry was a minor component of the national economy; production of mineral commodities was limited to cement, dolomite, gold, granite, marble, phosphate rock, pumice and related volcanic materials, and salt. Canadian companies Axmin Inc., Channel Resources Ltd., Etruscan Resources Inc., Goldcrest Resources Ltd., High River Gold Mines Ltd., Jilbey Gold Exploration Ltd., Orezone Resources Inc., Riverstone Resources Inc., Semafo Inc., and St. Jude Gold Resources Ltd. continued with gold exploration activities within the country throughout the year. Randgold Resources Ltd. of the United Kingdom also explored for gold.

In September, Axmin sold its 100% interest in the Boroum permit to a subsidiary of High River at a cost of \$3.3 million (Axmin Inc., 2006, p. 23). Channel Resources continued with exploration activities at its Bombore and Tanlouka gold properties (Channel Resources Ltd., 2006, p. 3, 8). Etruscan Resources began mine development at its 90% owned Youga gold property, which included the upgrading of a 30-kilometer main access road from the town of Zabre to the mine site. Construction work was expected to be completed in early 2007 and the estimated mine output was expected to be about 2,700 kilograms per year (kg/yr) of gold. The company planned to undertake an additional drilling program on the permits surrounding the Youga mining permit in 2006 (Etruscan Resources Inc., 2006, p. 1).

High River continued with construction of the open pit mine and mill facilities at its Taparko-Boroum property. The company expected to complete construction work by the end of 2006 with commissioning set for early 2007. In September, High River announced the completion of its merger with Jilbey Gold (High River Gold Mines Ltd, 2005; 2006, p. 8, 10).

More-extensive coverage of the mineral industry of Burkina Faso can be found in the 2003 and 2004 U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Africa and the Middle East, which are available on the Internet at URL <http://minerals.usgs.gov/minerals/pubs/country>.

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- Axmin Inc., 2006, 2005 annual report: Toronto, Ontario, Canada, Axmin Inc., 32 p.
- Channel Resources Ltd., 2006, 2005 annual report: Kelowna, British Columbia, Canada, Channel Resources Ltd., 26 p.
- Etruscan Resources Inc., 2006, 2005 annual report: Windsor, Nova Scotia, Canada, Etruscan Resources Inc., 36 p.
- High River Gold Mines Ltd., 2005, High River Gold completes acquisition of Jilbey: Toronto, Ontario, Canada, High River Gold Mines Ltd. press release, September 1, 1 p.
- High River Gold Mines Ltd., 2006, 2005 annual report: Toronto, Ontario, Canada, High River Gold Mines Ltd., 45 p.

### SAO TOME E PRINCIPE

The Democratic Republic of Sao Tome e Principe consists of the two islands of Sao Tome and Principe and several islets in the Gulf of Guinea. The islands of Sao Tome e Principe are located in the equatorial Atlantic about 300 km and 250 km, respectively, off the northwestern coast of Gabon. Mining did not play a significant role in Sao Tome e Principe's economy. Mineral production was limited to some clay and volcanic rock; potential exists, however, for the development of the country's petroleum industry. All other mineral product requirements were imported.

The Joint Development Zone (JDZ), which is an overlapping maritime boundary between Nigeria and Sao Tome e Principe, was divided into nine blocks in 2003, and a licensing round

was opened for bids in 2004. Nigeria (60%) and Sao Tome e Principe (40%) jointly operate the JDZ. In May 2005, ERHC Energy Inc. (ERHC) (formerly known as Environmental Remediation Holding Corporation; the name was changed in February 2005) was awarded exploration rights within the JDZ for Blocks 2, 3, 4, 5, and 6 (ERHC Energy Inc., 2005§). In February 2005, ChevronTexaco JDZ announced that it had signed a production-sharing agreement for Block 1, which had been awarded in April 2004 by the Nigeria-Sao Tome e Principe Joint Development Authority. ChevronTexaco JDZ was a joint venture of ChevronTexaco Corp. of the United States (51%), Esso Exploration and Production Nigeria-Sao Tome "One" Ltd. (40%), and Dangote Energy Equity Resources Ltd. (9%), which was in turn a joint venture of the Dangote Group of Nigeria and Energy Equity Resources AS of Norway (ChevronTexaco Corp., 2005).

More-extensive coverage of the mineral industry of Sao Tome e Principe can be found in the 2003 and 2004 U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Africa and the Middle East, which are available on the Internet at URL <http://minerals.usgs.gov/minerals/pubs/country>.

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- ChevronTexaco Corp., 2005, Chevron Texaco and its co-venturers sign production sharing contract on block 1 of Nigeria and São Tomé and Príncipe joint development zone: Lagos, Nigeria, ChevronTexaco Corp. press release, February 1, 1 p.

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- ERHC Energy Inc., 2005, Recent activity, accessed June 29, 2006, at URL <http://www.erhc.com/RecentActivity.htm>.

TABLE 1  
BENIN AND BURKINA FASO: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Country and commodity	2001	2002	2003	2004 <sup>c</sup>	2005 <sup>c</sup>
<b>BENIN</b>					
Cement, hydraulic	250,000	250,000	250,000	250,000	250,000
Clay <sup>c</sup>	17,716 <sup>3</sup>	19,000	21,000	21,000	21,000
Gold	16	20 <sup>c</sup>	20	20	20
Gravel	24,675	26,000 <sup>c</sup>	28,500	29,000	29,000
<b>BURKINA FASO<sup>2</sup></b>					
Cement <sup>c</sup>	50,000	30,000 <sup>c</sup>	30,000	30,000	30,000
Dolomite <sup>c</sup>	3,000	3,000	3,000	3,000	3,000
Gold	229	209	770	1,125 <sup>3</sup>	1,397 <sup>3</sup>
Granite <sup>c</sup>	280,000	300,000	300,000	300,000	300,000
Phosphate rock:					
Gross weight	1,010	2,350	2,400 <sup>c</sup>	2,400	2,400
P <sub>2</sub> O <sub>5</sub> content	280	650	650 <sup>c</sup>	650	650
Pumice and related volcanic materials <sup>c</sup>	10,000	10,000	10,000	10,000	10,000
Salt <sup>c</sup>	5,000	5,000	5,000	5,000	5,000
Stone, marble <sup>c</sup>	100,000	100,000	100,000	100,000	100,000

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

<sup>1</sup>Table includes data available through May 22, 2006.

<sup>2</sup>In addition to the commodities listed, sand and gravel and other construction materials are produced, but information is inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

TABLE 2  
BENIN: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Metric tons)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Société des Ciments d'Onigbolo (Amida Group, 100%)	Onigbolo plant	450,000 cement; 500,000 clinker.
Do.	Ciments du Benin S.A. (Scancem International of Norway, 48.7%)	Cotonou plant	275,000 cement.
Do.	Société des Ciments du Benin (Government, 50%, and private, 50%)	do.	200,000 cement.