



# 2007 Minerals Yearbook

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**UGANDA [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF UGANDA

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Uganda was succeeding in attracting local and foreign investment in its mineral sector. Interest in the country's mineral potential had been increasing since the Government made efforts to make its mining and investment laws more investor friendly. Renewed exploration efforts were taking place in the western Rift Valley, an area that was thought to contain considerable hydrocarbon deposits.

## Minerals in the National Economy

Uganda produced cobalt, gold, iron ore, steel, and tungsten. Uganda also produced such industrial minerals as gypsum, kaolin and other clays, lime, salt, and vermiculite, and such building materials as cement, limestone, and pozzolanic materials. The country also had many areas that were thought to have potential for the occurrence of minerals, but these areas remained relatively unexplored despite the country's long history of production. The Kamwenge District has some of the richest mineral deposits in the country, including deposits of gold, lead, and limestone.

The mining and quarrying sector grew by 14% in fiscal year 2006-07 compared with 8% in fiscal year 2005-06. The change was stimulated chiefly by increased construction activity (Organization for Economic Cooperation and Development, 2008).

## Production

Most of Uganda's aggregate, cobalt, gold, and vermiculite production was exported; production of these commodities was dependant upon world market conditions. Production and consumption depended primarily on the domestic construction sector for cement, limestone, pozzolanic materials, and steel. Data on the mineral production of Uganda are provided in table 1.

## Structure of the Mineral Industry

Table 2 is a list of the major mineral industry facilities in Uganda. The table provides the location and production capacities of these facilities.

## Commodity Review

### Metals

**Cobalt.**—Kasese Cobalt Company Ltd. (Kasese) operated a 1,000-metric-ton-per-year (t/yr) processing plant that recovered the cobalt contained in a stockpile of cobalt-rich sulfide concentrate deposited as tailings from the former Kilembe copper mine. Kasese's metal refining operations included the bioleaching of the pyrite concentrate, solvent extraction of the dissolved cobalt, and recovery through electrowinning. Kasese also owned the 9.9-megawatt (MW)-capacity Mubuku III hydroelectric power station, which supplied power to the cobalt

processing plant and to the Government, and the Hima limestone quarry, which supplied crushed limestone to the processing plant. The bioleach process used to extract the cobalt was unique to Kasese and was reported to be the only cobalt bioleach operation in the world (Kasese Cobalt Company Ltd., 2007).

**Copper.**—The Government began the process of selling Kilembe Mines Ltd. (KLM), of which the Government owned 99%. The copper mining company had been idle for several years. The Government planned to sell the company because interest in the metal had picked up on the world market. At the October 2007 market price, the 4.1-million-metric-ton (Mt) copper resource would be worth about \$1.2 billion. There was also a potential for recoverable cobalt and gold as a coproduct from the copper ore (Kisambira, 2007a).

**Gold.**—Grey Crown Resources Ltd. acquired the gold mining company Busitema Mining Cie Ltd.; the purchase included the producing Tira gold mine. The Tira Mine was a small open pit gold producer located in the Busia region of Uganda and reportedly was located on a regional trend that contained estimated gold resources of 1.06 million kilograms. Grey Crown was intending to increase gold production by expanding its gold production facilities and the capacity of the Tira Mine. The company also planned to conduct further exploration of the license area to establish proven estimated reserves (World Gold Council, 2007).

Aura Moto Gold Ltd. (AMG), a subsidiary of Blackcomb Minerals Ltd. of the United Kingdom, was granted two gold exploration permits in northwestern Uganda. It would be the first major exploration in that region in more than 50 years. There was speculation that the geology of the Kilo Motos belt in the Democratic Republic of the Congo [Congo (Kinshasa)] extended into Uganda; however, very little exploration had been done in the area. AMG planned to begin operations after receiving data collected on the area by the Uganda Department of Geological Survey and Mines. The first phase would be to establish the geologic relationship between the Kilo Motos belt in Congo (Kinshasa) and a similar area in Uganda (All Africa Global Media, 2007).

Through the acquisition of African Mineral Fields Inc. (AMF), Magnus International Resources Inc. acquired a 100% interest in two gold projects—the Lugazi and the Mubende—as well as an option to acquire a 100% interest in another two gold projects—the Mitoma and the Mwerusandu. The four gold properties encompass a total of 1,996 square kilometers (km<sup>2</sup>) of licenses. AMF planned to commence 5,000 meters of drilling on four initial gold targets. These targets comprised a 3-kilometer (km)-long gold-in-soil and magnetic anomaly at the Lugazi project; a scorodite-rich quartzite zone at the Mwerusandu project, where visible gold was observed; and two main soil anomalies at the Mitoma project (Magnus International Resources Inc., 2007).

**Iron and Steel.**—Iron ore reserves in Uganda occur in the eastern and southwestern parts of the country, which

have estimated resources (combined) of between 80,000 and 100,000 Mt. Iron ore occurs mainly in two areas; the hematite ore is found mainly in the Muko/Kabale area of Kisoro in southwestern Uganda, and magnetite ore is found at the Bukusu and the Sukulu areas of Tororo in eastern Uganda. Hematite ore was also known to occur in the Mugabuzi area of Sembabule. Production from Uganda's steel mills, which used scrap metal as their basic raw material, did not satisfy domestic demand. Most of the steel was imported and was expensive on the local market. Steel scrap supplies were erratic and scattered all over the country (Kisambira, 2007b).

### **Industrial Minerals**

**Cement.**—The Government approved the construction of a \$105 million cement plant in Kasese (the third of its kind in the country). The investment of Hima Cement Industries Ltd. (a subsidiary of the Lafarge Group of France) would boost cement production from 350,000 metric tons (t) in 2007 to 830,000 t in 2010. The other cement plant in the country, Tororo Cement Industries Ltd. in eastern Uganda, produced about 390,000 t/yr. In 2006, Uganda spent \$36 million to import 396,000 t of cement; this figure that was expected to double in 2008 (Nakaweesi, 2007).

**Diamond.**—Devex Ltd.'s Muko diamond project covered a 21-km<sup>2</sup> area within the Muko Volcanic Complex in southwestern Uganda, which was considered prospective for diamond. The Muko diamond target includes a cluster of volcanic cones and craters within a 1-km<sup>2</sup> center. The composition of the flows could be derived from a deep-mantle peridotitic magma that forms kimberlite or lamproitic volcanic pipes. The Muko prospect conforms to the model for a lamproite-hosted diamond deposit as found in the Argyle Mine in Australia (African Mining, 2007).

**Salt.**—The Department of Geological Survey and Mines announced that it had allocated \$42 million to promote small-scale salt mining. The Department would give \$10,000 to individuals and \$20,000 to groups under the 5-year project. The project was funded by the African Development Bank, the International Development Agency, the Nordic Bank, and the World Bank. The Department was to inspect the Muhokya field to ascertain how to improve salt mining in the area. The miners used crude methods of mining and lacked basic protective gear (Colombus, 2007).

**Stone, Crushed and Dimension.**—Stone suitable for crushing was available in most parts of the country. Gneiss, granite, quartzite, and sandstone were widely distributed throughout areas of Precambrian basement. Agglomerates and volcanic lavas occur in the eastern and southeastern areas of the country. Marble occurs extensively in the Moroto District.

The major limestone deposits at Hima and Tororo have provided the major raw materials for Uganda's cement industry. Limestone was quarried by Hima Cement, Kilembe Mines Ltd., and Tororo Cement Industries Ltd.

**Vermiculite.**—International Business Investment Corp. (IBI) of Canada announced that it had signed an agreement with Rio Tinto Uganda (a subsidiary of Rio Tinto plc of the United Kingdom) for the sale of IBI's Namekara vermiculite

mine. The Namekara deposit is located on the southern ring of the 13-km-diameter Bukusu carbonate complex in the Mbale District of southeastern Uganda, close to the Kenya border. Reserves were estimated to be about 5 Mt, which would be sufficient to support more than 100 years of production at the 2007 level of production. Uganda produced about 1% of world production of vermiculite. Rio Tinto agreed to pay IBI \$5 million for the project, as well as ongoing royalties (Mining Weekly, 2007).

### **Mineral Fuels and Other Sources of Energy**

**Petroleum.**—Heritage Oil Corp. announced the largest oil find yet at its Kingfisher well in western Uganda. The flow rate from the well was 13,893 barrels per day (bbl/d). The oil was of good quality with a low gas-to-oil ratio. Heritage was the second company to find oil in Uganda. In 2006, Hardman Resources Ltd. drilled three wells in Block 2, also in Bunyoro, and tested a cumulative flow of 12,040 bbl/d. Tower Co. started prospecting in the same basin in 2007. Following these discoveries, the Government signed an early production agreement with Hardman in which a mini-refinery might be built in Bunyoro to produce oil to run a powerplant. Production was expected to begin in 2009 (Alexander's Gas & Oil Connections, 2007a).

**Renewable Energy.**—A Government study reported that, owing to the power shortage, a new technology was introduced that uses husks from plants and wild grass to fuel an electricity generating plant. The gas-fired technology used waste from maize, millet, sorghum, and other wild plants, which are fed into a machine that generates electricity. This kind of technology had been introduced in Rwanda. Uganda was considered ideal for such technology owing to the availability of fertile land and because it has at least two planting seasons to produce the required raw materials for the generation of electricity. It would require about 200 hectares of land to provide the material to produce 1 MW of electricity (Alexander's Gas & Oil Connections, 2007b).

**Uranium.**—Uranium Hunter Corp. reported that it had confirmed specific uranium targets on its Kibaale project, which consisted of the Kagadi and the Nkoko properties, in southwestern Uganda. Results of a Government aerial geophysical survey indicated enhanced radiometric values in the Kagadi area. Survey results indicated that Kagadi had highly radioactive granite in the area of a north-northeast fault separating the granite from the Basement Complex schist. Uranium Hunter was considering ground followup with drilling in the fault zone in the Kagadi area (MBendi Information Services (Pty) Ltd., 2007).

### **Outlook**

Most of Uganda's cobalt, columbite-tantalite, gold, and vermiculite production will most likely continue to be exported; the outlook for these commodities depends heavily upon world market conditions. For cement, limestone, and pozzolanic materials, the outlook depends primarily upon the strength of the domestic construction sector. The aid provided to Uganda by the African Development Fund, the Nordic Development Fund, and

the World Bank Group under the Sustainable Management of Mineral Resources Project will continue to assist the country in increasing production and tax revenues from its mining sector. The continued unreliability of power supplies is expected to pose difficulties for mining and mineral processing operations.

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TABLE 1  
 UGANDA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2003	2004	2005	2006	2007 <sup>e</sup>
Beryllium, mine output, Be content	-- <sup>r</sup>	25	2	--	--
Cement, hydraulic	507,068	558,988	630,000 <sup>e</sup>	630,000 <sup>e</sup>	650,000
Clay:					
Kaolin	--	537	55	30	20
Other <sup>c</sup>	44,000	44,000	51,000	50,000	50,000
Cobalt, refined	--	436	638	689 <sup>r</sup>	698
Gold, mine output, Au content <sup>3</sup>	40	1,447	46 <sup>r</sup>	22 <sup>r</sup>	20
Gypsum	43	181	285	121 <sup>r</sup>	125
Iron ore	--	--	209	208 <sup>r</sup>	200
Lime, hydrated and quick <sup>c</sup>	10,000	10,000	10,000	10,000	10,000
Limestone	226,408	228,776	540,756	425,611 <sup>r</sup>	450,000
Niobium (columbium) and tantalum, ore and concentrate: <sup>4</sup>					
Gross weight	16,240 <sup>r</sup>	376	273	275	275
Nb content <sup>c</sup>	7,600 <sup>r,5</sup>	170	130	130	130
Ta content <sup>c</sup>	4,400 <sup>r,5</sup>	100	70	70	70
Pozzolanic material	65,587	134,644	138,933	213,640 <sup>r</sup>	200,000
Salt <sup>c</sup>	5,000	5,000	1,500	1,500	1,500
Steel <sup>c</sup>	30,000 <sup>r</sup>	30,000 <sup>r</sup>	30,000 <sup>r</sup>	30,000 <sup>r</sup>	30,000
Tin, mine output, Sn content	1	2	--	--	--
Tungsten, mine output, W content	1	52	45 <sup>r</sup>	94 <sup>r</sup>	75
Vermiculite	1,724	2,688	2,574	3,512	3,500

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Includes data available through September 2008.

<sup>2</sup>In addition to the commodities listed, the following are presumably produced but information is inadequate to estimate output: corundum, lead, marble, sand and gravel, silica sand, and soapstone.

<sup>3</sup>Does not include smuggled artisanal production.

<sup>4</sup>The high level of production in 2003 and subsequent drop suggest the possibility of production from elsewhere outside the country.

<sup>5</sup>Reported figure.

TABLE 2  
UGANDA: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(Metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Cement	Tororo Cement Industries Ltd.	Tororo	394,000
Do.	Hima Cement Industries Ltd. (Bamburi Cement Ltd., 70%)	Kasese	350,000
Cobalt, refined	Kasese Cobalt Company Ltd. (Blue Earth Refineries Ltd., 75%, and Government, 25%)	do.	1,000
Columbium (niobium) and tantalum	M/S Technical Support and Services Ltd.	Wampewo	11,000 <sup>c</sup>
Gold kilograms	M/S Busitema Mining Company Ltd.	Tiira Mine near Busia	400
Lead, refined secondary	Uganda Batteries Ltd.	Kampala	1,000
Soapstone	African Minerals Ltd.	Moroto	NA
Steel: <sup>1</sup>			
Crude <sup>2</sup>	Steel Corp. of East Africa Ltd. (subsidiary of Madhvani Group)	Jinja	25,000
Do.	Steel Rolling Mills Ltd. (subsidiary of Alam Group Ltd.)	do.	21,000
Billet <sup>2</sup>	Steel Corp. of East Africa Ltd. (subsidiary of Madhvani Group)	do.	60,000
Rolled	do.	do.	101,200
Do. <sup>2</sup>	Steel Rolling Mills Ltd. (subsidiary of Alam Group Ltd.)	do.	40,000
Do. <sup>2</sup>	BM Technical Services Ltd.	Mbarara	20,000
Do.	Sembule Steel Mills Ltd.	Kampala	20,000
Stone, crushed	Hima Cement Industries Ltd.	Kasese District	NA
Do.	Kilembe Mines Ltd.	do.	NA
Do.	Tororo Cement Industries Ltd.	Tororo District	NA
Do.	Zzimwe Construction Ltd.	Mukono District	690,000
Tungsten	Krone Uganda Ltd.	Nyamurilo	115
Vermiculite	Canmin Resources Ltd. (subsidiary of International Business Investments Corp.)	Namekara	25,000

<sup>c</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>In addition to its crude, billet, and rolled steel facilities, Uganda has a galvanized steel plant with a capacity of 30,000 metric tons per year.

<sup>2</sup>Not operating in 2005/2006; more recent information is not available.