



# 2010 Minerals Yearbook

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CENTRAL AFRICAN REPUBLIC, CÔTE D'IVOIRE,  
AND TOGO

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# THE MINERAL INDUSTRIES OF CENTRAL AFRICAN REPUBLIC, CÔTE D'IVOIRE, AND TOGO

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## CENTRAL AFRICAN REPUBLIC

In 2010, Central Africa Republic was ranked 14th among the world's leading producers of rough diamond, by volume, and 12th among the world's leading producers of rough diamond, by value. The country also produced gold. Information was not available to determine whether the country continued to produce clay, limestone, and sand and gravel. The country's undeveloped mineral resources included copper, graphite, ilmenite, iron ore, kyanite, lignite, manganese, monazite, quartz, rutile, salt, tin, and uranium. On November 18, 2010, Central African Republic submitted its final validation report to the Extractive Industries Transparency Initiative (EITI) board. The EITI is a voluntary global compact established in 2002 that is aimed at strengthening good governance by improving economic transparency and accountability in the mining sector (Extractive Industries Transparency Initiative, 2011; Kimberley Process Certification Scheme, 2011).

Central Africa Republic's exports to the United States were valued at about \$5.6 million in 2010 compared with about \$3.4 million in 2009; rough diamond accounted for \$3.3 million of these exports. Imports from the United States were valued at about \$10.3 million in 2010 compared with about \$31.4 million in 2009. This total included nearly \$2.7 for drilling and oilfield equipment and \$12,000 for excavating machinery (U.S. Census, 2011a, b).

### Production

Production of gold and diamond, which was mostly artisanal, came from the regions of Berberati, Haute-Kotto, and Haute-Sangha. Data on mineral production are in table 1.

### Structure of the Mineral Industry

The Ministry of Mines, Energy and Water is the Government agency responsible for the mining sector. Production and trade of diamond and gold are overseen by the Bureau d'Evaluation et de Contrôle de Diamant et d'Or (BECDOR). BECDOR maintains the country's diamond and gold production database and assesses the value of diamond parcels that come from the various diamond exporting companies (collectively known as bureaux d'achat) that operate in the country.

### Commodity Review

#### Metals

**Gold.**—In August, AXMIN Inc. of Canada was granted a 25-year mining license to develop the Passendro gold project.

AXMIN held a 100% interest in Passendro, which is located within the Bambari concession area about 60 kilometers (km) from the town of Bambari. The Government also granted Axmin 3-year renewable exploration licenses for the Bambari 1 and Bambari 2 concessions, which surround the mining license and cover about 90 km of strike along the Bambari greenstone belt. In January 2011, the company announced positive results for the revalidated feasibility study, which was originally completed during the 2008 bankable feasibility study. The study estimated an average production of about 6,400 kilograms per year (kg/yr) during its first 3 years and an estimated mine life of 8.3 years. Total measured and indicated resources at Passendro were reported to be 31.5 million metric tons (Mt) at an average grade of 2.0 grams per metric ton (g/t) gold, and total inferred mineral reserves were estimated to be 21.7 Mt at an average grade of 1.6 g/t gold (Axmin Inc., 2011, p. 4–7).

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## CÔTE D'IVOIRE

Mineral commodities produced in Côte d'Ivoire included cement, gold, manganese ore, natural gas, crude petroleum, and petroleum products. In addition to these commodities, the country produced clay, crushed stone, diamond, sand and gravel, and sulfuric acid, but information was inadequate to make reliable estimates of output. Information was not available to determine whether the country continued to produce niobium and tantalum from columbite-bearing ores. Undeveloped mineral resources included bauxite, cobalt, copper, iron ore, nickel, and silica sand. On October 15, 2010, the United Nations renewed once again the ban on rough diamond trade that it had imposed on the country since 2005. The measure was to be reviewed again on April 30, 2011 (United Nations Security Council, 2010).

Côte d'Ivoire's exports to the United States were valued at about \$1.2 billion in 2010 compared with about \$745 million in 2009. These included nearly \$230 million of crude petroleum and \$61 million of fuel oil. Imports from the United States were valued at about \$163 million in 2010 compared with about \$206 million in 2009. These included nearly \$8.3 million of drilling and oilfield equipment, \$7 million of excavating machinery, and \$1.1 million of petroleum products (U.S. Census Bureau, 2011a, b).

## Production

In 2010, crude petroleum production decreased by an estimated 24% to 16,400 million barrels (Mbbbl) compared with about 21,500 Mbbbl in 2009, and gold production, by 24% to 5,310 kilograms (kg) from 6,947 kg produced in 2009. Data on mineral production are in table 1.

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

## Commodity Review

### Metals

**Gold.**—The Angovia Mine, which is located about 40 km northwest of Yamoussoukro, produced a total of 629 kg of gold compared with 673 kg in 2009. Cluff Gold plc of the United Kingdom operated the mine through its 90%-owned subsidiary Yaouré Mining SA. The remaining 10% ownership was held by the Government. Cluff Gold attributed the decrease in production to the heavy and prolonged wet season, which delayed the commissioning of the crushing circuit, and the deterioration of the political environment at yearend. The company planned to continue with its ongoing exploration program, which would focus on a 31,000-meter reverse-circulation and rotary air-blast drilling program to extend the mine life of the oxide operation (Cluff Gold plc, 2011a, p. 18–19; b).

The Bonikro gold mine, which is located in south-central Côte d'Ivoire about 240 km northwest of the capital city of Abidjan, produced a total of 2,651 kg of gold in 2010 compared with 4,666 kg in 2009. In September, Newcrest Mining Ltd. of Australia announced its merger with Lihir Gold Ltd., which included the 90% ownership of the Bonikro operations. As of December, total indicated and inferred mineral resources were estimated to be 55 Mt at an average grade of 1.2 g/t gold. On December 21, Newcrest cut back its mine activities to a minimum owing to the political uncertainty in the country (Newcrest Mining Ltd., 2010, 2011a, b).

Gold production from the Ity gold mine decreased by 28% to 1,155 kg of gold compared with 1,608 kg in 2009. The mine was operated by Société des Mines d'Ity, which was a joint venture of La Mancha Resources Inc. of Canada (45.9%), Société pour le Développement Minier (44.1%), and the Government (10%). The company attributed the decrease in production to the scheduled construction of the new heap leaching pads and the related plant relocation, unusual amounts of heavy precipitation

during the period from July to October, and the temporary interruption of the mine activities in December owing to the political uncertainty in the country. The joint venture envisioned that production would increase to 1,630 kg in 2011; however, owing to political uncertainty in the country, the company issued a production guidance of about 810 kg to 1,400 kg for 2011 (La Mancha Resources Inc., 2011, p. 7–8).

The Tongon Mine, which is located within the company's Nielle exploration permit in northern Côte d'Ivoire about 55 km south of the border with Mali, produced a total of 875 kg of gold during the year. The mine, which began production in the fourth quarter of 2010, was operated by London-based Randgold Resources Ltd. through its 89%-owned subsidiary Société des Mines de Tongon SA. The remaining 10% and 1% ownership were held by the Government and a local Ivorian company (name not disclosed), respectively. The open pit mine had an estimated mine life of 10 years and included the North Zone (NZ) and the South Zone (SZ) main pits. The NZ and the SZ pits were expected to be mined from 2010 to 2016 and from 2015 to 2019, respectively. Total measured and indicated mineral resources at Tongon were estimated to be 37.26 Mt at an average grade of 2.75 g/t gold, and total inferred mineral resources were estimated to be 9.67 Mt at an average grade of 3.00 g/t gold. The Tongon plant had the capacity to process 3.6 metric tons per year of oxide, transition, and sulfide ores. As of yearend 2010, the company reported that 729 kg of gold remained unsold owing to the political situation in the country. The Tongon Mine was expected to produce between about 8,100 kg and 8,400 kg in 2011 (Randgold Resources Ltd., 2011, p. 26–29).

### Minerals Fuels

**Petroleum.**—On October 22, Total S.A. of France announced the signing of an agreement with Côte d'Ivoire-based Yam's Petroleum, which included the acquisition of 60% interest in the CI-100 deepwater exploration license. Yam's held 25% interest, and the remaining 15% interest was held by the national oil company, Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (Petroci Holding). The CI-100 Block covers an area of about 2,000 square kilometers (km<sup>2</sup>) and is located about 100 km southeast of Abidjan. An initial three-dimensional seismic survey was conducted by Yam's, and a new 1,000-km<sup>2</sup> three-dimensional seismic survey was planned to cover the remaining area. Total, which was the operator, expected its first exploration drilling in 2012 (Total S.A., 2010).

Côte d'Ivoire had one petroleum refinery, which produced about 80,000 barrels per day (bbl/d). The Société Ivoirienne de Raffinage expected to work at minimum capacity or to put its operations on hold in 2011 owing to the political uncertainty in the country and the disruption in its supplies of crude (Thomson Reuters, 2011).

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## TOGO

In 2010, Togo was ranked 14th among the world's leading producers of phosphate rock, by volume. Other mineral commodities produced in the country included cement, clinker, diamond, gold, and limestone. Undeveloped mineral resources included bauxite, gypsum, iron ore, manganese, marble, rutile, and zinc. On October 19, 2010, Togo was accepted as a candidate country to join the EITI. Togo had until April 18, 2013, to complete an "EITI Validation," which is an independent assessment of compliance with the EITI requirements (Extractive Industries Transparency Initiative, 2010; 2011; Jasinski, 2011).

Togo's exports to the United States were valued at about \$9 million in 2010 compared with about \$6 million in 2009. Imports from the United States were valued at about \$170 million in 2010 compared with about \$125 million in 2009.

These included nearly \$32 million of petroleum products, \$3 million of excavating machinery, and \$127,000 of drilling and oilfield equipment (U.S. Census Bureau, 2011a, b).

## Production

Data on mineral production are in table 1.

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

## Commodity Review

### *Minerals Fuels*

**Petroleum.**—The Government was in the process of developing the country's offshore mineral resources. In October, Eni S.p.A. of Italy signed two production-sharing contracts with the Government to acquire a 100% interest in and operatorship of offshore Block 1 and Block 2 in the Dahomey Basin, which is located in the Gulf of Guinea. The company planned to conduct exploration activities; however, no further details as to when this might take place were available (Eni S.p.A., 2010).

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TABLE 1  
CENTRAL AFRICAN REPUBLIC, CÔTE D'IVOIRE, AND TOGO: ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Country and commodity	2006	2007	2008	2009	2010
<b>CENTRAL AFRICAN REPUBLIC<sup>3</sup></b>					
Clay	78,886 <sup>4</sup>	79,000	79,000	NA	NA
Diamond <sup>5</sup>	carats 419,528 <sup>4</sup>	467,711 <sup>4</sup>	377,209 <sup>4</sup>	311,779 <sup>4</sup>	301,557 <sup>4</sup>
Gold, mine output, Au content	kilograms 10 <sup>4</sup>	10	43 <sup>4</sup>	61 <sup>4</sup>	60 <sup>4</sup>
Limestone	85,000 <sup>4</sup>	85,000	85,000	NA	NA
Sand and gravel	172,436 <sup>4</sup>	173,000	170,000	NA	NA
<b>CÔTE D'IVOIRE<sup>6</sup></b>					
Cement <sup>7</sup>	360,297	468,767	360,034	283,400 <sup>4</sup>	283,000
Columbium (niobium) and tantalum:					
Columbite	kilograms 130	130	130	NA	NA
Tantalite	do. 400	400	400	NA	NA
Diamond <sup>8</sup>	carats --	--	--	--	--
Gold, mine output, Au content <sup>9</sup>	kilograms 1,324 <sup>4</sup>	1,243 <sup>4</sup>	4,205 <sup>4</sup>	6,947	5,310 <sup>4</sup>
Gravel and crushed stone <sup>10</sup>	660,000	660,000	660,000	NA	NA
Manganese ore, gross weight	56,829 <sup>4</sup>	94,618 <sup>4,11</sup>	176,561 <sup>4,11</sup>	177,000	177,000
Natural gas	million cubic meters 2,200	1,574 <sup>4</sup>	1,600	1,600	1,600
Petroleum:					
Crude	thousand 42-gallon barrels 21,955 <sup>4</sup>	17,727 <sup>4</sup>	22,000	21,500	16,400
Refinery products	do. 19,000	19,000	19,000	NA	NA
Sand	173,000	173,000	173,000	NA	NA
Sulfuric acid	3,000	3,000	3,000	NA	NA
<b>TOGO</b>					
Cement:					
Clinker	1,200,000	1,200,000	906,176 <sup>4</sup>	1,050,198 <sup>4</sup>	1,000,000
Hydraulic <sup>12</sup>	800,000	800,000	800,000	NA	NA
Diamond	carats 28,176 <sup>4</sup>	17,362 <sup>4</sup>	8,787 <sup>4</sup>	125 <sup>4</sup>	96 <sup>4</sup>
Gold	kilograms 7,184	10,159	11,835 <sup>4</sup>	12,955 <sup>4</sup>	13,000 <sup>4</sup>
Limestone	2,400,000	2,400,000	1,823,539 <sup>4</sup>	1,704,280 <sup>4</sup>	1,700,000
Phosphate rock, beneficiated product:					
Gross weight	thousand metric tons 1,650	750	842 <sup>4</sup>	726 <sup>4</sup>	720
P <sub>2</sub> O <sub>5</sub> content	do. 590 <sup>4</sup>	270	303	260	260

do. Ditto. NA Not available. -- Zero.

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

<sup>2</sup>Table includes data available through October 24, 2011.

<sup>3</sup>In addition to the commodities listed, Central African Republic produced quartz crystals, but information is inadequate to make reliable estimates of output.

<sup>4</sup>Reported figure.

<sup>5</sup>Production is approximately 70% to 80% gem quality.

<sup>6</sup>In addition to the commodities listed, Côte d'Ivoire produced clay and crushed granite, but information is inadequate to make reliable estimates of output.

<sup>7</sup>Based on reported exports of hydraulic cement.

<sup>8</sup>Côte d'Ivoire's production of diamond has been under United Nations sanctions since 2004.

<sup>9</sup>Does not include production from artisanal mining.

<sup>10</sup>Based on reported crushed stone and gravel exports.

<sup>11</sup>Based on reported manganese ore exports.

<sup>12</sup>Includes cement produced from imported clinker.

TABLE 2  
CÔTE D'IVOIRE AND TOGO: STRUCTURE OF THE MINERAL INDUSTRIES IN 2010

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>CÔTE D'IVOIRE</b>				
Cement		Société des Ciments d'Abidjan	Abidjan plant	750,000.
Do.		Société des Ciments du Sud-Ouest	San Pedro	100,000.
Do.		Société de Ciments et Matériaux (Holcim Ltd.)	Abidjan plant	800,000.
Gold	kilograms	Equigold Mines CI SA (Newcrest Mining Ltd., 85%, and Government, 10%)	Bonikro Mine, 240 kilometers northwest of Abidjan	5,000.
Do.	do.	Société des Mines d'Ity (La Mancha Resources Inc., 45.9%; Société pour le Développement Minier, 44.1%; Government, 10%)	Ity Mine, 700 kilometers from Abidjan	1,900.
Do.	do.	Société des Mines de Tongon SA (Randgold Resources Ltd., 89%; Government, 10%; local Ivorian company, 1%)	Tongon Mine, northern Côte d'Ivoire, 55 kilometers south of the border with Mali	9,000.
Do.	do.	Yaouré Mining SA (Cluff Gold plc, 90%, and Government, 10%)	Angovia Mine, 40 kilometers northwest of Yamoussoukro	1,240.
Manganese	do.	Compagnie Minière du Littoral (Société pour le Développement Minier de la Côte d'Ivoire, 51%; China National Geological and Mining Corp., 39%; private interests, 10%)	Lauzoua Mine, 180 kilometers west of Abidjan	150,000.
Do.	do.	Dharni Sampda Private Ltd.	Bondoukou Mine	NA. <sup>1</sup>
Petroleum, crude	thousand 42-gallon barrels	Canadian Natural Resources Ltd., 57.61%; Svenska Petroleum Exploration AS, 27.39%; Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (Petroci), 15%	Baobab oilfield, offshore	17,520.
Do.	do.	Canadian Natural Resources Ltd., 58.67%; Tullow Oil plc, 21.33%; Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire, 20%	East Espoir oilfield, offshore	6,700.
Petroleum products	42-gallon barrels per day	Société Ivoirienne de Raffinage (Government, 100%)	Abidjan	60,000.
<b>TOGO</b>				
Cement		Société de Ciments du Togo (HeidelbergCement AG, 93.59%)	Lome plant	700,000 cement.
Do.		West Africa Cement Co.	Tabligbo	1,000,000 cement; 1,200,000 clinker.
Limestone		Ciments de l'Afrique de l'Ouest	do.	2,400,000.
Phosphate rock		Société Nouvelle des Phosphates du Togo	Akoumape and Hahotue	2,000,000.

Do., do. Ditto. NA Not available.

<sup>1</sup>It was not clear whether the mine was operational in 2010. The Government granted the operating company a special authorization to export an initial 50,000 metric tons of manganese ore during the exploration stage.