



# 2011 Minerals Yearbook

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## CONGO (BRAZZAVILLE)

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# THE MINERAL INDUSTRY OF CONGO (BRAZZAVILLE)

By Philip M. Mobbs

The economy of the Republic of the Congo, also known as Congo (Brazzaville), was based primarily on the production of crude oil, which was estimated to account for 69% of the nominal gross domestic product in 2011. Petroleum was estimated to account for 79% of total Government revenues, but many of the oilfields were mature. In the short term, decreased production from the older fields was expected to be offset by new offshore fields. International interest in the development of the solid mineral resources of Congo (Brazzaville) has increased in recent years, with much of the focus on the country's iron ore and potash resources (International Monetary Fund, 2012).

## Production

Most of Congo (Brazzaville)'s hydrocarbons were produced from offshore fields, but much of the produced natural gas was flared because of the lack of gas-gathering infrastructure. Congo (Brazzaville) ranked seventh in terms of the volume among African crude oil producers in 2011 (BP p.l.c., 2012, p. 10).

Production statistics obtained from the Kimberley Process Certification Scheme (KPCS) indicated that diamond output decreased by 80% in 2011 compared with that of 2010. Cement output also was estimated to have decreased (table 1; Kimberley Process Certification Scheme, 2012).

## Structure of the Mineral Industry

The mineral sector is under the jurisdiction of the Ministère des Mines et de la Géologie. Mining is regulated by the Code Minier (law No. 4–2005), which requires that a Congolese-based company operate exploitation licenses. Article 100 of the Code entitles the Government to a free (carried) equity interest of not less than 10% in mining operations. Decree No. 2007–274 sets the conditions for prospecting, exploration, and exploitation of minerals, and Decree No. 2007–293 addresses quarrying issues.

In recent years, small-scale artisanal miners dominated the diamond and gold mining sector, and small-scale domestic operations quarried construction materials, such as gravel, sand, and stone. Aside from Société de Recherche et d'Exploitation Minière S.A. (SOREMI)'s Grande copper mine, international mining companies' activities consisted primarily of exploration of occurrences of gold, iron ore, and potash. Congo (Brazzaville) was a participant in the KPCS and remained a candidate country of the Extractive Industries Transparency Initiative (Secrétariat pour l'Évaluation Environnementale en Afrique Centrale, 2010, Annex 17; Extractive Industries Transparency Initiative, undated).

The Ministère des Hydrocarbures oversees activity in the hydrocarbon sector. The sector is regulated by the Code des Hydrocarbures (law No. 24–1994). Procedures for awarding oil and gas exploitation licenses are set out in Decree No. 2008–15. State-owned Société Nationale des Pétroles du Congo (SNPC) manages the Government's interest in petroleum production and

refining and natural gas production and processing. International oil companies operate many of the oilfields (table 2).

## Commodity Review

### Metals

**Copper, Gold, Lead, and Zinc.**—SOREMI, which was a subsidiary of Gerald Metals, Inc. of the United States (90% equity interest) and the Government (10%), operated the Grande Mines at Boko Songo and continued with the development of the Yanga Koubanza lead-zinc project. La Société LULU, which was a subsidiary of a Chinese company, received operating permits to reopen base-metal mines on the Mindouli Mpassa prospect.

In September, Africa Holdings Ltd. of the United Kingdom acquired the Congo (Brazzaville) subsidiary of NGEx Resources Inc. of Canada, which was exploring for copper, lead, and zinc. Congo Gold S.A. was exploring its gold permit, which included the Kakamoeka Poumbou prospect. Exploration of the Malambani gold concession was resumed in March by Zamarat Mining Ltd. of the United Kingdom, which was then in the process of acquiring a 34% equity interest in Compagnie Minière du Chaillu from Mexivada Mining Corp. of Canada. Zamarat, however, ceased activity in mid-2011, and its option to acquire up to 70% interest in Mexivada's exploration and prospecting permits for gold and associated minerals (such as diamond) lapsed at yearend. The Government did not renew Compagnie Minière du Chaillu's permits owing to the lack of activity on the properties (Mexivada Mining Corp., 2012, p. 10).

**Iron Ore.**—Iron ore exploration took place primarily in the Invindo Massif area, which is located in Cuvette-Ouest and Sangha Departments in northwestern Congo (Brazzaville), and in the Massif du Chaillu area, which is located in Lekoumou and Niari Department in southwestern Congo (Brazzaville). In January, Sterling Minerals Ltd. of Australia changed its name to African Iron Ltd. after acquiring DMC Mining Ltd. from Cape Lambert Resources Ltd. of Australia. DMC Mining held 80% equity interest in DMC Iron Congo S.A.R.L., which continued its exploration of the Mayoko iron ore project, which is located in Niari Department. DMC Mining subsequently increased its interest in DMC Iron Congo S.A.R.L. to 92% and also acquired 85% interest in the Ngoubou-Ngoubou project, which is located adjacent to the Mayoko project. In October, African Iron reported an updated mineral resource estimate for the Mount Lekoumou prospect of the Mayoko project of 77.3 million metric tons (Mt) of an itabirite ore grading 40.6% iron, 33.9% silica dioxide, 3.4% aluminum oxide, and 0.07% phosphorus; and 43.5 Mt of a hematite ore grading of 54.9% iron, 11.8% silica dioxide, 4% aluminum oxide, and 0.1% phosphorus. The hematite was expected to be developed as a direct-shipping ore. The itabirite (which was in a metamorphosed banded iron formation that contained hematite, magnetite, and martite) was

expected to be beneficiated (crushed and screened) prior to shipping. The project was expected to transport the beneficiated product and the ore by rail; a freight railway was located about 2 kilometers (km) northwest of the Mount Lekoumou prospect. African Iron planned to develop an initial 5-million-metric-ton-per-year (Mt/yr)-capacity direct-shipping ore operation by mid-2013. In January 2012, however, Exxaro Resources Ltd. of South Africa announced its intention to take over African Iron and the Mayoko and the Ngoubou-Ngoubou projects (African Iron Ltd., 2011a, p. 1–3; 2011b, p. 2–3, 9).

In 2011, Core Mining Congo S.A.R.L., which was a subsidiary of Core Mining Ltd. of the United Kingdom, continued to drill the Avima project in Sangha Department. The company reported an initial inferred mineral resource estimate for the Avima project of 557 Mt of an itabirite-rich ore grading 40.3% iron, 29.6% silica dioxide, 7.61% aluminum oxide, and 0.08% phosphorus; and 455 Mt of a hematite-rich ore grading 56.1% iron, 10.1% silica dioxide, about 5.7% aluminum oxide, and 0.08% phosphorus. In 2012, Core Mining expected to continue drilling and to complete a prefeasibility study. Subject to a positive bankable feasibility study, the availability of funding, and Government approval, Core Mining projected that initial iron ore production would begin in 2016 (Core Mining Ltd., 2011; undated).

In April, Equatorial Resources Ltd. initiated a 33,000-meter (m) diamond and reverse-circulation drill program on the Mayoko-Moussondji project in southwestern Congo (Brazzaville) that was expected to be completed in 2012. Equatorial also acquired two iron ore prospecting permits adjacent to the Mayoko-Moussondji project—the Moussondji (which was located to the west) and the Oubouesse (which was located to the south). Equatorial planned to begin a drill program on its Balondo prospect in Sangha Department in 2012 (Equatorial Resources Ltd., 2012, p. 3, 8).

Sundance Resources Ltd. of Australia continued work on the Mbalam project, which included the Mbarga, the Mbarga South, and the Metzimevin deposits in Cameroon, and the Nabeba prospect in Sangha Department, Congo (Brazzaville). Nabeba was expected to be developed as part of the Mbalam project. Sundance reported updated reserves for the Mbarga, the Mbarga South, and the Nabeba deposits of 353 Mt of hematite ore with average grades of 62.4% iron, 5% silica dioxide, 2.6% aluminum oxide, and 0.09% phosphorus, of which 230 Mt was attributed to the Nabeba deposit. A drilling program to outline itabirite resources on the Nabeba deposit began in late 2011. In October, Hanlong Mining Investment Ltd. of China announced its intention to acquire 100% equity interest in Sundance (Sundance Resources Ltd., 2012, p. 5–6).

Waratah Gold Ltd. of Australia changed its name to Waratah Resources Ltd. Afriresources Congo S.A., in which Waratah Resources held 90% interest, continued preliminary exploration of the Youkou iron ore project, which is located in Cuvette-Ouest Department. Afriresources Congo expected to begin drilling the Youkou prospect in 2012. In 2011, Waratah Resources acquired 80% interest in the Okanabora exploration license, which is located about 100 km south of the Youkou project in Congo (Brazzaville), and its subsidiary Waratah Gabon S.A. acquired the Fer Mekambo-Est iron ore

permit, which is located in Gabon directly west of the Youkou project.

In 2011, Xstrata plc of Switzerland exercised its option to acquire 50% plus 1 share equity interest and assumed management of the Zanaga iron ore project, which is located about 300 km northeast of Pointe Noire in Lekoumou Department; Zanaga Iron Ore Company Ltd. of the United Kingdom (ZIOC) retained 50% less 1 share equity interest in the project. In 2011, 48,292 m of reverse-circulation drilling and 46,822 m of diamond drilling was completed, and ZIOC reported an update of the project's mineral resources to 4,338 Mt of ore with an average grade of 33% iron, 44.3% silica dioxide, 3.3% aluminum oxide, 0.114% manganese, and 0.049% phosphorus. Xstrata was studying two development options, which included a 45-Mt/yr-capacity option to transport iron ore fines and magnetite concentrate by rail and a 30-Mt/yr option to ship iron ore pellets by a slurry pipeline. A bankable feasibility study was planned to be completed in 2014, when Xstrata could exercise an option to acquire 100% equity interest in the project. Initial production was expected to begin in late 2016 (Zanaga Iron Ore Company Ltd., 2012a, p. 5, inside back cover; 2012b, p. 5, 7).

### *Industrial Minerals*

**Phosphate Rock.**—In 2011, Cominco Resources S.A., which was a subsidiary of Cominco Resources Ltd. of the United Kingdom (formerly African Investments Group Congo), completed a 19,866-m reverse-circulation drill program and a 1,028-m diamond-bit (core) drill program on the Hinda project, which includes the Hinda and the Kolatchikanou phosphate and uranium permits. The Hinda phosphate permit, which is located east of the area covered by the Mengo exploration permit, was issued in February, and the Kolatchikanou phosphate permit, which is located east of the area covered by the Sintoukola exploration permits, was issued later in 2011 (Cominco Resources Ltd., 2012, p. 10).

**Potash.**—La Société des Potasses et des Mines S.A., in which Patagonia Capital Ltd. of Mauritania held 70% interest, acquired a 12-month prospecting permit for the Lake Dinga potash project. The project was located east of the Kolatchikanou exploration permit.

MagMinerals Inc., which was a division of MagIndustries Corp. of Canada, continued negotiations to secure financing for the development of the Mengo exploitation permit and the Kouilou potash processing facility. In February, TSC Capital Ltd. of Taiwan withdrew its offer to acquire up to 55% equity interest in MagIndustries. In April, Evergreen Resources Holding Ltd. of the United Kingdom, which was a subsidiary of Evergreen Industries Holding Group Company, Ltd. of China, agreed to acquire MagIndustries. The friendly takeover effectively was completed in July. MagMinerals anticipated that its new Chinese ownership would improve its ability to obtain project funding from Chinese policy banks, such as the Export-Import Bank of China (MagIndustries Corp., 2012, p. 1–2, 7).

In 2011, Sintoukola Potash S.A. started a prefeasibility study and continued a delineation drilling program on the Sintoukola

potash exploration license, which is located about 55 km northwest of Point Noire. Elemental Minerals Ltd. of Australia held 93% of the equity in Sintoukola Potash with partners Les Etablissements Congolais MGM (5%), and Tanaka Resources (Proprietary) Ltd. (2%).

## Outlook

Despite the continued decline in production from older oilfields, the petroleum sector is expected to remain the cornerstone of Congo (Brazzaville)'s economy for the immediate future in part because of new deepwater oilfields coming onstream. Development of iron ore deposits and the redevelopment of coastal potash deposits are expected to lead to the diversification of the national economy from its dependence on petroleum (Ministry of Planning and Territorial Development, 2010, p. 18–29; International Monetary Fund, 2012).

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TABLE 1  
CONGO (BRAZZAVILLE): ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

Commodity <sup>3</sup>	2007	2008	2009	2010	2011	
Cement	metric tons	100,000	105,000	110,000	80,000	70,000
Diamond <sup>4</sup>	carats	22,000	110,000	68,000	381,242	76,548
Gold, mine output, Au content	kilograms	100	100	100	150	150
Lime	metric tons	400	400	400	400	400
Liquid petroleum gas <sup>5</sup>	thousand 42-gallon barrels	1,016 <sup>4</sup>	1,610 <sup>4</sup>	2,469 <sup>4</sup>	1,300	1,400
Petroleum:						
Crude <sup>4</sup>	do.	80,692	85,037	99,348	107,000	108,000
Refined	do.	3,500	2,500	3,000	5,000	5,000

do. Ditto.

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

<sup>2</sup>Table includes data available through September 7, 2012.

<sup>3</sup>In addition to the commodities listed, copper, crude construction materials (for example, clay, sand and gravel, and stone), lead, and zinc were produced, but available information is inadequate to make reliable estimates of output. Natural gas is also produced, but output is flared, reinjected, or vented.

<sup>4</sup>Reported figure.

<sup>5</sup>Includes butane and propane.

TABLE 2  
CONGO (BRAZZAVILLE): STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand 42-gallon barrels unless otherwise specified)

Commodity		Major operating companies and and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Cement	metric tons	Société Nouvelle des Ciments du Congo (SONOCC) (Société Nationale Chinoise des Travaux des Ponts et Chaussées, 56%, and Government, 44%)	Loutete	210,000
Copper	do.	Société de Recherche et d'Exploitation Minière S.A. (SOREMI) (Gerald Metals, Inc., 90%, and Government, 10%)	Grande Mines, Boko Songo	NA
Diamond	carats	Artisanal production	Kouilou, Lekoumou, Likouala, Niari, and West Cuvette Departments	400,000
Gold	kilograms	do.	Various locations	150
Liquefied petroleum gas		Total Exploration & Production Congo, 53.5%; Chevron Overseas (Congo) Ltd., 31.5%; Société Nationale des Pétroles du Congo (SNPC), 15%	Nkossa platform, offshore	3,000
Petroleum:				
Crude		CMS NOMECCO Congo [Société Nationale de Recherche et d'Exploration Pétrolière, 50%; Perenco Group, 25%; Nuevo Congo Co., 18.75%; Kuwait Foreign Petroleum Exploration Co. (K.S.C.), 6.25%]	Yombo field, offshore	3,600
Do.		Congorep [Perenco Group, 51%, and Société Nationale des Pétroles du Congo (SNPC), 49%]	Emeraude field, offshore	4,400
Do.		Eni Congo S.A., 100%	Ikalou/Ikalou Sud fields, offshore	3,000
Do.		Eni Congo S.A., 90%	Awa/Paloukou field, offshore	4,000
Do.		Eni Congo S.A., 74%; Korea National Oil Co., 11%; Société Nationale des Pétroles du Congo (SNPC), 8.8%	M'Boundi field, onshore	20,000
Do.		Eni Congo S.A., 35.75%; Société Nationale des Pétroles du Congo (SNPC), 35%; Chevron Overseas (Congo) Ltd., 29.25%	Kitina field, offshore	15,000
Do.		Eni Congo S.A., 65%, and Société Nationale des Pétroles du Congo (SNPC), 35%	Djambala, Foukanda, and Mwafi fields, offshore	7,300
Do.		Eni Congo S.A., 65%, and Total Exploration & Production Congo, 35%	Zatchi field offshore	7,600
Do.		Eni Congo S.A., 50%, and Total Exploration & Production Congo, 50%	Loango field, offshore	6,500
Do.		Likouala S.A., 65%, and Eni Congo S.A., 35%	Likouala field, offshore	3,800
Do.		Murphy Oil Corp., 50%; PA Resources AB, 35%; Société Nationale de Recherche et d'Exploration Pétrolière (SNPC), 15%	Azurite field, offshore	12,000
Do.		Total Exploration & Production Congo, 53.5%; Chevron Overseas (Congo) Ltd., 31.5%; Société Nationale des Pétroles du Congo (SNPC), 15%	Moho-Bilondo field, offshore	32,000
Do.		do.	Nkossa and Nsoko fields, offshore	18,000
Do.		Total Exploration & Production Congo, 65%, and Eni Congo S.A., 35%	Kombi, Likalala, Tchibeli, and Tchibouela fields, offshore	25,000
Do.		do.	Tchendo field, offshore	3,000
Do.		Total Exploration & Production Congo, 55.25%; Eni Congo S.A., 29.75%; Société Nationale des Pétroles du Congo (SNPC), 15%	Sendji and Yanga fields, offshore	9,500
Refined products		Congolaise de Raffinage (CORAF) [Société Nationale des Pétroles du Congo (SNPC), 100%]	Pointe Noire	7,600

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.