



2009 Minerals Yearbook

CONGO (KINSHASA)

THE MINERAL INDUSTRY OF CONGO (KINSHASA)

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The Democratic Republic of the Congo [Congo (Kinshasa)] played a globally significant role in the world's production of cobalt, copper, diamond, tantalum, and tin. In 2009, the country's share of the world's cobalt production amounted to 40%; industrial diamond, 31%; tantalum, 9%; gem-quality diamond, 6%; tin, 4%; and copper, 2%. Congo (Kinshasa) accounted for about 52% of the world's cobalt reserves. Crude petroleum production also played a significant role in the domestic economy. The country was not a globally significant consumer of minerals or mineral fuels (Carlin, 2010; Edelstein, 2010; Olson, 2010a, b; Papp, 2010; Shedd, 2010).

Minerals in the National Economy

The mining and mineral processing sector accounted for an estimated 13.4% of the gross domestic product in 2008 (the latest year for which data were available), and the manufacturing sector, 4%. Employment in diamond mining and trading declined substantially in late 2008 because of the worldwide economic crisis. More than 20,000 artisanal miners were estimated to be involved in gold production in Nord-Kivu and Sud-Kivu Provinces in 2009 (Partnership Africa Canada, 2009; Spittaels and Hilgert, 2009; Ames and others, 2010, p. 6-7).

Government Policies and Programs

The Parliament of Congo (Kinshasa) passed a mining code in July 2002 that replaced Ordinance No. 81-013 of April 2, 1981. The revised code encourages private sector development of the mining industry; the principal role of the Government is to encourage and regulate the development of the industry. Mining rights are vested with the Government. Congo (Kinshasa) was a signatory to the Kimberley Process, which established a certification system in November 2002 to reduce the trade in conflict diamond.

In May 2007, the Government initiated a review of more than 60 previously negotiated mining contracts that were signed between 1998 and 2005. By December 2008, the Government decided to terminate 23 of the contracts; most of the remaining contracts were cleared as acceptable or were successfully renegotiated. By December 2009, four of the remaining six contracts had cleared the review process; the Government planned to draw up new agreements to replace the existing contracts with AngloGold Ashanti Ltd. of South Africa, Banro Corp. of Canada, Gold Fields Ltd. of South Africa, and Mwana Africa plc of the United Kingdom. The Government revoked the license for the Kolwezi Tailings project in August 2009; the contract for the Tenke Fungurume project remained unresolved at the end of 2009 (Mining Journal, 2010b).

Production

In 2009, the production of refined copper in Congo (Kinshasa) increased by an estimated 247%; sulfuric acid, by an estimated 227%; refined cobalt, by 106%; mined copper, by an estimated 24%; and petroleum, by 12%. Tin production decreased by an estimated 19%, and diamond, by 13%. Silver mine production ceased.

Structure of the Mineral Industry

La Générale des Carrières et des Mines (Gécamines), which was a state-owned company, produced cobalt and copper; other cobalt and copper mining companies were privately owned. The cement producers Cimenterie de Lukala and Interlacs were privately owned and Cimenterie Nationale SARL and Cemenkat were Government owned. The Government held an 80% share in the large-scale diamond producer Société Minière de Bakwanga (MIBA). Artisanal and small-scale miners accounted for most Congolese output of diamond, gold, niobium, tantalum, tin, and tungsten. Artisanal and small-scale miners also played a significant role in the country's cobalt mine production.

Mineral Trade

Exports were estimated to be about \$6.59 billion in 2008, and imports, \$6.71 billion. Cobalt accounted for 38% of the total value of exports; copper, 35%; crude petroleum, 12%; and diamond, 11%. Other notable mineral exports included gold, niobium, tantalum, tin, and tungsten. The share of diamond in total exports declined from nearly 61% in 2003, and crude petroleum, from 19%. Most of the decline was attributable to increased production of and prices for cobalt and copper; crude petroleum exports tripled in value from 2003 to 2008, and cobalt and copper exports increased at an even faster rate. Petroleum products accounted for nearly 12% of total imports in 2008 (Ames and others, 2010, p. 29-30).

Commodity Review

Metals

Aluminum.—BHP Billiton Ltd. of Australia was considering a joint venture with the Government to build a new aluminum smelter in Bas-Congo Province. The proposed smelter would have a capacity of 800,000 metric tons per year (t/yr) in its first phase and would consume electricity produced from between 1,600 and 2,500 megawatts (MW) of installed capacity from the proposed Inga 3 hydroelectric power station on the Congo River. The project depended on Government approval, the development of Inga 3, the negotiation of a purchase agreement for hydroelectric power, and a new deepwater port at Banana. Aluminum production could start in 2016 at the earliest.

The estimated cost of the smelter was \$3 billion, and the port, \$1 billion (International Rivers, 2010, p. 19-20).

Cobalt and Copper.—First Quantum Minerals Ltd. of Canada produced copper at the Frontier Mine. In 2009, production amounted to 92,353 metric tons (t) of copper in concentrate compared with 80,177 t in 2008 because of higher recovery rates and volumes of ore milled. Concentrates from the mine were refined in Zambia. The life of the Frontier Mine was estimated to be 15 years at current output (First Quantum Minerals Ltd., 2010, p. 10, 16-17).

The Lonshi open pit mine, which was shut down in the third quarter of 2008 after its reserves were depleted, remained closed in 2009. First Quantum spent about \$20 million on the Lonshi underground evaluation project in 2009. The company planned to ship ore stockpiles from Lonshi across the border with Zambia to the Bwana Mkubwa solvent extraction-electrowinning (SX/EW) facility in 2010; refined copper production from the Lonshi ore was expected to be about 9,600 t in 2010 (First Quantum Minerals Ltd., 2010, p. 18-19).

By August 2009, First Quantum had completed about 75% of the Kolwezi Tailings project. Production was expected to start at the company's SX/EW plant in May 2010 at a rate of 70,000 t/yr of refined copper and 7,000 t/yr of cobalt in cobalt hydroxide. In August, the Government cancelled First Quantum's license for the Kolwezi Tailings project. First Quantum appealed the Government's decision to the highest civil court in Congo (Kinshasa); the dispute remained unresolved at yearend (Darton Commodities Ltd., 2010, p. 8; First Quantum Minerals Ltd., 2010, p. 25, 30; Mining Journal, 2010b).

Mining at the Tenke Fungurume project started in the second quarter of 2009; output for 2009 amounted to 70,001 t of refined copper and 2,580 t of cobalt in cobalt hydroxide. The mine's capacity was 115,000 t/yr of refined copper and 8,000 t/yr of cobalt in cobalt hydroxide; feasibility studies to increase capacity by 50% were underway in the fourth quarter of 2009. Production could increase to 400,000 t/yr of copper in the second phase of the project. Tenke Fungurume was a joint venture of Freeport McMoran Copper & Gold Inc. of the United States (57.75%), Lundin Mining Corp. of Canada (24.75%), and Gécamines (17.5%) (Darton Commodities Ltd., 2010, p. 8; Lundin Mining Corp., 2010; Mining Journal, 2010b).

Katanga Mining Ltd. of Switzerland produced copper and cobalt at the KTO and T17 Mines and the Luilu refinery. In 2009, production was 41,964 t of refined copper and 2,534 t of cobalt metal compared with 22,211 t of refined copper and 749 t of cobalt metal in 2008. Katanga also produced 1,714 t of copper in concentrate compared with 4,489 t in 2008. Mining operations were suspended at Kananga and Tilwezembe in 2008 (Katanga Mining Ltd., 2010, p. 3, 7, 47).

Katanga planned to produce 82,500 t of refined copper and 5,500 t of cobalt metal in 2010. The company also planned to increase capacity at Luilu to 150,000 t/yr of copper and 8,000 t/yr of cobalt by the end of the second quarter of 2011. Copper capacity would be increased in increments of 20,000 t/yr every 6 months starting in the first quarter of 2010. Katanga planned subsequent capacity increases at Luilu; a new SX/EW plant was expected to increase refined copper capacity to 310,000 t/yr by 2015 (Katanga Mining Ltd., 2010, p. 35-36).

Ruashi Mining SPRL (Metorex Ltd. of South Africa, 75%) produced cobalt and copper from tailings near the Ruashi Mine until December 2008. The company started the second phase of the project in the second half of 2008, which involved mining the Ruashi ore body. Refined copper and cobalt carbonate were produced at a new SX/EW plant. In 2009, refined copper output amounted to 21,371 t, and contained cobalt, 2,198 t; production was constrained by financial liquidity issues. Metorex planned to produce 36,000 t/yr of refined copper and 4,500 t/yr of contained cobalt from 2010 to 2013. Capital costs of the second phase of the project were estimated to be \$335 million (Darton Commodities Ltd., 2010, p. 8; Metorex Ltd., 2009, p. 5, 19-20; 2010).

Copper Resources Corp. (CRC) of Australia (Metorex, 87%) held the Kinsenda Mine, which produced copper from 1977 to 2002. Metorex planned to reopen Kinsenda in 2010; the project was put on care-and-maintenance status in January 2009 because of increased dewatering and staff costs and constraints on cash flow. By mid-2009, Metorex was engaged in a new feasibility study on reopening Kinsenda (Metorex Ltd., 2009, p. 8, 14, 105).

Gécamines produced 14,006 t of copper in concentrate and 435 t of cobalt metal in 2009. The company's production was constrained by aging equipment; a lack of investment, fuel, and spare parts; and poor infrastructure. Gécamines' joint ventures included its partnerships with Enterprise Generale Malta Forrest SPRL to produce cobalt and copper at the Luiswishi open pit mine and La Société pour le Traitement du Terril de Lubumbashi's (STL) tailings treatment plant in Lubumbashi. The Luiswishi Mine reopened in 2009 after shutting down in late 2008. In 2009, contained copper production at Luiswishi decreased to 1,512 t from 11,204 t in 2008, and contained cobalt production decreased to 437 t from about 2,991 t. Contained cobalt output at STL decreased to 4,590 t in 2009 from 5,545 t in 2008; contained copper output decreased to 2,639 t from 3,113 t (La Générale des Carrières et des Mines, 2010; Société pour le Traitement du Terril de Lubumbashi, 2010).

Anvil Mining Ltd. of Australia held a 90% interest in the Dikulushi copper-silver mine, which is located near Lake Mweru in Katanga Province. In 2008, the mine produced 11,048 t of copper and 34,083 kilograms (kg) of silver before being placed on care-and-maintenance status in the fourth quarter. The Dikulushi Mine remained closed in 2009. In late 2009, Anvil announced plans to divest its interest in Dikulushi by April 2010 because of its plans to focus on the expansion of the Kinsevere Mine (Anvil Mining Ltd., 2010, p. 8-9, 14).

In late March 2009, Anvil reopened the Kinsevere Mine, which had been placed on care-and-maintenance status in November 2008 because of the worldwide economic crisis. Production at Kinsevere decreased to 16,406 t of copper in 2009 compared with 22,858 t in 2008. Anvil expected to produce 15,000 t of copper at Kinsevere in 2010. The company planned to complete a new SX/EW plant at Kinsevere with a capacity of 60,000 t/yr of refined copper in the first quarter of 2011; the plant was likely to reach full capacity in the third quarter of 2011. Production would shut down at the existing plant. Capital costs to complete the new plant were estimated to be about \$200 million (Anvil Mining Ltd., 2010, p. 2-4, 11, 14).

Anvil also held a 70% interest in the Mutoshi Mine. In 2008, the mine produced 7,448 t of copper before being placed on care-and-maintenance status in the fourth quarter; the mine remained closed in 2009 (Anvil Mining Ltd., 2010, p. 11, 14).

Chemaf SPRL started the production of refined copper at the Etoile Mine in 2007; the mine opened in 2005. The company produced 16,000 t/yr of copper cathode at its SX/EW plant; capacity was expected to increase to 30,000 t/yr by the end of 2010. Chemaf also produced cobalt carbonate and planned to open a new SX/EW plant with a capacity of 6,000 t/yr of refined cobalt by mid-2011 (Shalina Resources Ltd., 2009, undated).

Central African Mining and Exploration Company plc (CAMEC) of the United Kingdom restarted operations at its Luita SX/EW plant near Lubumbashi in April 2009 after shutting down in November 2008. The company resumed production because of increased copper prices and decreased sulfuric acid prices. The Luita plant was supplied by mines in the 467 and 469 concessions. In 2009, CAMEC produced 9,880 t of refined copper and 6,545 t of cobalt in concentrate compared with 10,091 t of copper and 5,599 t of cobalt in 2008 (Metal Bulletin, 2009; La Générale des Carrières et des Mines, 2010).

In November 2009, CAMEC was purchased by Eurasian Natural Resources Corporation plc (ENRC) of the United Kingdom. ENRC planned to increase cobalt (in hydroxide and metal) capacity to 8,000 t/yr by the first quarter of 2010, which included a new SX/EW plant with a capacity of 3,200 t/yr. The company also planned to increase refined copper production to 75,000 t/yr within 3 years (Darton Commodities Ltd., 2010, p. 5-6; Mining Journal, 2010a).

Rubamin SPRL (a subsidiary of Rubamin Ltd. of India) mined cobalt and copper in the Kolwezi and Likasi Districts in Katanga Province. The company opened its blister copper plant at Likasi with a capacity of 4,800 t/yr in May 2008; the plant's capacity was subsequently increased to 9,000 t/yr of copper blister and 1,000 t/yr of cobalt in concentrate (Rubamin Ltd., 2008, undated).

TEAL Exploration & Mining Inc. of Canada and Gécamines started mining operations at the Luputo property (formerly the Kalumines project) in May 2007. In fiscal year 2008-09, production at Luputo amounted to 2,396 t of copper, which was a decrease of about 60% compared with that of fiscal year 2007-08. By the end of fiscal year 2008-09, the mine was placed on care-and-maintenance status. Further exploration and resource definition work was planned at Luputo (TEAL Exploration & Mining Inc., 2008; African Rainbow Minerals Ltd., 2009, p. 62).

Tiger Resources Ltd. of Australia planned to produce 116,000 t of copper in concentrate at the Kipoi Central deposit over a period of 3 years. The new mine was expected to open in July 2010. The company also planned to start an 18-month feasibility study on the second stage of the project. Depending on the results of the study, Tiger could build a new SX/EW plant with a capacity of 30,000 t/yr. The capital costs of the first stage of the project were estimated to be about \$30 million (Alexander, 2009).

Gold.—Artisanal and small-scale miners produced gold in Ituri Province, Nord-Kivu Province, and Sud-Kivu Province in eastern Congo (Kinshasa). Most gold exports were undeclared;

reported gold exports from Sud-Kivu Province amounted to about 240 kilograms per year (kg/yr) (Global Witness, 2009b, p. 52).

Gold mines in the Fizi, the Kalehe, and the Mwenga Districts in Sud-Kivu Province were reportedly under the control of the Forces Démocratiques pour la Libération du Rwanda (FDLR). Illegal taxation of artisanal gold mining accounted for an estimated 75% of the FDLR's revenues. In mid-2009, the FDLR's mining operations were disrupted in Kalehe and Mwenga by Congolese military forces, who subsequently took control of the mines. The FDLR maintained control of gold mines in the Fizi District and the Lubero District in Nord-Kivu Province. Congolese military forces maintained control of the Mufa and the Mukungwe Mines in Sud-Kivu Province. Gold produced in mines in the southern part of Sud-Kivu Province was exported to Burundi across Lake Tanganyika (Garrett and Mitchell, 2009, p. 9; Global Witness, 2009a; 2009b, p. 33-35, 40-41, 73; Spittaels and Hilgert, 2009).

In 2009, Banro completed its feasibility study of developing a new mine at Twangiza in Sud-Kivu Province. Banro planned to open a new mine in late 2011 with a capacity of between 2,500 and 3,400 kg/yr; the company planned to increase capacity to more than 9,300 kg/yr. Production for the scheduled 21-year life of the mine was expected to be nearly 5,300 kg/yr. Reserves were estimated to be 82.5 million metric tons at a grade of 1.7 grams per metric ton gold. Capital costs for the mine were estimated to be \$377 million, and for a 30-MW hydroelectric plant to supply power to the mine, \$134 million (Banro Corp., 2010).

Banro planned to complete a feasibility study at the Namoya project in 2010. The company hoped to increase resources of contained gold at Namoya to at least 62 t from about 48 t. In 2010, Banro also planned to complete a scoping study at Lugushwa, which had contained gold resources of 84 t, and to start exploration at Kamituga, which had previously estimated contained gold resources of 28 t (Banro Corp., 2010).

In March 2009, Moto Goldmines Ltd. of Australia completed a feasibility study on a new mine at the Kibali project (formerly the Moto Gold project) in Ituri Province. In the fourth quarter of 2009, AngloGold Ashanti and Randgold Resources Ltd. of the United Kingdom each purchased a 45% share in the project. Randgold announced in November that estimated reserves were revised to 286 t from 171 t. The Kibali Mine was expected to open by January 2014; AngloGold Ashanti and Randgold planned to produce 12,400 kg of gold in 2014, 16,400 kg in 2016, and 17,200 kg in 2018. Production was likely to decline after 2018; the life of the mine was estimated to be 16 years (Moto Goldmines Ltd., 2009, p. 1, 8; Mining Journal, 2010b).

Kilo Goldmines Ltd. of Canada completed drilling at the Masters project in December 2009. The company hoped to start a drilling program at Somituri in February 2010 and to identify about 60 t of contained gold resources by yearend. Mwana Africa plc of the United Kingdom completed an exploration program at its Zani Kodo project in December. Transafrika Resources Ltd. of Mauritius engaged in soil sampling at EP6062 and EP11534 in Sud-Kivu Province in 2009 (Mining Journal, 2010b).

Niobium and Tantalum.—The Lueshe pyrochlore mine, which accounted for a majority of domestic niobium production between 2000 and 2003, was reportedly reopened in 2008 by

Krall Metal Congo (KMC) of Austria. In September 2009, the Government ordered KMC to stop mining operations at Lueshe; the ownership of the mine was disputed by KMC and Société Minière du Kivu (GfE Metalle und Materialien GmbH of Germany, 70%) since 2004 (Africa Mining Intelligence, 2009a; Global Witness, 2009b, p. 21).

Mwangachuchu Hizi International and other mining companies produced columbite-tantalite at Bibatama in Nord-Kivu Province using labor-intensive methods. The *Congres National pour la Défense du Peuple* (CNDP) obtained an estimated 15% of its revenues prior to its integration into the Congolese armed forces from minesites that included Bibatama. The FDLR and Congolese military forces also reportedly obtained revenue from the illegal taxation of columbite-tantalite mining operations near Shabunda in Sud-Kivu Province (Garrett and Mitchell, 2009, p. 9; Global Witness, 2009b, p. 40-41, 50).

Exports of columbite-tantalite from Nord-Kivu Province increased to 280 t in 2009 from 85 t in 2008. In the first 9 months of 2009, exports from Sud-Kivu Province amounted to about 158 t (United Nations Security Council, 2009, p. 72; Pole Institute, 2010, p. 9).

Tin.—Artisanal and small-scale miners produced cassiterite in Katanga, Maniema, Nord-Kivu, and Sud-Kivu Provinces. The Bisie Mines in the Walikale Territory in Nord-Kivu Province were the largest Congolese cassiterite mines. Production at Bisie amounted to about 5,500 t compared with 7,300 t in 2008. The 85th Brigade of the Congolese military forces, which was not integrated into the unified national Congolese military forces, controlled the Bisie Mines from March 2006 to March 2009. An estimated 95% of the 85th Brigade's revenues were obtained from the illegal taxation and trade of minerals. In March 2009, the 85th Brigade was replaced by the 1st Brigade, which reportedly continued the illegal taxation of cassiterite from Bisie (Garrett and Mitchell, 2009, p. 6; Global Witness, 2009a; 2009b, p. 27-30; Pole Institute, 2010, p. 6).

Cassiterite mines near Shabunda and in Kalehe Territory were controlled by former CNDP forces integrated into the Congolese military. The Karhembu Mine near the town of Tubimbi, the Lemera Mines, and the Mushangi/Lutunkulu Mines in Sud-Kivu Province were also controlled by Congolese military forces. The FDLR controlled cassiterite mines in Walikale Territory and in Mwenga and Uvira Territories in Sud-Kivu Province. The Mayi-Mayi militia controlled mines in the Bafwasende Territory in Orientale Province (Global Witness, 2009b, p. 33, 36, 40-42; Spittaels and Hilgert, 2009; United Nations Security Council, 2009, p. 8, 42, 56).

Reported Congolese exports of cassiterite from Nord-Kivu Province decreased to 10,543 t in 2009 from 13,311 t in 2008. In Sud-Kivu Province, reported exports amounted to 3,644 t in the first 9 months of 2009. In Goma, such companies as Mining and Processing Congo (MPC) (a subsidiary of Kivu Resources) and Society for Mining Development (Sodexmines) (a subsidiary of Elwyn Blattner Group of the United States) processed cassiterite concentrates to a tin content of 65% before export (Garrett and Mitchell, 2009, p. 29, 31; United Nations Security Council, 2009, p. 72; Pole Institute, 2010, p. 9).

Tungsten.—About 4,100 artisanal miners produced cassiterite and wolframite on Idjwi Island in Sud-Kivu Province,

including 3,500 miners at the Kamole Mine and 550 miners at Ishenge. Some of the production from Ishenge and Kamole may have been smuggled out of the country because of Idjwi Island's proximity to Rwanda. Wolframite was also mined in Maniema and Nord-Kivu Provinces. In the first 9 months of 2009, wolframite exports from Nord-Kivu Province amounted to 450 t, and Sud-Kivu Province, 65 t. About 90% of the wolframite exported from Nord-Kivu Province was mined in Maniema Province. The FDLR mined wolframite near Lutika, and the CNDP controlled the area at the Bishasha wolframite mine (Global Witness, 2009b, p. 40, 48; Spittaels and Hilgert, 2009; United Nations Security Council, 2009, p. 72).

Industrial Minerals

Diamond.—In the fourth quarter of 2008, artisanal diamond production declined sharply because of the worldwide economic crisis; decreases in diamond prices caused many artisanal miners to switch to gold mining or to leave the mining sector entirely. Artisanal miners produced 17 million carats of diamond in 2009 compared with 20.1 million carats in 2008. In 2009, production from the Kilau and the Vatican Mines, which were small artisanal mines in Nord-Kivu Province, was reportedly used to finance the FDLR's operations (Partnership Africa Canada, 2009, p. 8-9).

MIBA mined mostly industrial and near-gem-quality diamond at Mbuji-Mayi in Kasai-Oriental Province before shutting down in November 2008 because of declining diamond prices, labor disputes, and power supply problems. Workers were unpaid for 20 months because revenues were less than labor costs. In August 2009, the Government announced plans to invest \$20 million in MIBA by February 2011. The cost of reopening MIBA's mines and restoring its production capacity of 10 million carats per year was estimated to be \$100 million (Africa Mining Intelligence, 2008; 2009b).

The Government also announced plans to invest \$5 million to restart mining on Sengamines' concessions, which are located about 40 kilometers southwest of Mbuji-Mayi. Production ceased in 2005 because of fuel delivery problems. Funding was contingent upon the liquidation of Sengamines and its replacement with another company (Africa Mining Intelligence, 2009b).

Namakwa Diamonds Ltd. of South Africa explored for diamond at its Kasai River, Longitshimo River, Lumbembe River, and Tshikapa River projects. From September 2008 to September 2009, Namakwa mined 20,485 carats at Lungudi and Mai Munene near Tshikapa. In December, Gem Diamonds Ltd. of the United Kingdom sold its shares in two of its exploration companies in Congo (Kinshasa) to Kasai Resource Mining Ltd. (KRM). Gem Diamonds planned to sell its shares in its third exploration company to KRM in January 2010. Namakwa purchased KRM in December 2009. The new concessions were expected to add an estimated 2 million carats to Namakwa's resources of 6.23 million carats and increase its planned production for 2010 to more than 160,000 carats from 90,000 carats (Namakwa Diamonds Ltd., 2009a; b, p. 10, 12, 27).

Global Diamond Resources plc had planned to start mining between 150,000 and 200,000 carats per year at alluvial

deposits on the Tshumbe River by the end of 2010, and possibly 600,000 carats per year by the end of 2012. By September 2009, however, the company was in liquidation (Global Diamond Resources plc, 2008, p. 11, 13-14, 26, 29; Janse, 2009).

In 2009, BRC DiamondCore Ltd. of Canada suspended exploration at its projects in Equateur and Orientale Provinces because of civil unrest. BRC continued to explore at its Kwango River, Lubao, and Tshikapa projects. The company signed a joint-venture agreement with Rio Tinto plc to explore at Tshikapa (Janse, 2009; Mining Journal, 2010b).

At the end of May 2009, Pangea Diamondfields plc revised its resource estimate at its Longatshimo River project. Resources at Longatshimo River were estimated to be nearly 18.4 million cubic meters of gravel that contained 3.57 million carats of diamond. By July, exploration at the Longatshimo River and the Tshikapa River projects was on hold (Pangea Diamondfields plc, 2009).

Mwana Africa explored at its Badibanga alluvial project as late as September 2009; the company subsequently suspended diamond exploration in Congo (Kinshasa). BHP Billiton Group of Australia and De Beers Group of South Africa withdrew from diamond exploration in Congo (Kinshasa) in 2009 (Janse, 2009; Mining Journal, 2010b).

Mineral Fuels and Related Materials

Petroleum.—Crude petroleum was produced by Perenco plc of the United Kingdom and its joint-venture partners. In 2009, all exploration licenses were on hold pending the adoption of new petroleum legislation. The legislation was expected to be passed by the end of December 2009 (Africa Energy Intelligence, 2009).

Uranium.—In March 2009, Groupe Areva of France signed an agreement with the Government to explore for uranium in Katanga Province. Uranium was produced at the Shinkolobwe Mine in Katanga Province until 1960 (Mining Journal, 2010b).

Outlook

Cobalt and copper output in Congo (Kinshasa) is expected to increase substantially in the near future. Production is likely to increase at the Etoile, the Kinsevere, the KTO, the Ruashi, the T17, and the Tenke Fungurume Mines. The opening of the Kibali and the Twangiza Mines is expected to result in increased gold production. Diamond production could also increase depending on sufficient funds to reopen the Mbuji-Mayi Mines. The development of these projects depends heavily upon political and economic stability and favorable conditions in world markets. The outlook for gold, niobium, tantalum, tin, and tungsten is particularly dependent upon political stability because of continued civil unrest in eastern Congo (Kinshasa) and upon international concerns about the reported use of minerals to finance military operations.

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TABLE 1
CONGO (KINSHASA): PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2005	2006	2007	2008	2009 ^e
METALS					
Cobalt:					
Mine output, Co content ^{e,3}	24,500	27,100	25,300	31,000	29,000
Metal, Co content ⁴	600	550	606	1,439	2,970 ⁵
Copper:					
Mine output, Cu content	97,000	142,000 ^r	146,000 ^{r,e}	238,000 ^{r,e}	295,000
Smelter, electrowon (low grade)	10,000	10,000	1,800 ^r	--	--
Refined	--	--	6,351 ^r	45,781	159,000
Germanium, mine output, Ge content kilograms	2,500	2,500	2,500	2,500 ^e	2,500
Gold, mine output, Au content ^e do.	7,200	10,300	5,100 ^r	3,300	3,500
Niobium (columbium) and tantalum:					
Columbite-tantalite concentrate:					
Gross weight ⁶	124	52	267	509 ^r	490
Nb content ^e	28	12	61	120 ^r	110
Ta content ^e	33	14	71	140 ^r	130
Pyrochlore concentrate:					
Gross weight ⁶	--	--	--	119 ^r	120
Nb content	--	--	--	59 ^{r,e}	60
Silver, mine output, Ag content kilograms	53,553	67,633	76,242	34,083	-- ⁵
Steel, crude	110,000	104,000	110,000	113,000	120,000
Tin, mine output, concentrate:					
Gross weight ⁶	6,748	5,878	13,656	18,974 ^r	15,400
Sn content ^e	4,400	3,800	8,900	12,300 ^r	10,000
Tungsten, mine output, concentrate:					
Gross weight ⁶	342	975	1,095	716 ^r	690
W content ^e	180	500	580	380 ^r	360
Zinc, mine output, Zn content	7,588	16,831	18,500	18,000	17,000
INDUSTRIAL MINERALS					
Cement, hydraulic	511,000	519,233	530,196	411,212 ^r	443,550 ⁵
Diamond: ⁷					
Artisanal thousand carats	26,839	26,034 ^r	27,223	20,146	16,998 ⁵
Large-scale do.	8,368	2,914 ^r	1,042	801	1,277 ⁵
Total do.	35,207	28,948 ^r	28,265	20,947	18,275 ⁵
Lime ^e	25,000	25,000	25,000	25,000	25,000
Stone, crushed	210,000	217,000	230,000	237,000	250,000
Sulfuric acid ^e	15,000	15,000	35,000 ^r	150,000 ^r	490,000
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	120,000	124,000	128,000	116,000	120,000
Petroleum, crude thousand 42-gallon barrels	9,000	9,009	8,816	8,365 ^r	9,382 ⁵

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through December 20, 2010.

²In addition to the commodities listed, tourmaline and crude construction materials, including brick clay, are produced, but available information is inadequate to make reliable estimates of output.

³Includes mine production and reprocessed tailings.

⁴Salable refined production only; excludes white alloy and matte.

⁵Reported data.

⁶Reported exports from Nord-Kivu and Sud-Kivu Provinces.

⁷An estimated 20% of total diamond is gem quality; the majority of production is from artisanal mining.

TABLE 2
CONGO (KINSHASA): STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Cimenterie de Lukala [Entreprise Malta Forrest SPRL (EGMF), 80%]	Lukala plant near Kinshasa	360,000.
Do.	Interlacs [Entreprise Malta Forrest SPRL (EGMF), 98.7%]	Kabimba plant near Lubumbashi	50,000.
Do.	do.	Katana plant in Sud-Kivu Province ¹	NA.
Do.	Cimenterie Nationale SARL	Kimpese plant, 40 kilometers south of Kinshasa	318,000.
Do.	Cemenkat [Entreprise Malta Forrest SPRL (EGMF), and La Générale des Carrières et des Mines (Gécamines)]	Lubudi plant, between Likasi and Kolwezi, Katanga Province	200,000.
Coal	La Générale des Carrières et des Mines (Gécamines)	Luena Mine	800,000 bituminous.
Copper and cobalt:			
Mine	First Quantum Minerals Ltd.	Frontier Mine	84,000 copper.
Do.	do.	Lonshi Mine in Katanga Province ¹	50,000 copper.
Do.	Tenke Fungurume Mining SARL (Freeport McMoran Copper & Gold Inc., 57.75%, and Lundin Mining Corp., 24.75%)	Tenke Fungurume Mine	115,000 copper in ore; 8,000 cobalt in ore.
Do.	Katanga Mining Ltd.	KTO and T17 Mines	70,000 ^e copper; 4,000 ^e cobalt.
Do.	Anvil Mining Ltd.	Kinsevere Mine	26,000 copper.
Do.	do.	Dikulushi Mine ¹	20,000 copper.
Do.	do.	Mutoshi Mine ¹	16,500 copper.
Do.	Central African Mining and Exploration Company plc (CAMEC)	Kakanda concentrator	60,000 copper; 5,000 cobalt.
Do.	La Générale des Carrières et des Mines (Gécamines)	Kamfundwa, Kamoya Central, Kamoya South, and Shangalowe Mines	40,000 ^e copper; 2,500 ^e cobalt.
Do.	Ruashi Mining SPRL (Metorex Ltd., 80%)	Ruashi Mine	36,000 copper; 3,500 cobalt.
Do.	Chemaf SPRL (subsidiary of Shalina Resources Ltd.)	Etoile Mine	27,000 ^e copper in ore; 4,400 ^e cobalt in ore.
Do.	Compagnie Minière du Sud Katanga [Entreprise Generale Malta Forrest SPRL (EGMF), 60%, and La Générale des Carrières et des Mines (Gécamines), 40%]	Luiswishi Mine near Lubumbashi	12,000 copper; 4,500 cobalt.
Do.	TEAL Exploration and Mining Inc.	Kalumines ¹	10,000 copper.
Do.	Rubamin SPRL	Mines in Kolwezi and Likasi Districts	9,000 ^e copper; 1,000 ^e cobalt.
Do.	La Société pour le Traitement du Terril de Lubumbashi (STL) [OM Group Inc., 55%; Entreprise Generale Malta Forrest SPRL (EGMF), 25%; La Générale des Carrières et des Mines (Gécamines), 20%]	Big Hill tailings treatment plant at Lubumbashi	2,500 copper; 5,000 cobalt.
Blister	Rubamin SPRL	Plant in Likasi	9,000 copper.
Refined	Tenke Fungurume Mining SARL	Tenke Fungurume plant	115,000 copper.
Do.	Katanga Mining Ltd.	Luilu plant	70,000 copper; 4,000 cobalt.
Do.	La Générale des Carrières et des Mines (Gécamines)	Shituru plant	50,000 copper; 6,000 cobalt.
Do.	do.	Fonderie Electrique de Panda cobalt plant	1,200 cobalt.
Do.	Ruashi Mining SPRL (Metorex Ltd., 80%)	Ruashi plant	36,000 copper.
Do.	Chemaf SPRL	Usoke plant in Lubumbashi	16,000 copper.
Do.	Central African Mining and Exploration Company plc (CAMEC)	Luita plant near Lubumbashi	10,000 copper.

See footnotes at end of table.

TABLE 2—Continued
 CONGO (KINSHASA): STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Diamond	carats	Société Minière de Bakwanga (MIBA) [Government, 80%, and Sibeka Group, which was owned by Mwana Africa plc, 20%]	Mines at Mbuji Mayi in Kasai-Oriental Province ¹	10,000,000.
Do.	do.	Artisanal miners	Mines at Aketi in Orientale Province; at Bakongo, Bakwachimuna, and Tshibue in Kasai Oriental Province; at Tshikapa in Kasai Occidental Province; and at various sites in Bas-Congo, Bandundu, Equateur, and Katanga Provinces	27,000,000. ^c
Gold	kilograms	Artisanal miners	Mines at various sites in Ituri District	5,200. ^c
Do.	do.	Artisanal miners, Congolese military forces, and Forces Démocratiques pour la Libération du Rwanda, of which:	Includes in Sud-Kivu Province:	4,800. ^c
Do.	do.	Artisanal miners	Various sites	NA.
Do.	do.	Congolese military forces	Mufa and Mukungwe Mines	NA.
Do.	do.	do.	Mines in Kalehe and Mwenga Districts	NA.
Do.	do.	Forces Démocratiques pour la Libération du Rwanda (FDLR)	Mines in Fizi District	NA.
Do.	do.	do.	Mines in Lubero District in Nord-Kivu Province	NA.
Niobium (columbium) and tantalum		Mwangachuchu Hizi International	Bibatama in Nord-Kivu Province	120.
Do.		Artisanal and small-scale miners	Mines at Bibatama in Nord-Kivu Province and Shabunda in Sud-Kivu Province	NA.
Petroleum, crude	thousand 42-gallon barrels	Perenco REP (subsidiary of Perenco plc) and Congolaise des Hydrocarbures	Kifuku, Kinkasi, Liawenda, Makelekese, Muanda, Nsiamfuma, and Tschienne onshore wells	5,480.
Do.	do.	Muanda International Oil Co. (subsidiary of Perenco plc), 50%; Teikoku Oil Co. Ltd., 32.3%; ODS Ltd., 17.7%	GCO, Libwa, Lubi, Mibale, Moko, Motoba, Mwambe, and Tshlala offshore wells	3,650.
Silver	kilograms	Anvil Mining Ltd.	Dikulushi Mine ¹	50,000.
Stone, crushed		Chemaf SPRL	Kilimasimba quarry near Lubumbashi	440,000.
Sulfuric acid		La Générale des Carrières et des Mines (Gécamines)	Sulfuric acid plants at Kolwezi and Shituru	NA.
Do.		Chemaf SPRL	Plant in Lubumbashi	36,000.
Do.		Central African Mining and Exploration Company plc (CAMEC)	Plant at Kambove	7,200.
Tin		Congolese military forces	Bisie Mines in Nord-Kivu Province	12,000 cassiterite.
Do.		Artisanal miners	Kalima Mines in Maniema Province	1,200 ^c cassiterite.
Do.		do.	Mines in Katanga Province	1,000 ^c cassiterite.
Do.		Artisanal miners and Congolese military forces	Mines near Shabunda in Sud-Kivu Province	840 ^c cassiterite.
Do.		Artisanal miners	Kasese Mines in Maniema Province	500 ^c cassiterite.
Do.		Forces Démocratiques pour la Libération du Rwanda (FDLR)	Mines in Mwenga and Uvira Districts in Sud-Kivu Province and in Walikale District in Nord-Kivu Province	NA.
Do.		Congolese military forces	Mines at Lemara, Lutunkulu, Mushangi, and Tubimbi and in Kalehe Territory	NA.
Do.		Mining Processing Congo (MPC), Sodexmines, and other companies	Processing plants at Goma	14,000 ^c cassiterite.
Tungsten		Artisanal miners	Mines at Kamole in Sud-Kivu Province and various sites in Nord Kivu and Maniema Provinces	1,000 ^c wolframite.
Zinc		La Société pour le Traitement du Terril de Lubumbashi	Big Hill plant at Lubumbashi	15,000 zinc in zinc oxide.

^cEstimated. Do., do. Ditto. NA Not available.

¹Not operating at the end of 2009.

