USGS
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2012 Minerals Yearbook

CONGO (KINSHASA)

U.S. Department of the Interior
U.S. Geological Survey

May 2015

The Mineral Industry of Congo (Kinshasa)

By Thomas R. Yager

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 2012, the country's share of the world's cobalt production amounted to 55%; industrial diamond, 21%; tantalum, 12%; gem-quality diamond, 5%; copper, 3%; and tin, 2%. Congo (Kinshasa) accounted for about 45% of the world's cobalt reserves. In terms of export value, crude petroleum also played a significant role in the domestic economy. The country was not a globally significant consumer of minerals or mineral fuels (Carlin, 2013; Edelstein, 2013; Olson, 2013a, b; Papp, 2013; Shedd, 2013).

Minerals in the National Economy

The mining and mineral processing sector accounted for an estimated 11.5% of the gross domestic product in 2011 (the latest year for which data were available), and the manufacturing sector, 5.2%. Between 1.8 and 2 million artisanal miners were estimated to be employed in Congo (Kinshasa), which included between 800,000 and 1 million miners in diamond mining and between 100,000 and 130,000 miners in gold mining in the Ituri Interim Administration of Orientale Province. The number of miners employed in niobium, tantalum, tin, and tungsten mining in Maniema, Nord-Kivu, and Sud-Kivu Provinces probably decreased substantially in 2011 and 2012 because of decreased production (United Nations Environmental Programme, 2011, p. 32; Diamond Development Initiative, 2012; van Puijenbroek and others, 2012, p. 12–13; Banque Centrale du Congo, undated, p. 36).

Government Policies and Programs

In 2002, the Parliament of Congo (Kinshasa) passed law No. 007/2002 of July 11, 2002, which replaced law No. 81–013 of April 2, 1981. The revised mining code encourages private sector development of the mineral industry, and the principal role of the Government is to encourage and regulate the development of the industry. Mining rights are vested with the Government. In November 2012, the Government announced plans to increase its free-carried and nondilutable share in mining projects to 35% from 5%. The Government also planned to increase royalty rates on diamond and other gemstones to 6% from 4%; on precious metals, to 6% from 2.5%; and on nonferrous metals, to 6% from 2%. At yearend, the proposed changes had not been enacted (Metal Bulletin, 2012; Bahamin, 2013).

Congo (Kinshasa) was a signatory to the Kimberley Process, which is a certification system that became effective on January 1, 2003, to reduce the trade in conflict diamond. In February 2011, the Diamond Development Initiative (DDI) started a program to assist Congo (Kinshasa) with the implementation of the Kimberley Process. By yearend, the DDI had registered more than 100,000 artisanal diamond miners and increased the number of known artisanal diamond mining sites to 667 from 254. The program was also designed to track diamond production from mining to exportation (Diamond Development Initiative, 2012).

In July 2010, the U.S. Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), which contains provisions concerning the use of minerals to finance military operations in eastern Congo (Kinshasa). The U.S. Securities and Exchange Commission (SEC) issued regulations in final form in accordance with the Dodd-Frank Act in August 2012 (U.S. Securities and Exchange Commission, 2012, p. 56274–56275).

Under the proposed regulations, all companies registered with the SEC that sold products containing cassiterite, columbite-tantalite, gold, or wolframite were required to disclose whether these minerals originated from Congo (Kinshasa) or adjoining countries. Companies that sold products containing cassiterite, columbite-tantalite, gold, or wolframite that originated in Congo (Kinshasa) or adjoining countries were also required to submit annual reports to the SEC describing the due diligence measures taken to determine the source and custody of such minerals and to provide a description of the products manufactured or contracted to be manufactured that are not conflict-free. The reports also were required to be published on the companies' Web sites (U.S. Securities and Exchange Commission, 2012, p. 56274).

In March 2011, the Government of Katanga Province and the International Tin Research Institute (ITRI) started the ITRI Tin Supply Chain Initiative (iTSCI), which is a traceability mechanism for domestically produced tantalum, tin, and tungsten to meet end users' requirements under the Dodd-Frank Act and Organisation for Economic Co-operation and Development due diligence guidelines. By the end of 2012, 140 mine sites were covered by the scheme in Katanga Province. ITRI restarted certification in Sud-Kivu Province in October after 2 years of suspension and initiated certification in Maniema Province in December (International Tin Research Institute, 2013b).

Production

In 2012, the production of coal increased by 163%; tungsten, by an estimated 36%; sulfuric acid, by an estimated 33%; refined copper, by 30%; mined copper, by an estimated 25%; silver, by 22%; and gold, by an estimated 17%. Zinc production decreased by 46%; tin, by an estimated 23%; cement, by 18%; tantalum, by an estimated 17%; mined cobalt, by an estimated 15%; germanium, by an estimated 14%; and niobium (columbium), by an estimated 10% (table 1).

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; Gécamines held shares of between 5% and 40% in numerous operations. Private companies held majorty shares in the cement producers; Gécamines held a 49.73% share in Ciment et Matériaux du Katanga. 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

Total exports were valued at an estimated $9.47 billion in 2011, and imports, $8.92 billion. Copper accounted for 43% of the total value of Congolese exports; cobalt, 39%; crude petroleum, 10%; diamond, 4%; and tin, 1%. Other mineral exports included germanium, gold, niobium, tantalum, and tungsten. Petroleum products accounted for about 11% of total imports in 2011. In 2012, the share of Congolese copper and cobalt production that was refined prior to export was 71% and 6%, respectively. Additional cobalt and copper mine production was exported after processing to intermediate products, such as cobalt carbonate, cobalt hydroxide, and black copper. Germanium was exported in the form of a cobalt-copper-germanium intermediate product. Gold was exported as dore. Most or all Congolese diamond, niobium, tantalum, tin, and tungsten production was exported prior to downstream processing (table 1; Banque Centrale du Congo, undated, p. 125–126).

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); the estimated cost of the smelter was $3 billion. In 2012, BHP Billiton withdrew from the project after deeming the smelter to be subeconomic (Bahamin, 2012).

Cobalt, Copper, and Silver.—In 2012, output at the Tenke Fungurume Mine increased to 157,671 metric tons (t) of refined copper and 11,669 t of contained cobalt in hydroxide from 127,367 t of refined copper and 11,182 t of contained cobalt in 2011. The mine's capacity increased to 195,000 t/yr of refined copper from 115,000 t/yr in 2010; the rated capacity of cobalt in cobalt hydroxide increased to 15,000 t/yr from 8,000 t/yr. In 2013, sales volumes were expected to be 186,000 t of refined copper and 13,600 t of contained cobalt. Tenke Fungurume was a joint venture of Freeport McMoran Copper & Gold Inc. of the United States (56%), Lundin Mining Corp. of Canada (24%), and Gécamines (20%) (Chadwick, 2012; Lundin Mining Corp., 2013, p. 23).

Katanga Mining Ltd. of Switzerland produced copper and cobalt at the KOV and the KTO Mines and the Luilu refinery. In 2012, production was 61,439 t of refined copper and 2,129 t of cobalt metal compared with 57,612 t of refined copper and 2,433 t of cobalt metal in 2011. Katanga also produced 31,524 t of copper in concentrate compared with 33,538 t in 2011. Production was constrained by power supply disruptions, mechanical problems, and reduced acid solubility of the ore mined in 2012. Cobalt production was also affected by the shutdown of the T17 open pit mine in 2011; ore processed from the KOV Mine had a lower cobalt grade than the T17 open pit mine (Katanga Mining Ltd., 2013, p. 2–5, 10).

In 2011, Katanga increased the capacity at Luilu to 190,000 t/yr of refined copper from 150,000 t/yr. Katanga planned a further expansion of capacity to 270,000 t/yr and subsequently to 310,000 t/yr. The company also planned to complete a feasibility study on the T17 underground mine in 2013 (Katanga Mining Ltd., 2013, p. 2–3).

In 2012, Mutanda Mining SPRL (Glencore International AG of Switzerland, 60%, and Bazano Group, 40%) increased the capacity of its copper solvent extraction and electrowinning (SX/EW) plant at the Mutanda Mine to 110,000 t/yr. The capacity of cobalt in hydroxide was increased to 23,000 t/yr in the fourth quarter. Glencore planned to merge the adjacent Kansuki property with Mutanda and to increase the capacity of the combined entity to 200,000 t/yr of copper. In 2012, output at Mutanda amounted to 83,500 t of refined copper and 3,500 t of copper in concentrate. Total copper production increased by 37%, and refined copper production, by 90%. Cobalt production in concentrate and hydroxide increased by 8% to 8,500 t (Hack, 2013).

Gécamines produced 35,015 t of copper and 837 t of cobalt in 2012 compared with 17,389 t of copper and 716 t of cobalt in 2011. In 2012, the company increased the capacity of its concentrators and downstream copper processing plants by 67% and 76%, respectively. Gécamines planned to increase copper production to 50,000 t in 2013 and 100,000 t in 2015; the company also planned to increase cobalt output to 1,160 t in 2013 and 7,400 t in 2015. Most of the increase in production was likely to take place at the Kamfundwa and the Kilamusembu Mines. The capacity of the Shituru refinery was also expected to increase to 30,000 t/yr from 21,600 t/yr in 2012 (African Business, 2012; La Générale des Carrières et des Mines, 2013, p. 8, 18–19, 22).

At the beginning of 2012, Gécamines' joint ventures included its partnerships with Enterprise Generale Malta Forrest SPRL (EGMF) to produce cobalt and copper at the Luiswishi Mine and La Société pour le Traitement du Terril de Lubumbashi's (STL's) Big Hill tailings treatment plant in Lubumbashi. In September 2011, Gécamines announced plans to exercise its claimed preemptive right to buy EGMF's 60% share in the Luiswishi Mine; EGMF disputed Gécamines' claims. In September 2012, EGMF agreed to sell its share to Gécamines. The Luiswishi Mine operated well below its capacity of 10,000 t/yr of copper and 4,000 t/yr of cobalt in 2012. Production capacity at STL was 5,000 t/yr of cobalt and 3,000 t/yr of copper; the plant was operating at full capacity before power supply problems reduced output by about 15% in

the first half of 2012 (Njini, 2011, 2012; OM Group Inc., 2012; Engineering and Mining Journal, 2013).

The joint venture of Tiger Resources Ltd. of Australia and Gécamines started mining at the Kipoi Central deposit in 2011; output amounted to 36,966 t of copper in 2012. Tiger planned to produce 35,000 t/yr of copper in concentrate at Kipoi Central during a period of about 3 years. In the second phase of the project, Tiger planned to open a new SX/EW plant with a capacity of 25,000 t/yr in 2014. Capacity at the SX/EW plant was expected to increase to 50,000 t/yr. Ore with a grade of less than 3.25% copper and tailings were being stockpiled for consumption by the new plant (Bahamin, 2013; Engineering and Mining Journal, 2013).

Anvil Mining Ltd. of Australia started a new SX/EW plant at the Kinsevere Mine in May 2011. The company produced about 29,000 t of refined copper and copper in concentrate at the Heavy Media Separation (HMS) plant in 2011. The HMS plant shut down after the SX/EW plant started production. In early 2012, Anvil was purchased by MMG Ltd. of China. MMG planned to increase output at the SX/EW plant to its full capacity of 60,000 t/yr in 2012. The rampup to full capacity was delayed until yearend because of power outages; the plant's refined copper output was 36,048 t in 2012 (Anvil Mining Ltd., 2012; Bahamin, 2012; MMG Ltd., 2013, p. 21).

Boss Mining SPRL [Eurasian Natural Resources Corp. plc (ENRC) of the United Kingdom, 70%, and Gécamines, 30%] produced copper and cobalt at the Mukondo Mountain Mine and the Luita SX/EW plant. In 2012, total copper output increased to about 35,200 t from 29,600 t in 2011 because of increased capacity. Refined copper production remained nearly unchanged at about 24,400 t. Cobalt production decreased to about 9,600 t in 2012 from 11,400 t in 2011; increased volumes of ore mined were more than offset by lower recovery rates. ENRC planned to increase the production capacity of Boss Mining by 2016 (Kitumba, 2012, 2013; Eurasian Natural Resources Corp. plc, 2013, p. 37, 39).

First Quantum Minerals Ltd. of Canada was engaged in a legal dispute with ENRC over the Frontier and the Lonshi Mines and the Kolwezi Tailings project. Frontier, Kolwezi Tailings, and Lonshi had been held by First Quantum until the Government annulled the company's mining rights in 2010 and awarded the projects to ENRC. The Government forced First Quantum to shut down production at Frontier and Lonshi and development at Kolwezi Tailings. In early 2012, ENRC agreed to pay $1.25 billion to First Quantum for Frontier, Kolwezi Tailings, and Lonshi. ENRC planned to start mining at Frontier in June 2013 and to produce 40,000 t of copper by yearend. Output was expected to increase subsequently to between 80,000 and 90,000 t/yr. ENRC also planned to produce 29,000 t of copper at the Comide Mine in 2013; total production at the company's Congolese operations was likely to be 200,000 t/yr by 2017 (African Mining, 2012; Eurasian Natural Resources Corp, plc, 2013, p. 8, 37, 39).

Ruashi Mining SPRL (Metorex Group of South Africa, 75%) produced cobalt and copper from the Ruashi Mine; refined copper and cobalt carbonate were produced at the company's SX/EW plant. In 2011, output amounted to 34,534 t of refined copper and 3,678 t of contained cobalt. Copper and cobalt output decreased by about 21% and 7%, respectively, in 2012. Jinchuan Group of China completed its purchase of Metorex in January 2012 (Metorex Ltd., 2012, p. 24; Kitumba, 2013).

Chemaf SPRL produced copper and cobalt at the Etoile Mine and the Usoke Avenue copper SX/EW and cobalt carbonate plants. In 2011, Chemaf produced 20,191 t of refined copper and 2,155 t of cobalt in carbonate. Cobalt and copper output decreased by about 16% and 7%, respectively, in 2012. By 2016, Chemaf planned to increase refined copper capacity to 50,000 t/yr from 31,500 t/yr, and cobalt capacity, to 6,000 t/yr from 2,400 t/yr (Shalina Resources Ltd., 2012; Engineering and Mining Journal, 2013; Kiutmba, 2013).

In late June 2010, Mawson West Ltd. of Australia restarted production from a stockpile at the Dikulushi Mine near Lake Mweru in Katanga Province. In 2012, Mawson West produced 5,818 t of copper and 13,255 kilograms (kg) of silver compared with 4,285 t of copper and 10,080 kg of silver in 2011. The company planned to produce between 20,000 and 22,000 t of copper in 2013 (Mawson West Ltd., 2013, p. 5, 10).

Mawson started construction on the Kapulo project, which would produce 19,500 t/yr of copper from a new mine with an estimated life of 6 years. The Kapulo project included the Safari North, the Safari South, and the Shaba deposits. Production was expected to start in late 2013 (Mawson West Ltd., 2013, p. 5, 11).

Black copper, which is an intermediate product that has a copper content of between 80% and 98%, was produced by numerous companies in Katanga Province. Some companies produced black copper from concentrate produced at their own mines and others sourced concentrate from artisanal miners. In 2012, Congo Dong Fang International Mining SPRL (CDM) of China produced nearly 25,000 t of copper in black copper; Congo Loyal Will Mining SPRL of Hong Kong, about 13,000 t; and Rubamin SPRL (a subsidiary of Rubamin Ltd. of India), about 8,200 t (Kitumba, 2013).

Other companies, such as Congo International Mining Corp. of China and Golden African Resources SPRL of India and Société Minière du Katanga SPRL (Somika) of India, operated small copper refineries. Somika's production capacity was 12,000 t/yr of refined copper and 8,000 t/yr of black copper. By 2015, the company planned to increase its production capacity to 50,000 t/yr, most of which was expected to be refined copper and black copper (Engineering and Mining Journal, 2013; Kitumba, 2013)

In 2012, Somika produced about 1,800 t of cobalt; the company's production capacity was 3,000 t/yr of cobalt in hydroxide. Somika was considering the production of cobalt metal. CDM mined about 1,900 t of cobalt, and Volcano Mining SPRL, about 1,100 t (Engineering and Mining Journal, 2013; Kitumba, 2013).

Gold.—Artisanal and small-scale miners produced gold in the Ituri Interim Administration, Nord-Kivu Province, and Sud-Kivu Province in eastern Congo (Kinshasa). Most gold exports were undeclared; most of the reported gold exports from Burundi and Uganda reportedly were reexports from Congo (Kinshasa). Between 5,000 and 7,000 kilograms per year (kg/yr) of gold was produced at 15 large mines and between 70 and 100 smaller mines in Nord-Kivu Province and Sud-Kivu Province combined. Between 6,000 and 7,000 kg/yr of gold was produced at 813 sites

in Ituri Interim Administration, which included 343 sites in Mambasa Territory, 230 sites in Djugu Territory, and 209 sites in Irumu Territory (Enough Project, 2012, p. 2–4, 7, 14; van Puijenbroek and others, 2012, p. 11).

Armed groups in eastern Congo (Kinshasa), including the Forces Démocratiques de Libération du Rwanda and units of the Congolese armed forces, obtained revenue from the illegal taxation of artisanal and small-scale miners. The majority of the conflict gold mines reportedly were located in Sud-Kivu Province (Enough Project, 2012, p. 3–4; United Nations Group of Experts, 2012, p. 44–45).

In October 2011, Banro Corp. of Canada started production at the new Twangiza Mine in Sud-Kivu Province. The company produced 2,076 kg of gold in 2012; output was expected to be between 2,600 and 3,100 kg in 2013. Banro planned to produce about 3,700 kg/yr during the estimated 7-year life of the first phase of the mine, when gold would be recovered from oxide ore. Contained gold resources at Twangiza were estimated to be 263 t, of which nearly 48 t was reserves (Bahamin, 2012; Banro Corp., 2013, p. 5, 8, 10, 12).

Banro planned to start production at the new Namoya Mine in Sud-Kivu Province by the second quarter of 2013. Gold output was likely to reach the mine's full capacity of 3,700 kg/yr in the first quarter of 2014. In 2012, Banro estimated that contained gold resources at Namoya were 68 t. Banro also revised its estimate of contained gold resources at the Lugushwa project to 174 t; the Kamituga project had contained gold resources of 29 t. The company planned further drilling at Kamituga and Lugushwa in 2013 (Banro Corp., 2013, p. 14, 16–17).

AngloGold Ashanti Ltd. of South Africa and Randgold Resources Ltd. of the United Kingdom each held a 45% share in the Kibali gold project. The companies planned to open a new mine at Kibali by the end of 2013. AngloGold Ashanti and Randgold planned to produce between 15,600 kg/yr and 18,700 kg/yr of gold from 2014 through 2016. Production was likely to be more than 16,000 kg/yr on average during the estimated 17-year life of the mine. Contained gold resources at Kibali were estimated to be nearly 580 t, of which about 310 t was reserves (Tassell, 2013).

AngloGold Ashanti and state-owned l'Office des Mines d'Or de Kilo-Moto (OKIMO) held the Mongbwalu concession, which is located in the Ituri Interim Administration. Reserves at Mongbwalu were estimated to be nearly 78 t of contained gold. AngloGold Ashanti and OKIMO planned to start mining at Mongbwalu by the end of 2013; production was expected to be about 4,000 kg/yr for the first 3 years (Bahamin, 2012).

Kilo Goldmines Ltd. of Canada estimated that resources at the Adumbi deposit, which was part of the Somituri project, were 35.7 million metric tons (Mt) at a grade of 1.63 grams per metric ton gold in 2012. The company hoped to increase resources by exploring at other prospects in the Somituri project. Kilo and Randgold planned to start exploration at Kilo's KWR Iron SPRL licenses in 2013. In 2012, Mwana Africa plc of the United Kingdom revised its estimate of contained gold resources to nearly 63 t from 44 t in 2011. Depending on financing, Mwana Africa expected to start production at Zani Kodo in 2015 or 2016 (Bahamin, 2012).

Mercury.—Congo (Kinshasa) had not mined mercury in recent years. Consumption of mercury by artisanal miners in the gold production process, however, was estimated to be about 15 t/yr, or nearly 1% of world production in 2012 (United Nations Environmental Programme, 2011, p. 34; Virta, 2013).

Niobium (Columbium) and Tantalum.—The Lueshe pyrochlore mine accounted for the majority of domestic niobium production between 2000 and 2003. The mine was reportedly reopened in 2008 before shutting down again in September 2009. The ownership of the mine was disputed by Krall Metal Congo (KMC) of Austria and Société Minière du Kivu (Somikivu) (GfE Metalle und Materialien GmbH of Germany, 70%). In March 2010, the Government awarded mining rights to Somikivu. The mine subsequently changed hands several times between Congolese military units that supported KMC or Somikivu. In early August 2011, Somikivu started the restoration of the processing plant. The company planned to restart production at the rate of 1,440 t/yr of pyrochlore by May 2012. Work reportedly stopped because of armed conflict between Congolese military units at the mine that supported KMC or Somikivu. Development remained suspended in early 2012 (Africa Mining Intelligence, 2011, 2012; United Nations Group of Experts, 2011, p. 118–119).

Artisanal and small-scale miners in Katanga Province produced 236 t of columbite-tantalite in 2012 compared with 342 t in 2011. In the first 9 months of 2012, about 85% of production in Katanga Province was reported to be in Nyunzu Territory, and 9%, in Manono Territory. Columbite-tantalite was also mined in Maniema Province, in the Masisi Territory in Nord-Kivu Province, and in the Idjwi Territory in Sud-Kivu Province. In 2011, columbite-tantalite exports from Nord-Kivu Province were 97 t in 2011 compared with 236 t in 2010. After May 2012, reported exports from Nord-Kivu Province nearly ceased; production was stockpiled or smuggled out of the country (Kitumba, 2012, 2013; United Nations Group of Experts, 2012, p. 52; International Tin Research Institute, 2013a; Johnson, 2013, p. 52).

Tin.—Artisanal and small-scale miners produced cassiterite in Katanga, Maniema, Nord-Kivu, and Sud-Kivu Provinces. In 2012, reported cassiterite exports from Nord-Kivu Province decreased to 1,480 t from 2,296 t in 2011 and 6,689 t in 2010. Exports from Nord-Kivu and Sud-Kivu Provinces declined because of (a) the ban on mining operations in Maniema, Nord-Kivu, and Sud-Kivu Provinces from September 2010 through early March 2011, (b) the Government's requirement that mineral production from Maniema Province be exported through Katanga Province, (c) the Government's suspension of trading companies in Goma that reportedly purchased uncertified minerals from mines near Walikale, and (d) the decrease in prices for minerals that were not compliant with iTSCI (United Nations Group of Experts, 2012, p. 40, 46; Johnson, 2013, p. 52).

From 2010 to 2012, cassiterite prices decreased to $2 per kilogram from $5.50 per kilogram at trading centers in the Walikale Territory in Nord-Kivu Province because of decreased demand for minerals that were not compliant with iTSCI. By 2012, production at the Bisie Mine in Walilake Territory, which was formerly the leading producer in Congo (Kinshasa), had

nearly shut down because of declining prices and the flooding of about 40% of the mining pits. Mining shifted to other sites in Nord-Kivu Province near the Rwandan border where production was less likely to be reported (United Nations Group of Experts, 2012, p. 52; Johnson, 2013, p. 52).

Cassiterite exports from Katanga Province were 3,601 t in 2012 compared with 4,277 t in 2012. In the first 9 months of 2012, mines in Malemba Nkulu Territory accounted for 27% of the cassiterite produced in Katanga Province; Mitwaba Territory, 23%; Lubudi Territory, 21%; Bukama/Luena Territory, 15%; and Manono Territory, 14% (Kitumba, 2012, 2013; International Tin Research Institute, 2013a).

Mining Mineral Resources (MMR), which was a subsidiary of Somika, purchased cassiterite and columbite-tantalite from artisanal miners. By June 2012, the company had completed the first furnace at a new tin smelter in Lubumbashi with a planned capacity of 3,500 t/yr. MMR and joint-venture partner Malaysian Smelting Corporation Berhad of Malaysia (MSC) planned to complete the second furnace by November. Minérales Industries Métallurgiques planned to complete its new smelter at Kisangani in Orientale Province in January 2013; cassiterite would be sourced from the company's concession in Manono Territory. African Smelting Group sprl was building a new smelter at Sake in Nord-Kivu Province (Malaysian Smelting Corporation Berhad, 2012; United Nations Group of Experts, 2012, p. 49).

Tungsten.—In recent years, wolframite was mined in Katanga, Nord-Kivu, and Sud-Kivu Provinces. In the first 9 months of 2012, wolframite production in Katanga amounted to 66 t, of which 62% was produced in the Bukama/Luena Territory and 38% in the Manono Territory. Artisanal miners also produced wolframite on Idjwi Island in Sud-Kivu Province (United Nations Group of Experts, 2012, p. 52; International Tin Research Institute, 2013a).

Industrial Minerals

Cement.—National cement production decreased to 376,600 t in 2012 from 457,761 t in 2011. In July 2012, Nova Cimangola of Angola purchased a 58% share in Cimenterie Nationale SARL, which had a capacity of 300,000 t/yr. Nova Cimangola planned to shut down the plant for several months. HeidelbergCement AG of Germany held a 70% share in Interlacs and a 55% share in Cimenterie du Lukala, which had a combined capacity of about 500,000 t/yr. Cement demand was estimated to be between 2.5 and 3 million metric tons per year (Mt/yr) (Kuediasala, 2012).

Lucky Cement Ltd. of Pakistan and Groupe Rawji formed a joint venture to build a new cement plant with a capacity of 1 Mt/yr. The companies planned to complete the plant in late 2014 or early 2015. Dangote Group of Nigeria planned to complete a new cement plant in Bouenza with a capacity of 1.5 Mt/yr in 2014. The estimated capital cost of the project was $350 million (International Cement Review, 2011, 2012).

Diamond.—Artisanal and small-scale miners accounted for most Congolese output of diamond. In 2012, artisanal and small-scale diamond production was nearly 20.2 million carats compared with 19.2 million carats in 2011. Diamond was mined in at least 11 territories in Kasai-Oriental Province and in at least 9 territories in Kasai-Occidental Province.

MIBA mined mostly industrial and near-gem-quality diamond at Mbuji-Mayi in Kasai-Oriental Province. In 2012, MIBA's production from its alluvial deposits increased to 500,726 carats from 243,522 carats in 2011 (Société Minière de Bakwanga, 2013).

In 2011, Government-owned Société Congolaise d'Investissment Minier (SCIM) restarted diamond production at Tshibwe, which was operated by Sengamines from 2001 to 2005. The production capacity at Tshibwe was 600,000 carats per year. In September 2012, SCIM was producing at 40% of capacity because of its reliance on high-cost thermally generated electricity. The Government planned to invest $80 million in a new diamond processing plant and $70 million in a small-scale hydroelectric power station on the Lubi River to increase SCIM's production capacity to 6 million carats per year. Reserves at Tshibwe were estimated to be 159 million carats (COPIREP News, 2012).

Sankuru River Diamond Mines Ltd. and MIBA were considering the development of a new mine about 13 kilometers from MIBA's operations. The companies started a 7-month sampling program and trial mining in early 2012. Depending on the success of the sampling and trial mining, initial production could start within an additional 3 to 7 months. Sankuru River and MIBA planned to ramp up production from 274,000 carats in the first year of mining to the full capacity of 2.85 million carats per year in the fourth year. Resources in the alluvial deposits at Tshibwe were estimated to be about 20.6 million carats (Sankuru River Diamond Mines Ltd., undated, p. 1–4).

IGE Resources AB of Sweden held exploitation and small mining licenses for the Longatshimo River and the Tshikapa River projects, which had resources of more than 3.5 million carats each in alluvial deposits. At the end of 2012, IGE Resources had started work on commissioning small-scale mining operations at Longatshimo River and Tshikapa River (IGE Resources AB, 2013, p. 4–5).

Phosphate Rock.—Minbos Resources Ltd. of Australia held the Kanzi deposit in western Congo (Kinshasa), which had estimated resources of 66 Mt at a grade of 15.3% phosphorous pentoxide (P_2O_5). An updated resource assessment was planned for the first quarter of 2013. In November 2012, Minbos completed a scoping study on a new mine at Kanzi. Depending on the outcome of its feasibility study, the company could start mining at Kanzi by 2015. Production was likely to be about 1 Mt/yr of phosphate rock at a grade of about 32% P_2O_5 during the estimated 17-year life of the mine (Minbos Resources Ltd., 2012; SA Mining, 2013).

Mineral Fuels

Coal.—Gecamines produced 1,469 t of coal at the Luena Mine in 2011 and 3,870 t in 2012. In 2013, the company planned to spend $15 million on a feasibility study on a new coal-fired power station with a capacity of 500 megawatts (La Générale des Carrières et des Mines, 2013, p. 28–29).

Outlook

Cobalt and copper output in Congo (Kinshasa) are expected to increase substantially in the near future. At least 10 companies planned to increase or start copper mining, and at least 5 planned to increase cobalt mining. Gold production is also likely to increase with the opening of the Kibali, the Mongbwalu, and the Namoya Mines. The opening of new plants is expected to result in increased cement production by 2014. Phosphate rock mining could start by 2015. 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. Miners in Provinces with low levels of compliance with iTSCI were likely to face lower demand and prices for niobium, tantalum, tin, and tungsten.

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TABLE 1
CONGO (KINSHASA): PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2008	2009	2010	2011	2012[e]
METALS						
Cobalt:						
Mine output, Co content[e, 3]		31,000	40,000	60,000	60,000	51,000
Metal, Co content[4]		1,049	2,970	4,222 [r]	3,103 [r]	3,021 [5]
Copper:						
Mine output, Cu content[e]		230,000 [r]	330,000 [r]	420,000 [r]	530,000 [r]	660,000
Refined		38,632	166,915 [r]	260,759 [r]	362,000 [r]	468,900 [5]
Germanium, mine output, Ge content[e]	kilograms	23,000 [r]	19,000 [r]	17,000 [r]	21,000 [r]	18,000
Gold, mine output, Au content[e]	do.	10,000 [r]	11,000 [r]	12,000 [r]	12,000 [r]	14,000
Niobium (columbium) and tantalum:						
Columbite-tantalite concentrate:						
Gross weight[6]		527	468	397	450 [r, e]	380
Nb content[e]		120	110	90	100 [r]	90
Ta content[e]		140	130	110	120 [r]	100
Pyrochlore concentrate:						
Gross weight[6]		119	80	--	--	-- [5]
Nb content		59 [e]	40	--	--	-- [5]
Silver, mine output, Ag content	kilograms	34,083	--	6,446	10,080	12,342 [5]
Steel, crude		104,000 [r]	109,700	104,000	104,000 [r]	110,000
Tin, mine output, concentrate:						
Gross weight[6]		19,335	15,195	13,255	7,400 [r, e]	5,700
Sn content[e]		12,600	9,900	8,600	4,800 [r]	3,700
Tungsten, mine output, concentrate:						
Gross weight[6]		716	385	45	130 [r, e]	185
W content[e]		370	200	25 [r]	70 [r]	95
Zinc, mine output, Zn content		15,465	19,636	9,223	19,035	10,319 [5]
INDUSTRIAL MINERALS						
Cement, hydraulic		411,212	460,344	489,745	457,761	376,600 [5]
Diamond:[7]						
Artisanal	thousand carats	20,146	16,871 [r]	16,800	19,227	20,157 [5]
Large-scale	do.	986 [r]	104 [r]	-- [r]	320 [r]	740
Total	do.	21,132 [r]	16,975 [r]	16,800 [r]	19,547 [r]	20,900
Lime		NA [r]	NA [r]	NA [r]	NA [r]	NA
Stone, crushed		230,700 [r]	253,800 [r]	279,100 [r]	307,000 [r]	310,000
Sulfuric acid[e]		150,000	550,000	850,000	1,200,000	1,600,000
MINERAL FUELS AND RELATED MATERIALS						
Coal, bituminous		--	--	-- [e]	1,469 [r]	3,870 [5]
Petroleum, crude	thousand 42-gallon barrels	8,365	9,382	8,628	8,558	8,545 [5]

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through September 26, 2013.

[2]In 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.

[3]Includes mine production and reprocessed tailings.

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

[5]Reported data.

[6]Reported exports from Nord-Kivu and Sud-Kivu Provinces and production from Katanga Province.

[7]An 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 2012

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Cimenterie de Lukala (HeidelbergCement AG, 55%)	Lukala plant near Kinshasa	420,000.
Do.	Cimenterie Nationale SARL (Nova Cimangola, 58%)	Kimpese plant, 40 kilometers south of Kinshasa	300,000.
Do.	Ciment et Matériaux du Katanga [Enterprise Malta Forrest SPRL (EGMF), 50.27%, and Générale des Carrières et des Mines (Gécamines), 49.73%]	Lubudi plant, between Likasi and Kolwezi, Katanga Province	87,000.
Do.	Interlacs (HeidelbergCement AG, 70%)	Kabimba plant near Lubumbashi	50,000.
Do.	do.	Katana plant in Sud-Kivu Province[1]	25,000.
Copper and cobalt:			
Mine	Tenke Fungurume Mining SARL [Freeport McMoran Copper & Gold Inc., 56%; Lundin Mining Corp., 24%; and Générale des Carrières et des Mines (Gécamines), 20%]	Tenke Fungurume Mine	195,000 copper in ore; 15,000 cobalt in ore.
Do.	Katanga Mining Ltd. (Glencore International AG, 75.2%, and Générale des Carrières et des Mines (Gécamines), 24.8%]	KOV and KTO Mines	190,000[e] copper; 8,000[e] cobalt.
Do.	Eurasian Natural Resources Corp plc (ENRC)	Frontier Mine[1]	84,000 copper.
Do.	do.	Lonshi Mine in Katanga Province[1]	50,000 copper.
Do.	Boss Mining SPRL [Eurasian Natural Resources Corp. plc, 70%, and Générale des Carrières et des Mines (Gécamines), 30%]	Mukondo Mountain Mine	40,000[e] copper; 10,000[e] cobalt.
Do.	Mutanda Mining SPRL (Glencore International AG, 60%, and Bazano Group, 40%)	Mutanda Mine	110,000[e] copper; 23,000 cobalt.
Do.	MMG Ltd.	Kinsevere Mine	60,000 copper.
Do.	do.	Mutoshi Mine[1]	16,500 copper.
Do.	La Générale des Carrières et des Mines (Gécamines)	Kamfundwa, Kamoya Central, Kamoya South, Kilamusembu, and Shangalowe Mines	50,000[e] copper; 2,500[e] cobalt.
Do.	Compagnie Minière du Sud Katanga [subsidiary of La Générale des Carrières et des Mines (Gécamines)]	Luiswishi Mine near Lubumbashi	10,000 copper; 4,000 cobalt.
Do.	Artisanal miners	Mines in Katanga Province	45,000[e] copper.
Do.	Ruashi Mining SPRL [Metorex Group, 75% (subsidiary of Jinchuan Group)]	Ruashi Mine	36,000 copper; 5,000 cobalt.
Do.	Tiger Resources Ltd., 60%, and Générale des Carrières et des Mines (Gécamines), 40%	Kipoi Mine	35,000 copper.
Do.	Congo Dong Fang International Mining sprl	Mines in Katanga Province	33,000[e] copper; 1,900[e] cobalt.
Do.	Chemaf SPRL (subsidiary of Shalina Resources Ltd.)	Etoile Mine	31,500[e] copper; 2,400[e] cobalt.
Do.	Société Minière du Katanga SPRL (Somika)	Mines in Katanga Province	20,000[e] copper; 3,000 cobalt.
Do.	Anvil Mining Congo SARL (Mawson West Ltd., 90%)	Dikulushi Mine	20,000 copper.
Do.	La Société pour le Traitement du Terril de Lubumbashi (STL) [OM Group Inc., 55%; Enterprise Générale Malta Forrest SPRL (EGMF), 25%; and Générale des Carrières et des Mines (Gécamines), 20%]	Big Hill tailings treatment plant at Lubumbashi	3,000 copper; 5,000 cobalt.
Blister	Congo Dong Fang International Mining sprl	Plant in Lubumbashi	25,000[e] copper.
Do.	Congo Loyal Will Mining sprl	do.	20,000[e] copper.
Do.	Rubamin SPRL	Plant in Likasi	20,000 copper.
Do.	Société Minière du Katanga SPRL (Somika)	Plant near Lubumbashi	8,000 copper.

See footnotes at end of table.

TABLE 2—Continued
CONGO (KINSHASA): STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Copper and cobalt—Continued:				
Refined		Tenke Fungurume Mining SARL	Tenke Fungurume plant	195,000 copper.
Do.		Katanga Mining Ltd.	Luilu plant	190,000 copper; 8,000 cobalt.
Do.		Mutanda Mining SPRL (Glencore International AG, 60%, and Bazano Group, 40%)	Mutanda plant	110,000 copper.
Do.		MMG Ltd.	Kinsevere plant	60,000 copper.
Do.		Boss Mining SPRL	Luita plant near Lubumbashi	40,000 copper.
Do.		Ruashi Mining SPRL	Ruashi plant	36,000 copper.
Do.		Chemaf SPRL	Usoke plant in Lubumbashi	31,500 copper.
Do.		La Générale des Carrières et des Mines (Gécamines)	Shituru plant	21,600 copper
Do.		do.	Fonderie Electrique de Panda cobalt plant	1,200 cobalt.
Do.		Société Minière du Katanga SPRL (Somika)	Plant near Lubumbashi	12,000 copper.
Diamond	carats	Artisanal miners	Mines at Aketi in Orientale Province, at Bakongo, Bakwachimuna, and Tshibue in Kasai-Oriental Province, and at Tshikapa in Kasai-Occidental Province	20,000,000.[e]
Do.	do.	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	1,000,000.[e]
Do.	do.	Societe Congolaise d'Investissment Minier (SCIM) (Government, 80%)	Mine at Tshibwe	600,000.
Germanium	kilograms	La Société pour le Traitement du Terril de Lubumbashi (STL)	Big Hill tailings treatment plant at Lubumbashi	20,000.
Gold	do.	Artisanal and small-scale miners	Mines at 813 sites in Ituri Interim Administration, including:	6,000.[e]
Do.	do.	do.	343 sites in Mambasa Territory	NA.
Do.	do.	do.	230 sites in Djugu Territory	NA.
Do.	do.	do.	209 sites in Irumu Territory	NA.
Do.	do.	do.	15 large mines and between 70 and 100 smaller mines at various sites in Nord-Kivu and Sud-Kivu Provinces	6,000.[e]
Do.	do.	Banro Corp.	Twangiza Mine in Sud-Kivu Province	3,700.
Niobium (columbium) and tantalum		Société Minière du Kivu (Simikivu) (GfE Metalle und Materialien GmbH of Germany, 70%)	Lueshe Mine[1]	1,440 pyrochlore.
Do.		Artisanal and small-scale miners	Mines in Nyunzu Territory	200[e] columbite-tantalite.
Do.		do.	Mines in Manono Territory	21[e] columbite-tantalite.
Do.		do.	Mines in Maniema, Nord-Kivu, and Sud-Kivu Provinces	NA.
Petroleum, crude	thousand 42-gallon barrels	Perenco REP (subsidiary of Perenco plc) and Congolaise des Hydrocarbures SARL	Kifuku, Kinkasi, Liawenda, Makelekese, Muanda, Nsiamfuma, and Tschiende 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%	Mibale, Motoba, and Tshiala offshore wells	3,650.
Silver	kilograms	Anvil Mining Congo SARL	Dikulushi Mine	11,000.
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.

See footnotes at end of table.

TABLE 2—Continued
CONGO (KINSHASA): STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Tin	Artisanal and small-scale miners	Kalima Mines in Maniema Province	1,200[e] cassiterite.
Do.	do.	Mines in Malemba Nkulu Territory	970[e] cassiterite.
Do.	do.	Mines in Mitwaba Territory	830[e] cassiterite.
Do.	do.	Mines in Lubudi Territory	760[e] cassiterite.
Do.	do.	Mines in Bukama/Luena Territory	540[e] cassiterite.
Do.	do.	Mines in Manono Territory	500[e] cassiterite.
Do.	do.	Kasese Mines in Maniema Province	500[e] cassiterite.
Tungsten	do.	Mines in Bukama/Luena Territory	58[e] wolframite.
Do.	do.	Mines in Manono Territory	33[e] wolframite.
Zinc	La Société pour le Traitement du Terril de Lubumbashi (STL)	Big Hill tailings treatment plant at Lubumbashi	15,000 zinc in zinc oxide.

[e]Estimated. Do., do. Ditto. NA Not available.
[1]Not operating at the end of 2012.