

## **Mining Sector Profile**



### **1. Background to the Mineral Sector**

Uganda lies within the African Plate which is a continental crust. Precambrian rocks ranging from Achaean, Lower Proterozoic to Middle Proterozoic (4500 - 600 Million Years) dominate the geology. Close to the eastern border with Kenya, lies a number of Cretaceous to Miocene (145.5 - 5.3 Million Years) intrusive alkaline carbonatite complexes. The Rift Valley contains Cenozoic (65 - 0.01 Million Years) to Recent sediments up to 4000 metres thick. These rocks are endowed with a wide variety of minerals as evidenced by past mining records and the numerous mineral occurrences in many parts of the country.

The mining industry in Uganda reached peak levels in the 1950's and 1960's when the sector accounted for up to 30% of Uganda's export earnings. However, political and economic instability experienced in the country in the 1970's and the recent global economic slowdown led the sector to decline drastically. Currently, the energy sector's contribution to total GDP, at current prices, was the lowest in (Financial Year) FY2009/2010 with a share of only 0.3 percent. It should be noted therefore that the decline is not a result of resource depletion but rather due to the bad governance at one time but recently due to poor world prices of cobalt and copper, among others.

The period after 1986 has been marked by a favourable business climate in Uganda and many mining companies have taken up licenses in the mining sector. Over the last ten years the sector has been growing positively with growth rates peaking 19.4% in FY 2006/07. In FY 2009/2010, the sector grew by 12.8%. In terms of licenses taken, in 1999 there were 66 licenses issued in the exploration and mining license categories combined; by the beginning of 2010 there was a total of 517 licenses issued. Table 1 gives a breakdown of the categories of these licenses between January and December 2009.

**Table 1: Mineral Licensing Status January – December, 2009**

Type of License	Status as at 1/01/2009	Granted	Renewed	Expired/Revoked	Status as at 31/12/2009
Prospecting	129	99	N/A	133	95
Exploration License	299	66	15	49	316
Retention License	2	0	0	0	2
Location	29	32	5	12	49
Mining Leases	20	0	0	0	20
Mineral Dealers*	0	33	N/A	0	33
Blasters Certificate*	0	1	N/A	0	1
Gold Smith License*	0	1	N/A	0	1
<b>Total</b>	<b>479</b>	<b>232</b>	<b>20</b>	<b>194</b>	<b>517</b>

These licenses cover the entire country but are generally concentrated in the more prospective areas in southwest and southeast Uganda. The fact that parts of north and central Uganda are to some extent under forest cover and at the same time have thick soils as a result of tropical weathering, limited geological data render them not conducive for mineral investment.

## **2. Investment Opportunities in the Mineral Sector**

The principal minerals that have been mined in the past, or are being mined at present or are known to occur are discussed below, and the mineral occurrence map (Appendix 3) shows their locations. In broad terms they can be divided into metallic and non-metallic minerals which investors can prospect and mine.

### **2.1. Metallic Minerals**

**Beryl:** Beryl is the main mineral from which the metal beryllium is extracted. It is associated with pegmatites, mainly in Ntungamo, Bushenyi, Kanungu and Rukungiri districts, but also at Mbale Estate and Lunya in Mubende and Mukono districts respectively. At one time in the early 1960's Uganda's beryl production accounted for 10% of world production. Production came mainly from Mutaka in Bushenyi district, Kazumu in Ntungamo districts and Bulema and Ishasha in Kanungu district. The deposits at Ishasha have the largest known potential.

**Uses:** Beryllium metal is used in making lightweight metal alloys for aircraft and in nuclear reactors. The coloured (green) variety as emerald is a precious stone, but yet to be discovered in Uganda.

**Bismuth (bismutite):** occurs in association with native gold and wolframite at Rwanzu in Kisoro district; Kitahurira in Kabale district; Kitwa and Muramba in Kanungu district.

**Uses:** Bismuth is used in making special alloy steel.

Chromium (chromite): Chromite prospects are found in chlorite schists at Nakiloro located 16 km NE of Moroto town. The chromite here is associated with platinum, a precious metal. There has been no chromite production to-date in Uganda.

**Uses:** Chromium is used in making special alloy steels and for chrome coating. Chromite as an industrial mineral is used in metallurgical processing and in furnaces as a refractory.

**Copper-Cobalt:** Copper has been found at several localities in Uganda but the only significant deposit discovered to-date has been at Kilembe, where copper-cobalt sulphide mineralization occurs. The other areas where copper mineralization has been noted are Bobong in Karamoja region and Kampono and Kitaka in Mbarara district. Copper is also reported in Buhweju, Bushenyi district.

Although copper was first reported at Kilembe in 1908, the deposit was not brought into production until 1956 on completion of the railway line to Kasese. Between 1957 and 1979 a total of 16.29 million tons ore averaging 1.95% Cu and 0.18% Co were mined and treated to yield 217,000 tons of blister copper which was exported, plus 1.1 million tons of cobaltiferous pyrite (iron sulphide) which was stockpiled. The Kasese Cobalt Company has installed a 1,000-ton per year cobalt plant and is processing the stockpile of pyrite concentrates.

The Kilembe mine ceased its production in 1982 and has since been on care and maintenance. Proven reserves of copper at closure were 4.17 million tons with a copper content of 1.77%, with opportunities to discover additional resources in the vicinity of the mine. In addition to copper still in the ground, there is 5.5 million tons of cobalt in tailings (dumped material from previous mining) at an average grade 0.114% Co.

**Uses:** Copper is mainly used in making electrical conductors. Cobalt is used in making special alloys for the aerospace industry, electronics and high-tech industry. Cobalt salts are used in the chemical industry and in tinting glass to give a blue colour.

**Gold:** Gold is widely distributed in Uganda but has been worked in only a few areas: Kahengyere and Muti in Buhweju and Mashonga in Kyamuhunga in Bushenyi district; Kitaka in Mbarara district; Chiruruma, Chilima, Bugarama, Mugyera in Kabale district; Murindi, Mpororo, Rubuguri and Karamba in Kisoro district; Bikongozo valley in Rukungiri district; Kashenyi, Kanungu, and Muramba in Kanungu district; Tira and Amonikakine in Busia district; Kamalenge and Kisita in Mubende district; Rupa and Kamalera in Moroto district and Kafu River in Hoima district. With the exception of Kisita, Kamalenge, Tira and Amonikakine where gold is being recovered from reefs (hard rock), most of the gold is recovered from alluvial material.

Most gold production has been by small producers who include licensed miners and artisans. Production statistics from artisanal miners is only indicative given the fact that most operators are not licensed and even the licensed ones tend to under-declare hence most of the gold is transacted through dubious channels.

**Uses:** The commonest use of gold is in gold bullion, followed by jewelry and electronics especially in the computer industry.

**Iron Ore:** Iron ore occurs principally as two types of minerals: hematite and magnetite. Hematite of high quality (90-98% Fe<sub>2</sub>O<sub>3</sub>) occurs at Butare in Kabale district; Kashenyi, Kyanyamuzinda and Kamena in Kisoro district with total resources in excess of 50 million tons, which contains negligible sulphur, phosphorus and titanium. Hematite iron ore with a resource of 2 million tons occurs at Mugabuzi in Mbarara district; and also occurs at Nyaituma in Hoima district. Hematite of about 2 million tones has been reported at Namugongo peninsula in Mayuge district.

Magnetite is associated with the carbonatite complexes and it occurs in Bukusu at Nakhupa, Nangalwe and Surumbusa and Namekhara in Manafwa district; Sukulu in Tororo district; Napak in Napak district and Toror in Kotido district, all in Karamoja.

At Sukulu, magnetite occurs in residual soils with apatite (phosphate). A resource of 45 million tons averaging 62% Fe, 2.6% P<sub>2</sub>O<sub>5</sub> and 0.9% TiO<sub>2</sub> has been estimated. Within Bukusu, 23 million tons has been estimated at Nakhupa, Nangalwe and Surumbusa sites, while Namekhara contains an estimated resource of 18 million tons with 13% TiO<sub>2</sub>.

There has been very limited production of iron ore in Uganda to-date mainly for use as an additive in the steel scrap smelting in Jinja and for special cement by Hima Cement.

**Uses:** The principal use of iron ore is in making of steel.

**Lead:** Galena, a mineral containing lead (with minor zinc and gold), occurs in quartz veins at Kampono, Kanyambogo and Kitaka in Kitomi Forest, Ibanda district. It also occurs associated with tin (cassiterite) at Kikagati. These deposits are all very small. Galena was mined only at Kitaka and production totaled only 750 tons over a 13- year period to 1960 when mining stopped.

**Uses:** In making motor vehicle batteries and heavy metal shield for nuclear radiation protection.

**Lithium:** Amblygonite the ore that contains lithium mineral is found to be associated with pegmatites at Ruhuma in Kabale district; Mwerasandu, Lwamwire and Nyabushenyi in Ntungamo district; Lunya in Mukono district; Nampeyo and Mbale Estate in Mubende district.

Lithium has been exploited only from the Nyabushenyi (Ntungamo) and Mbale Estate (Mubende) pegmatites. Most of the pegmatites are small and of irregular bodies, which mitigates against large-scale exploitation, but is well suited to small-scale production by local entrepreneurs.

**Uses:** Amblygonite the ore of lithium is used mainly as a non-metallic mineral, especially in chemicals.

**Niobium-Tantalum (columbite-tantalite):** The metals niobium (or columbium as it is sometimes called) and tantalum are derived from the minerals columbite and tantalite respectively. The two

minerals usually occur together in association, in varying proportions. Columbite-tantalite occurs in pegmatites at Kakanena, Nyanga, Rwakirezi, Nyabushenyi, Rwenkanga and Dwata in Ntungamo district; Jemubi and Kabira in Bushenyi district; Bulema in Kanungu district; Kihimbi in Kisoro district and Lunya in Mukono district. The pegmatites are generally of small size with irregular metal distribution.

Pyrochlore which is the most important niobium mineral occurs in carbonatites at Sukulu in Tororo district; Bukusu Complex in Manafwa district; Napak in Moroto district and Toror in Kotido district. The Sukulu phosphate deposit is potentially the most important source with a resource of over 230 million tons of which 130 million tons average 0.2% Nb<sub>2</sub>O<sub>5</sub>.

**Uses:** in making carbon steels, super alloys, high strength low-alloy steels, stainless and heat-resistant steels. The major end-use of tantalum is in production of electronic components and batteries for cellular phones, and in alloys.

**Tin (cassiterite):** Several tin deposits occur throughout southwest Uganda in quartz-mica veins in contact with granitic bodies intruded into shales and sandstone host rocks of Karagwe-Ankolean System confirmed to be a tin-field province that extends southwest into Rwanda and Congo and northern Tanzania. The individual veins are thin (rarely more than a metre in width) irregular and of small tonnage potential.

Tin occurs in single veins at Mwerasandu, Kaina, Nyinamaherere in Ntungamo district; Kikagati and Ndaniyankoko in Isingiro district and Burama Ridge on the Kabale/Ntungamo border.

Stockworks and sheeted vein swarms occur at Rwaminyinya in Kisoro district and Kitezo in Mbarara district and these may have large tonnage potential.

Uganda's tin concentrate production 1927 to 2001 totaled about 13,000 tons. The bulk of this production came from hard rock deposits, with minor eluvial production and no alluvial production. The largest deposit was Mwerasandu in Ntungamo district and substantial production also came from Kikagati in Isingiro district. Other producers were Rwaminyinya, Burama Ridge, Ndaniyankoko, Kaina and Nyinamaherere.

**Uses:** Is used mainly for coating iron/steel to minimize rusting and also making cans for the food industry.

**Titanium (ilmenite/rutile):** Titanium minerals occur in the magnetite-rich carbonatites at Bukusu Complex in Mbale district and Sukulu in Tororo district. The Sukulu resource contains significant titanium (approximately 13% TiO<sub>2</sub>), while those at Surumbusa in the Bukusu Complex contain higher values (22% TiO<sub>2</sub>) locked up within the magnetite.

**Uses:** The main use of titanium is currently as a non-metallic mineral, especially as titanium oxide pigment in paint, paper, rubber, etc. rather than as a metal. The metal is used in the manufacture of corrosive resistant steel.

**Tungsten (wolframite/scheelite):** Numerous tungsten deposits occur in quartz vein type closely

associated with granitoid intrusions. Tungsten occurs in quartz veins closely associated with granitoid intrusions at Nyamuliro (also called Bjordal Mine), Rushunga and Ruhija in Kabale district; Kirwa, Mutolere, Rwamanyinya, Mpororo and Bahati in Kisoro district; Kyasampawo in Mubende district, Buyaga in Lyantonde district and Nakaseta in Mityana district.

The main deposits that have been mined are Nyamuliro (also called Bjordal Mine), Kirwa, Ruhija, Mutolere, Rwamanyinya and Bahati in Kabale and Kisoro districts. Others are Kyasampawo and Mbale Estate in Mubende district and Buyaga in Rakai district.

Uganda's wolframite concentrate production from 1935 to 2001 totaled over 5,000 tons and this came from the various low-grade deposits. Kirwa Mine one of the large producer from late 1940's to 1979 has a resource estimated at 1.25 million tons averaging 0.19% WO<sub>3</sub>. Bjordal Mine is currently being re-developed by M/S Krone Uganda Ltd. and production is up to 15 tons/month.

**Uses:** Tungsten is mainly used in making armour plate in military equipment, manufacture of filaments for electric bulbs and in making tungsten-carbide for drilling bits.

**Silver:** Silver occurs in association with galena at Kitaka in Mbarara district and in parts of Mubende granite in Mubende district.

**Uses:** Silver is used for monetary purposes, plated silverware, photographic and chemical industries and in electrical conductors.

**Zinc:** Zinc occurs with galena at Kitaka in Mbarara district.

**Uses:** Zinc is used in galvanizing, die castings, alloyed with copper to form brass, precipitating gold and in medicines and chemicals.

## **2.2. Non-Metallic Minerals**

**Talc:** Talc occurs at Itega-Manengo in Bushenyi district; Lolung-Moruamakale in Moroto district and Kisinga in Kasese district.

**Uses:** Talc is used as an extender in paints, ceramics, radio tubes, refractories, toilet powders, lotions and face creams.

**Mica:** Mica occurs at Morulem in Abim district; Lunya in Mukono district; Omwodulum in Lira district and Paimol, Parobong, Kacharalum, Agili, Akwanga, Achumo, Kukor, Labwordwong, Namokora, Naam and Okora in Pader district.

**Uses:** Mica is used in electrical insulation, electrical heater elements and filler in rubber and plastics.

**Graphite:** Graphite occurs at Zeu in Nebbi district and Matidi and Acholibur in Kitgum district.

**Uses:** Graphite is used in pencils, brake linings, steel making, batteries, lubricants and refractories.

**Kyanite:** Kyanite occurs at Ihunga and Kamirambuzi hills in Rukungiri district and near Murchison falls in Masindi district..

**Uses:** Kyanite is used in spark plugs.

**Aggregate, Crushed and Dimension Stone:** Stone suitable for crushing is available in most parts of the country. Granite, gneiss, quartzite and sandstone are widely distributed throughout the areas of Precambrian Basement. Dolerite and amphibolite also occur in central and eastern Uganda though they tend to be badly weathered. Volcanic tuffs and agglomerates occur extensively in the southwest and east of the country. Marble occurs extensively in Karamoja region.

Many granite prospects have been exploited for aggregates and still many new opportunities for investment exist like in dimension stone. Exploitation of granite into suitable products needs good infrastructure facilities and good market. It is therefore in this essence that granite occurrences within 100 km from the centre of Kampala where infrastructure and marketing is simplified are highlighted for investment purposes.

**Uses:** Stone is used in various forms in construction - as aggregate, hardcore, as building blocks and wall cladding and the beautiful coloured rocks mostly granite, gneiss, marble and gabbro are used in the dimension stone industry as decorative tiles and blocks.

**Clays:** Clay deposits suitable for the manufacture of bricks, tiles, pottery, etc. are widely distributed throughout Uganda. No detailed systematic investigation has been carried out throughout the country except around a few areas such as Kajjansi in Wakiso district; Bugungu near Jinja in Mukono district; Buteraniro in Mbarara district; Butende; Kasukengo in Masaka district; Malawa in Tororo district and Butema in Hoima district.

They are of variable quality, in terms of iron and quartz content and therefore show a highly variable reaction to firing. Careful and detailed investigation could show potential for better quality clays, including refractory material and china clay.

Samples collected from these prospects were analysed in the laboratories of the Geological Survey of Finland (GTK) for both physical and chemical properties.

They were found to be of variable quality, in terms of iron and quartz content and therefore show a highly variable reaction to firing.

**Uses:** Clay is a major raw material for various bricks and tiles in the building industry and pottery. High aluminous clays with low iron content are used in making refractory bricks for lining furnaces, in making porcelain and in fine ceramics such as china ware (plates, cups),

sanitary ware (toilet pans, basins, etc.) and pipes.

**Diatomite:** Diatomite deposits are located at Panyango, Alui and Atar near Packwach in Nebbi district and also farther north on the Ambosco River within the Rift Valley sediments. The diatomite occurs in horizons within clay beds and no detailed evaluation has been carried out. The Packwach diatomite is very white and contains a large proportion of (> 60%) of diatoms in a kaolin matrix. It has a good potential for the commercial production of both high-grade diatomite and kaolin by hydro-cycloning or oil classification.

**Uses:** The main uses of diatomite are: as a filtering medium for beer and the food industry, as well as a carrier in insecticides.

**Feldspar:** Feldspar is commonly associated with pegmatites found in the Precambrian Basement. It occurs at Bulema in Kanungu district; Bugangari in Rukungiri district; Mutaka in Bushenyi district; Nyabakweri in Ntungamo district and Lunya in Mukono district.

About 10 tonnes of feldspar are reported to have been mined at Lunya during the 1940's and exported to Kenya for porcelain manufacture. Currently, none of the mentioned prospects is producing feldspar although small quantities have been excavated from the Mutaka pegmatite from time to time.

Southwestern Uganda has many pegmatites and there is a probability that those which have not been heavily kaolinized contain recoverable quantities of feldspar.

**Uses:** Feldspar is used in ceramics as a flux and glaze, as well as in the glass industry in the melting process.

**Glass/silica Sand:** Glass is made by fusing silica with soda and lime to produce a transparent, colourless soda-lime silicate. Glass sands that form the main primary source of the silica need to be free of impurities such as iron oxides, alumina and heavy minerals.

Narrow beaches along the shores of Lake Victoria and some islands contain deposits of glass sand at several locations like Diimu and Bukakata in Masaka district; Lwera in Masaka district, Nalumuli Bay and Nyimu Bay and Kome Island in Mukono district.

The highest quality (99.95% SiO<sub>2</sub>) glass sands have been mined from Kome Islands in the past and exported to Kenya. At Diimu and Bukakata beaches, over 2 million tons of good quality sands (99.93% SiO<sub>2</sub> and 0.05% Fe<sub>2</sub>O<sub>3</sub>) have been delineated. The East African Glass Works Ltd. mined and used glass sands from Bukakata for making glass in the 1960's.

**Uses:** Silica sand is the main ingredient in making glass.

**Gypsum:** Gypsum (selenite) occurs as float and in clay beds with Rift Valley sediments near Kibuku in Bundibugyo district. Resources have been estimated at 2 million tons of gypsum. There has been only limited artisan production to-date and all was sold to Hima Cement, but was stopped due to poor production methods. Gypsum also occurs at Lake Mburo in Kiruhura district and at Kanyatete in Lake George basin sediments, Kasese district.

**Uses:** Gypsum is mainly used in the cement industry as an additive (4% content) to retard the setting process while building; it is also used as Plaster of Paris in medical applications, and also in making molds.

**Kaolin:** Kaolin is associated with Tertiary lateritisation in a number of localities at Namasera, Migadde, Gombe and Buwambo in Wakiso district; Mutaka in Bushenyi district; Kisai (Koki) in Rakai district, Kilembe in Kasese district, Kibalya in Bushenyi district, Binoni, Mparangasi and Ngabinoni in Hoima district.

**Mutaka kaolin** is by far the best quality and can be up-graded to a product averaging 87% kaolinite with 54% of the particles less than 2 microns in size and having brightness (80% unfired; 87% fired).

**Uses:** It has potential use in paints, paper, pesticides and ceramics.

**Limestone and Marble:** Secondary limestones derived from lime leached from calcareous tufa and from carbonate springs occur around an ancient shoreline of Lake George. They vary in type from calcrete, tufa (lake derived limestone) and sinter . at Muhokya in Kasese district and Dura in Kamwenge district, to true limestone at Hima in Kasese district.

At Muhokya the tufa deposit is of a high quality but is small in size and discontinuous; it is being mined for production of lime. At Dura, thick bands of almost pure aragonite occur in calcareous sinters in a narrow valley. The deposit has been partially eroded away and there is approximately 2 million tons.

The Hima limestones are far more extensive and a resource of 20 million tons of variable quality has been delineated. The deposit has a maximum thickness of 7.5 m and covers an area of approximately 500 hectares. Out of 20 million tons, 6 million is suitable for Portland cement manufacture.

Calcium carbonate occurs in carbonatite ring complexes at Sukulu and Tororo in Tororo district; Napak in Moroto district and Toror in Kotido district. They are variable in composition and may be high in phosphorous, due to associated apatite, and magnetite. Magnesium is variable and rises to >8% at Napak. Marbles, usually high in magnesia occur extensively in Moroto and Moyo districts. The marble has a range of shades from pure white, gray to a pink marble.

The major limestone deposits at Hima and Tororo have provided the major raw material for Uganda's Portland cement industry. The old plant at Tororo set up in 1953 has been rehabilitated and expanded by Tororo Cement Industries Ltd to produce 1,000 tons of cement per day. The company has adopted the international standard ISO 9002. The limestone at Tororo has high

phosphorous content and hence cement is manufactured after intensive selective mining. Production of cement is also based on clinker being imported from Japan and India. The company is mining marble in Moroto district, with encouraging results at Katikekile. Hima's current production is 900 tons per day.

**Uses:** Limestone is used for making cement and lime both of which are important inputs in the construction industry. Lime is also used as soil conditioner in agriculture (to reduce soil acidity). The main use of marble is as a raw material for marble tiles, but if low in magnesia is also used in making Portland cement, and the white varieties are used to make calcium carbonate powder used in paint and detergents.

**Phosphates:** Apatite is the main commercial ore of phosphate known in Uganda. The most important occurrences are associated with carbonatites, the two largest being at Sukulu and Bukusu. Weathering of the carbonatites has resulted in the residual concentration of apatite, magnetite, vermiculite, pyrochlore, barite, and zircon and rare earth elements.

The total resource in three valleys at Sukulu is estimated at over 230 million tons, with still further large resources under the laterite mantle. The apatite content is variable, averaging 13.1% P<sub>2</sub>O<sub>5</sub> and can be beneficiated to yield a product containing 40-42% P<sub>2</sub>O<sub>5</sub>. The deposit was mined by the Tororo Industrial Chemicals and Fertilizers Ltd. (TICAF). with a 25,000 tons/year single super-phosphate fertilizer plant at Tororo from 1964 to 1978.

Busumbu Ridge though a smaller deposit contains the richest concentration of phosphates in Bukusu. The bulk of the deposit consists of soft apatite-bearing soil, varying from 3 - 25% P<sub>2</sub>O<sub>5</sub>. A resource of 8.5 million tons averaging 13% P<sub>2</sub>O<sub>5</sub> has been established. Busumbu Mining Company commenced mining the deposit in 1944, with the concentrate exported to Kenya for conversion to a low priced fertilizer soda phosphate with high citric solubility. It was not suitable to convert the resource to super-phosphate owing to its high alumina and iron contents and production ceased in 1963 when TICAF established their operation to manufacture commercial fertilizers from the soils of Sukulu.

Nilefos Limited, a local company, has acquired an Retention Licence for the Sukulu deposit. The company is seeking for joint venture partners to develop the mines and manufacture phosphate fertilizers and other by-products.

**Uses:** The major use of apatite is in making of fertilizers. Other uses include making of detergents and chemicals.

**Salt:** Salt includes salt for human and animal consumption as well as various salts for industrial uses. Salt has been extracted on a small-scale from hot springs at Kibiro in Hoima district and on a larger scale from the floor of crater lakes at Katwe (22 millions of mixed salt) and Kasenyi in Kasese district for many centuries. The salt is a mixture of sodium and potassium chlorides with lesser amounts of sulphate and carbonates. The current method of production is based on solar evaporation in ponds and the product is crude due to mixing of the salts during fractionation and crystallization as well as with mud at the lake bottom.

Trona (sodium carbonate) occurs in the three areas, but on a larger scale at Katwe and Kasenyi. It is associated with mixed salts (sodium and potassium chlorides) and gypsum (calcium sulphate). At Katwe there is a resource of approximately 10 million tons of trona with mixed salts.

**Uses:** Sodium chloride is for making of common salt for human consumption, and industrial chemicals; potassium chloride is used making of potassium-based fertilizers; trona is used in glass manufacturing.

**Vermiculite:** Vermiculite is known to occur at Sukulu in Tororo district and Bukusu carbonatite Complex in Mbale district. The main occurrence at Bukusu is on a 10 km long semi-circular ridge (Namekhara, Nakhupa, Surumbusa, Kabatola and Sikusi), where vermiculite flakes occur in residual concentrations (from the leaching of phlogopite in carbonatite) below a surface cover of 3-5 m magnetite rubble. Apart from Namekhara, it is only Kabatola that contains appreciable quantities of vermiculite for exfoliation.

Recent exploration at Namekhara has delineated a resource of approximately 4 million tons of high quality vermiculite, which is probably one of the best known at present in the world. Gulf Resources (U) Ltd is currently mining and processing vermiculite with a planned output of 40,000 tons/year. Previous mining and processing activities were carried out by NPK Resources Ltd, Carmin resources Ltd. of Canada and Rio Tinto of South Africa.

**Uses:** Vermiculite is used as an insulator, in making fireproof boards, as a replacement of asbestos in brake linings, packaging materials, and lightweight concrete in construction. The poorer grades of vermiculite are used in horticulture (flowers), tea nurseries and golf courses, due to its ability to retain water over long period.

**Platinum Group Minerals:** Potential exists for platinum group metals (platinum, palladium and rhodium) in layered intrusives in the Archaean greenstone belts and areas with ultrabasic rocks. The high platinum assays of the Nakiloro chromite are indicative of this potential. Values as high as 3.0 - 7.5 grams per ton have been obtained on samples. The geology of the area is similar to the layered intrusives in South Africa, which have large deposits of platinum-group-metals (PGM).

**Nickel (?Co, Cu):** Potential exists for both primary volcanogenic massive Ni-Cu sulphide and secondary nickeliferous laterite deposits in/over ultramafics within Precambrian greenstone belts, and Lower-Middle Proterozoic sediments, but this has not been fully investigated.

An airborne geophysical survey carried out in 1980 over southern Uganda, and later followed by another similar survey of lower altitude and ground surveys identified magnetic bodies that are favourable for hosting nickel and cobalt in Kafunjo, Ntungamo district and Rugaga in Mbarara district, close to the border with Tanzania. Similar bodies in the same geological environment in Kabanga, Tanzania have been found to contain nickel mineralization.

**Diamond:** Potential for diamond exists in a number of areas in Uganda. Discovery of the diamonds in gravels occurred during prospecting for gold in Buhweju and a few small diamonds

were found at Kibale in 1938 and Butale in 1956. Consequently, exploration for diamonds in the country was carried out in the period 1965-1974.

Although no economic deposits were discovered, small diamonds and indicator minerals were discovered in many areas like southern Karamoja region, and Katakwi district. Cresta Mining Co. Ltd carried out exploration for diamonds in the basic volcanics of Kabale and Kisoro districts. Indicator minerals were identified and a follow-up work is recommended. Similarly, the basic volcanics in Bushenyi district are expected to have diamonds.

**Rare Earth Elements:** Good potential exists for small, irregular deposits of limited tonnage in pegmatites, but this has not been quantified. Potential exists for major deposits - the Sukulu carbonatite contains some rare earth elements, but this has not been fully investigated.

### **2.3. Other Mineral Opportunities**

Uranium: IBI Corporation's prospective uranium land portfolio is comprised of approximately 2,882 square kilometres, primarily in Uganda. Geophysical interpretation of data from the recent Uganda Aerial Minerals Survey of the country identified uranium mineralization on the Company's uranium lands, with more than 30 uranium anomalies being identified within the area of the Company's approximately 2,047 Km<sup>2</sup> Mubende area exploration licenses. With rising values of uranium, it is expected that anticipated demand for uranium for nuclear power generation will exceed projected supply for decades. Investors with technical and financial capability can work with IBI.

#### **Kilembe Mines Ltd**

Kilembe Mines Limited (KML) is still under care and maintenance. Government strategy to resume mining has since been divestiture of majority shareholding to private partner who will manage the Company. KML acquired two exploration licenses, surrounding the mining lease to explore and add unto the proven reserves in readying for the resumption of mining. The divestiture of the Company is following set procedures in the divestiture of entities owned by Government of Uganda. As of current, the Transaction Advisor (J.T. Boyyd and PASS Ltd) are at the last stage of enterprise preparation so that implementation of the KML divestiture can begin so that potential companies can bid to acquire majority stake in the company.

## **3. Mineral Sector Outlook**

### **3.1. Annual production volume/value**

The Government of Uganda put in place a Mineral Policy in 2001, whose goal is to develop the mineral sector to enable it contribute to sustainable economic and social growth by creating gainful employment and income, particularly to the rural population. The policy objectives are to:

- stimulate investment in the mineral sector by promoting private participation;
- ensure that mineral wealth supports national economic and social development;
- regularize and improve artisanal and small scale mining;
- stimulate and mitigate the adverse social and environmental impacts of mineral exploitation;
- remove restrictive practices on women participation in the mineral sector and protect children against mining hazards;
- develop and strengthen local capacity for mineral development; and

- add value to mineral ores and increase mineral trade.

Uganda currently produces a number of minerals valued at almost Ushs.100 billion. In terms of output value the most produced minerals as of end of 2010 were: limestone, cobalt, Wolfram, Tin, Kaolin and pozzolana. Table 2 lists the types of minerals by output and value.

**Table 2: Mineral Production for January to December 2010 compared with 2009 figures**

Mineral	Average Price per Tonne in 103 UGX, 2010	Production in Tonnes 2010			
		Jan -Mar	April-June	July-Sept	Oct- Dec
Limestone	120	126,481.72	180,927.76	135,409.12	191,854.88
Pozollana	21	120,186.24	71,701.77	94,065.31	160,362.58
Gold (Kg)*	83,833	0.0000	0.0001	0.0034	0.0003
Vermiculite	579	1.15	10.12	742.2	368
Cobalt**	59,779	147.31	166.68	157.78	96.47
Wolfram	34,575	20.00	15.47	19.70	0.00
Syenitic Aggregate	1.5	6,148.72	1,735.72	2,872.67	3,580.44
Kaolin	100	2,836.06	8,642.16	8,541.90	7,216.63
Iron Ore	70	934.48	1,335.78	765.74	758.74
Gypsum	100	-	-	-	-
Lead	5000	-	-	-	-
Coltan (30% Purity)	28,413	0.009	-	-	-
Tin (75% Purity)	34,034	-	-	-	32
Beryl (1% Beryllium)	8,715	-	-	-	-
Manganese (Above 46% Mn)	3,037				10
Grand Total					

Table 2..... continued

Mineral	Quantity in Tonnes		Average Value in 103 UGX	
	CY2009	CY2010	CY 2009	CY 2010
Limestone	588,944.71	634,673.48	70,673,365	76,160,818
Pozollana	440,292.49	446,315.90	9,246,142	9,372,634
Gold (Kg)*	0.0000	0.00	0	324
Vermiculite	-	1,121.47	0	649,331
Cobalt**	389.16	568.24	16,941,433	33,968,655
Wolfram	8.83	55.17	185,409	1,907,330
Syenitic Aggregate	14,026.87	14,337.55	21,040	21,506
Kaolin	4,721.34	27,236.75	472,134	2,723,675
Iron Ore	971.95	3,794.74	68,037	265,632
Gypsum	-	-	0	0.00
Lead	-	-	0	0
Coltan (30% Purity)	0.05	0.01	8,003	255.72
Tin (75% Purity)	0.04	32.00	883	1,089,088
Beryl (1% Beryllium)	-	-	0	0.00
Manganese (Above 46% Mn)	-	10.00	0	30,370
<b>Grand Total</b>			<b>97,616,446</b>	<b>126,189,619</b>

Source: Department of Geological Survey and Mines

\*\*Average price of gold on LME and average URA monthly fixed exchange rates were used to compute the average value of gold (and other minerals) over the year.

\*\*Cobalt prices have been on the low for a long time subsequently resulting in a slump in processing activity at KCCL. However, the figures improved significantly in 2010 compared to 2009 figures.

The Non Tax Revenue generated increased to UGX 3.96 billion in 2010 from UGX 2.75 billion in 2009. In terms of revenue accruing from mineral operations, government earned UGX 2.436 billion, as non tax revenue (NTR) accruing from royalties and mineral license fees.

Royalties alone contributed UGX 3.1 billion and UGX 1.701 billion of the total revenue generated shared at a rate of 80% for Central Government, 17% for Local Governments of mining districts and 3% to the lawful landowner. It is worthwhile noting that the major contributors to the revenue earned in 2009 were Tororo Cement Ltd, Hima Cement Ltd and Kasese Cobalt Company Ltd.

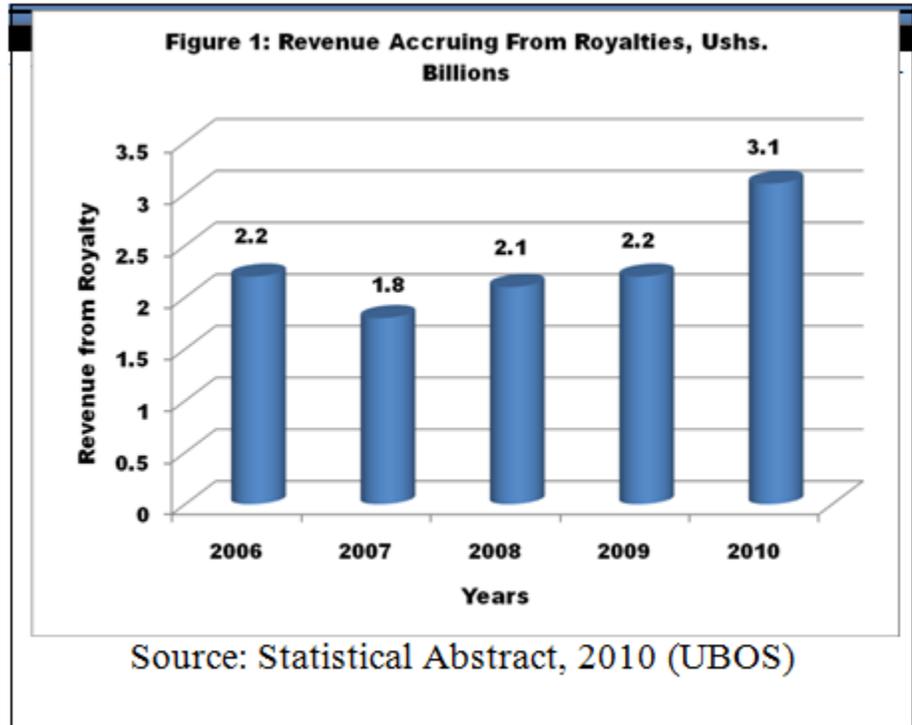


Figure 1 shows the revenue Uganda earned from royalties between year 2006 to 2010 which ranged between Ushs.1.8 billion in 2007 and Ushs.3.1 billion in 2010. With improvements in the prices for cobalt and gold, the NTR resulting from royalties is expected to rise.

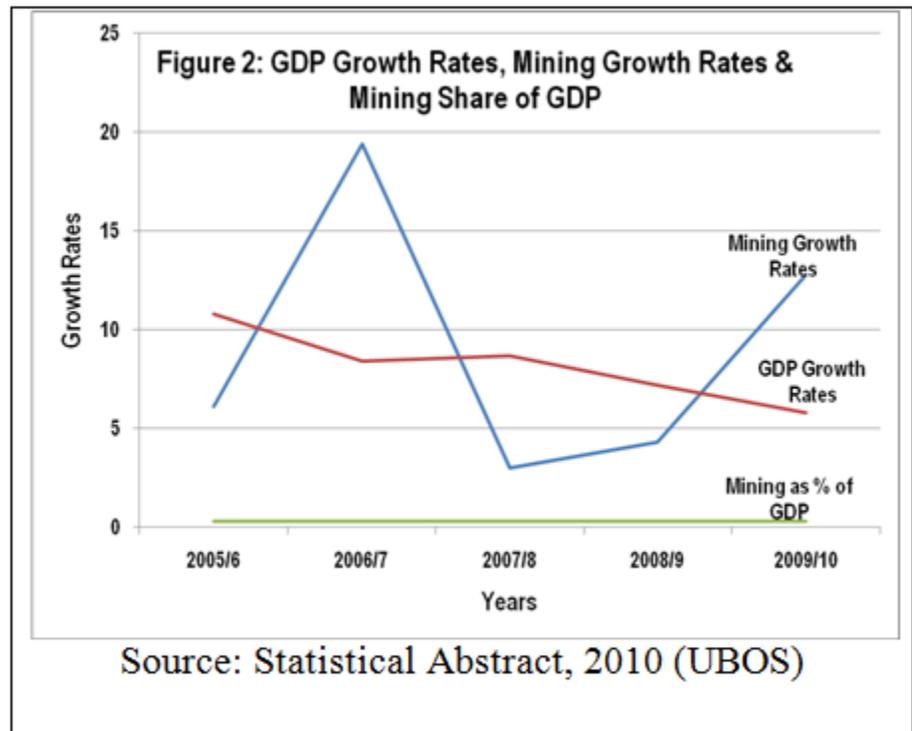
### 3.2. Employment trend in the Sector

The mineral sector is increasingly becoming very important in responding to the labour needs of the country. If one considers artisanal mining, there are currently over 180 artisanal and small scale miners in Uganda providing employment to over 20,000 miners with indirect & induced labour numbering over 54,000. This sector has a multiplier effect of US\$28.3/year according to recent studies by artisanal and small scale miners.

### 3.3. Mineral Sector contribution to GDP

Mining and quarrying activities were estimated to have grown by 12.8 percent in fiscal year (FY) 2009/10 compared to a 4.3 percent increase during the FY2008/09.

The growth in the mining and quarrying activities was due to increased demand for limestone, clay and quarry products. The sector's contribution to total GDP, at current prices, has been the lowest since FY2005/06 with a share of only 0.3 percent. Figure 2 compares the GDP growth rates with those of the mining sector over a 5-year period beginning FY2005/06.



In the FY2009/10, the

mining sector grew above that of the Gross Domestic Product. With a number of companies acquiring mining licences it is expected that the sector's prominence will be felt in the economy in the coming years. Further, the Government of Uganda (GoU) has identified the development of the country's mineral resources as a major economic priority and has put in place an extensive plan to bring this to fruition. Agencies such as the World Bank, the African Development Fund and the Nordic Development Fund, have provided over US\$47 million in funding to GoU to help further these mineral development strategies and initiatives.

## 4. Key strengths (competitive factors) or unique selling propositions

### 4.1 Strategic location

Uganda occupies a strategic position in East Africa, which gives it the advantage for the eventual development of exports of mineral products of Sudan, the Democratic Republic of Congo, Rwanda, Burundi, Kenya and Tanzania and the COMESA region as a whole.

### 4.2 General investment incentives

Under the Income Tax Act, Cap.340 the mining companies are given special consideration through a Variable Rate Income Tax (VRIT). The rationale for this arrangement is to capture a competitive share of net cash flows for the government at different mine profitability levels while at the same time providing suitable tax relief for projects. A minimum of 25% and a maximum 45% VRIT have been put in place depending on the level of profitability. Also under other tax provisions (like the East African Community Customs Management Act and Value Added Tax Act, Cap.349), there is the duty free importation of mining plant and equipment with VAT deferment facilities.

#### **4.3. Other incentives are:**

- Investment protection under the Multilateral Investment Guarantee Agency (MIGA)
- Mineral exploration expenditures are expensed 100%
- Import taxes such as customs duty for all mining equipment is zero-rated
- There is externalisation of dividends and profits
- Generous depreciation allowance at 30% for all depreciable mining assets.

#### **4.4 Availability of skills**

The Department of Geological Survey and Mines is being funded to undertake surveys aimed at providing the needed database to encourage investment in the sector, as well as the training of relevant personnel. The Department also has a cross section of professional staff that may be seconded on request, to companies wishing to commence new exploration programmes. Makerere University in Kampala offers degree courses in geology and various disciplines of engineering while a number of technicians are trained locally at Kyambogo University and other Technical Institutes spread throughout the country.

#### **4.5. Sustainable Management of Mineral Resources Project (SMMRP)**

The country has 648,400 line kms of magnetic and radiometric, and 22,709 line kms of electromagnetic [EM] data covering the entire country except for the Karamoja region. The data was generated as a result of an airborne geophysical survey undertaken by M/s Fugro Airborne Survey with the latest technology and supervised by Patterson Grant and Watson (PGW) that emphasized provision of very high quality data and outputs. This data is being integrated using GIS, with ground geophysical data, enhanced satellite imagery, geological mapping and geochemical surveys to delineate areas of high mineral resource potential. The information is available to potential investors wishing to have detailed exploration and development of mines.

### **5. Regulatory Framework/Licenses required for operation in the sector**

#### **5.1. Licencing**

The Mining Act 2003 repealed and replaced the Mining Act 1964, Cap. 248, with a new legislation on mining and mineral development, which conforms, and otherwise gives effect, to the relevant provisions of the Constitution; to vest the ownership and control of all minerals in Uganda in the Government. The Act also provides for the acquisition of mineral rights; and other related matters. Subject to the provisions of this Act, a person may acquire the right to search for, retain, mine and dispose of any mineral in Uganda by acquiring such right under and in accordance with the provisions of this Act.

Licensing for exploration and mining activities follows same procedures. It involves filling of forms available at the office of the Commissioner of the Department of Geological Survey and Mines (DGSM) and submitting them for assessment, paying assessment fees to the bank, getting a Uganda Revenue Authority (URA) receipt invoice, and then submitting it to the Commissioner for granting the license.

#### **5.2. Types of Licenses and Mineral Rights**

In order to operationalize the Mineral Policy, a new legislation, Mining Act, 2003 was enacted and appropriate regulations (The Mining Regulations 2004) were gazetted thereby replacing the Act of 1964 which was out-dated in many respects. The provisions in the new Act conform to the

contemporary industry conditions and practices. They include:

- Prospecting Licence - the licence is granted to the holder to prospect for minerals around the country and the licence is non-exclusive. It is granted for one year and is not renewable.
- Exploration Licence - the licence area is to a maximum of 500 sq. km and duration of 3 years, renewable for two terms of 2 years each. On each renewal, half the area is relinquished.
- Retention Licence - the licence is a new feature in the law. It is granted to the holder of an exploration licence in cases when the identified mineral deposit cannot be exploited due to economic reasons. Its duration is 3 years, renewable once for 2 years.
- Mining Lease - the licence is for mining operations and is granted for 21 years and is renewable for 15 years.
- Location Licence – the licence is for mining operations of a smaller investment where expenditure to achieve production will not exceed 500 currency points (a currency point is worth 20,000 Uganda shillings). It is granted to citizens of Uganda or in case of corporate, only where citizens of Uganda hold at least 51% of ownership. Its duration is 2 years, renewable for other terms of 2 years each.

### **5.3. Aspects/conditions to observe while acquiring licences/mineral rights**

- Royalties - All minerals obtained from any mineral right are subjected to royalty payment for example: precious stones - 5% of the gross value, precious metals - 3% of the gross value, base metals and ores - 3% of the gross value, and industrial minerals vary from 500 to 3000 Uganda shillings per tonne.
- Adequate Compensation - the law provides for fair compensation upon disturbance of surface rights of landowner or lawful occupier.
- Mineral Agreements – the law provides that the investor and government sign agreements relating to operations in order to stabilize legal, social and economic obligations of either party.
- Environment - the law has provisions on environment protection peculiar to mining operations.

### **5.4. Role of the Geological Survey and Mines Department (GSMD)**

The GSMD is the technical arm of MEMD and directly responsible for the implementation of the mineral policy. The duties include inter alia carrying out administration, supervising, regulating, monitoring, enforcing, training, providing extension services (collect, collate, process, analyse, archive and disseminate geoscience data) and promoting other sectoral activities.

### **5.5. Mineral Regulations, 2004 ([www.mining.co.ug](http://www.mining.co.ug) )**

These regulations operationalise the Mining Act. They contain procedures/application forms for acquiring the various licences like: prospecting, exploration, retention, location, mining lease, export/movement permits, mineral dealer's license, Goldsmith's license, certificate of amalgamation of location/mining lease, certificate of cessation/suspension/curtailment of working obligations, among others. Applications for these licenses are made to the Commissioner, GSMD and in many instances through the Office of Chief Administrative Officer at the district level.

### **5.6. Other Laws:**

Other important laws enacted by the Government of Uganda that affect mining and exploration, besides the Mining Act 2003 and Mining Regulations 2004, include:

- The National Environment Act 2003
- The Land Act 1998 (currently under revision)
- The Land Regulations Act 2004
- Registration of Titles Act 2000
- Contracts Act 2000
- The Arbitration and Conciliation Act 2000

### **6. Mineral Exports/Imports**

Under section 117 of the Act, the Commissioner may grant to any person an import permit to import minerals into Uganda on conditions prescribed by law and any such person shall make a declaration before a customs officer regarding the type and quantity of minerals imported, after which the customs officer shall certify the import permit.

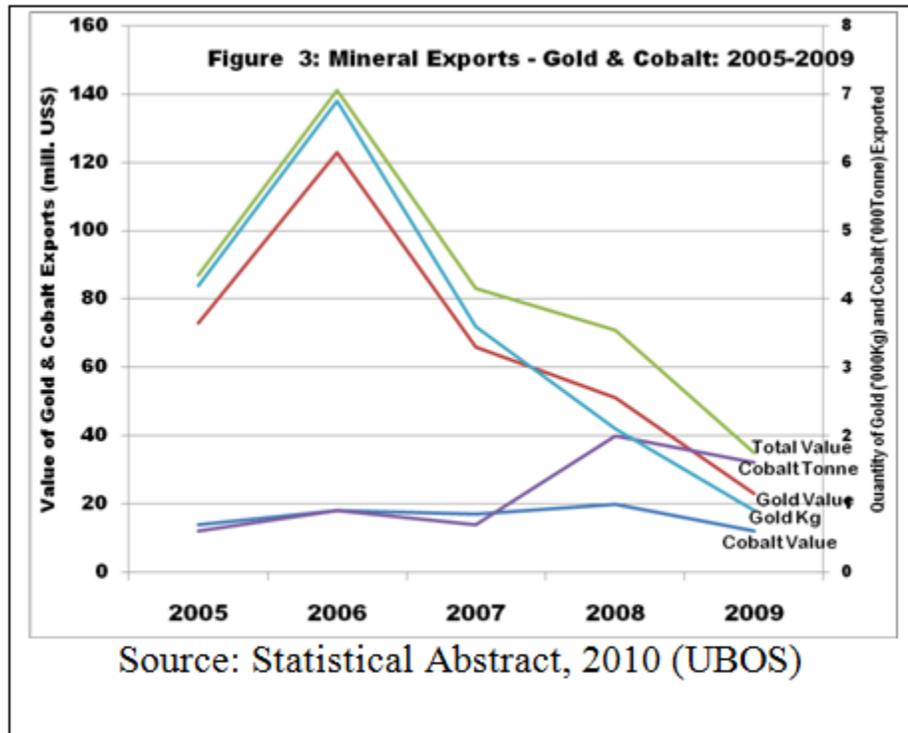
An import permit is issued only on payment of the prescribed fee and before any minerals are re-exported from Uganda, the relevant import permit is then surrendered to a customs officer who submits it to the Ministry of Energy and Mineral Development. Similarly, under section 116 of the Act, the Commissioner may also grant to any person an export/movement permit for exporting minerals outside Uganda.

The importation of minerals for re-export explains why in most cases the amount produced in tonnes is much less than that of the exports for some commodities e.g. gold on the one side and on the flip side the amount exported is less than that produced for some commodities such as cobalt due to stockpiling as global commodity prices plunge. The decline in production coupled with fluctuating market rates for minerals consequentially affected the mineral exports, showing a decline in export value since 2006.

Figure 3 shows the trend of mineral export for gold and cobalt between 2005 and 2009. The year 2006 witnessed the highest value of exports mainly attributed to gold re-exports. Currently, gold and cobalt account for over 95% of all minerals exports from Uganda. The escalating values of gold, along with the accompanying investor interest, have grown in the recent past and, in all likelihood, will continue. As noted by Barrick Gold, the supply of gold continues to lag demand, making the exploration and development of new gold resource sources imperative and Uganda will reap big from these developments.

For cobalt, refined global production was around 54,000 tonnes in 2009, with consumption at about 52,000 tonnes.

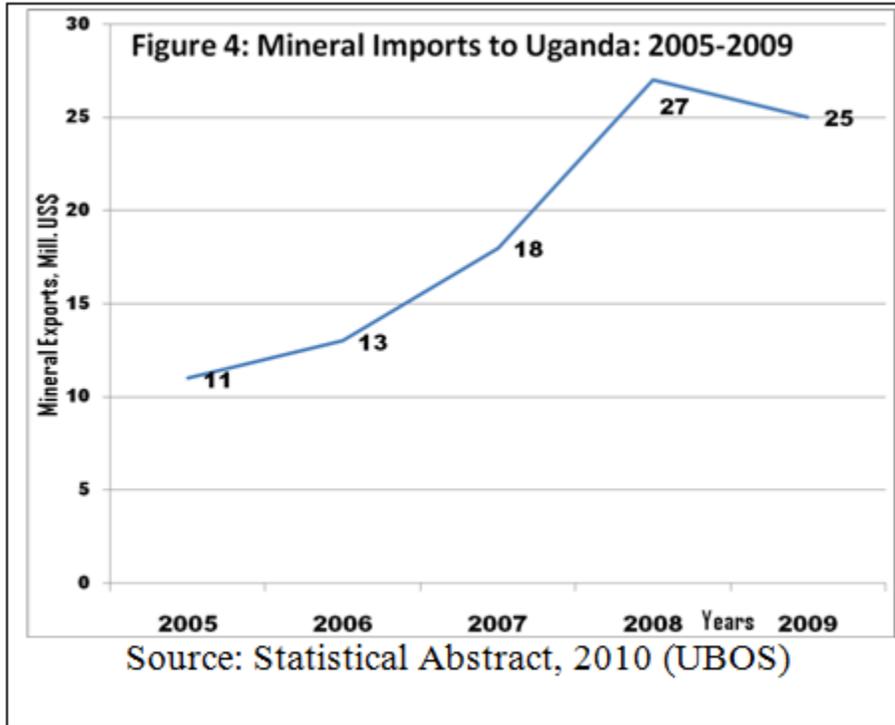
Many reports estimated that 2009 saw a global surplus of some 2,460 tonnes, compared with a deficit of about 2,410 tonnes in 2008. In 2010, worldwide production was between 55,000-60,000 tonnes, yet demand peaked only 50,000 tonnes. In terms of prices, the best Russian cobalt, 99.3 currently trades above US\$20 a lb which is still way off peaks of over US\$48 a lb hit in March 2008 before the global economic slump was felt. All these reasons explain the cobalt stockpile in Uganda.



In terms of major exports destinations, in 2010 the following minerals were exported as follows:

Cobalt (Netherlands, China and Belgium); Semi manufactured gold and articles of zinc (United Arab Emirates); Copper (U.K., UAE, Kenya, India, U.K., South Africa, Tanzania,); Articles of tantalum (U.K.); and articles of goldsmith (Germany).

Generally, investment in mineral exploration is projected to increase from the current US\$3



million to over US\$50 million annually over the next five years. Fiscal revenues are expected to increase from US\$ 1 million to US\$ 35 million over the next five years. It is also projected that the value of mineral exports will increase from the current level of under US\$40 million to over US\$ 350 million by 2015.

The importation of minerals for re-export explains why in most cases the amount produced in tonnes is much less than that of

the exports for some commodities e.g. gold on the one side and on the flip side the amount exported is less than that produced for some commodities such as cobalt due to stockpiling as the global commodity prices plunge. The importation of minerals for re-export explains why in most cases the amount produced in tonnes is much less than that of the exports for some commodities e.g. gold on the one side and on the flip side the amount exported is less than that produced for some commodities such as cobalt due to stockpiling as the global commodity prices plunge.

Mineral imports have been steadily rising from about US\$11 million in 2005 to US\$25 million by end of 2009. Figure 4 shows the trend of import from 2005-2009. Gold is the major import. Uganda also imports some rough diamond to the tune of US\$150,000 annually.

### 7. Key Investors in the sector, Examples

A number of exploration and mining concessions were granted, renewed or expired. By the end of 2010, there were 611 mining licenses issued to companies. Below are examples of some of the big companies holding mining licenses:

- Hima Cement Ltd for mining limestone and purchasing of pozzolanic materials in Kasese and Kabarole districts. The company holds mineral dealers license in base metals as well as in non-metallic (industrial/ building) minerals, with UGX 803,858,662/-earned as NTR in 2009.
- Tororo Cement Ltd for mining and exploration of limestone and pozzolanic materials in

Tororo, Moroto, Mbale and Kapchorwa districts, with UGX 803,213,035/- earned as NTR in 2009.

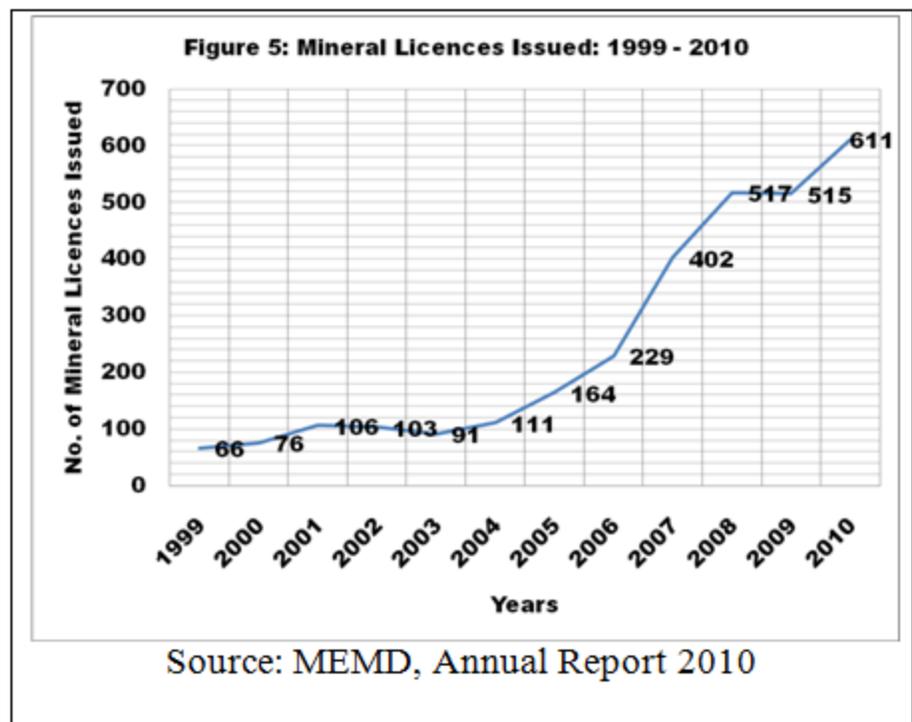
- Kasese Cobalt Company Ltd continued with production of cobalt and the running of a sub-lease for limestone quarrying at Hima, with UGX 428,373,155/- earned as NTR in 2009.
- African Mineral Fields Limited for exploration for gold, platinum group of metals (PGM), and base metals in Ntungamo, Mukono, Kamwenge, Bushenyi, and Mbarara districts.
- Vangold Resources Limited, acquired seven non producing artisan beryllium mines and secured nine joint ventures with exploration licenses holders including Rwenzori Copper and Nickel, Beryllium Exploration Limited, Dome Mines Limited adjacent to the Kilembe copper – Cobalt.
- AUC Mining Company which is developing a gold mine at Kamalenge in Mubende District.
- In early 2006, IBI Corporation, (“IBI” TSX-V) made a decision to change its strategy from being a single industrial minerals company successfully mining and globally marketing vermiculite, to become a high-value minerals exploration and development company, focused on Uganda. Subsequently, IBI sold its Namekara Uganda Vermiculite Mine to mining giant Rio Tinto for US \$5 million in March 2007, with final closing in March of 2008. The Company’s strategic mission in Uganda is now twofold: exploration for and development of potential uranium resources and investing in promising gold opportunities.

## 8. Investment trends in the mining sector

### 8.1. Licenses Issued

The Government of Uganda has identified the development of the country’s mineral resources as a major economic priority and has in place an extensive plan to bring this to fruition. Investment in mineral exploration is projected to increase from the current US\$3 million to over US\$50 million annually over the next five years.

At the beginning of 2010, a total of 517 licenses issued. Of these 99 Prospecting License (PL), 66 Exploration License (EL), 32 Location License (LL), 33 Mineral Dealers License (MDL), 2 Blasters Certificate (BL) and 2 Goldsmith’s License (GL) were granted, while 15 Exploration (ELs), and 5 Location Licenses (LLs) were renewed. Figure 3 shows the trend of licenses issued between 1999 and 2010 where the numbers grew from



66 licenses in 1999 to 517 in 2010, an impressive growth.

## 8.2. Airborne Geophysical Data

The rise in the number of licenses issued is attributed to the proper dissemination of geophysical data. As of end of 2009, a number of companies had accessed this data as depicted in Table 3. Appendix2 also gives a list of other companies that are active in the mineral sector in Uganda.

**Table 3: List of Companies that acquired Airborne Geophysical Data in 2009**

No.	Date	Company	Area Coverage	Data Format
1	12 Jan. 2009	Oryx Minerals Ltd	Block 5	Line Data
2	14 Jan. 2009	Canmin Resources Ltd	Block 2	Line Data
3	16 Jan. 2009	Neptune Petroleum (U) Ltd	Block 3	Line Data
4	03 Feb. 2009	AUC Mining (U) Ltd	Block 2 & 5 (Selected areas)	Line Data
5	06 Feb. 2009	Flemish Investments Ltd	Block 3	Line Data
6	13 Feb. 2009	AUC Mining (U) Ltd	Block 2 & 5	Geotiffs
7	20 Feb. 2009	African Metals Ltd	Block 3	Geotiffs
8	04 Mar. 2009	Phelps Dodge Mining-Zambia Ltd	Blocks 3 & 7 (Selected areas)	Line data
10	24 Mar. 2009	Mineral Miners (U) Ltd	Block 2 (Sheet 59)	Geotiffs
11	20 May 2009	Rwenzori Copper and Nickel Ltd	EL 32, 100 & 120	Line Data & Grids
12	21 May 2009	Rio Tinto Mining and Exploration Ltd	Blocks 2, 2B, 3, 4, 5, 7 & EM 6,7 & 8	Line Data
13	04 June 2009	Nelvo International Ltd	EL 0303 & 0338	Line Data
14	04 June 2009	Doher Industries Ltd	EL 0206, 0216 & 0193	Line Data

15	04 June 2009	Fergie minerals and Metals Ltd	EL 0206, 0216 & 0193	Line Data
16	04 June 2009	Esta Industries Ltd	EL 0226, 0264, 0263, 0238, 0265 & 0276	Line Data
17	15 July 2009	Kweri Ltd	Sheets 30, 38, 39, 47 & 48	Geotiff
18	28 July 2009	Tullow Uganda Operations (Pty) Ltd	Albertine Graben	Line Data
19	22 Oct. 2009	African Mineral Fields Ltd	Blocks 2, 3, 5 & 7	Line Data
20	6 Nov. 2009	Randgold Resources Ltd	Blocks 1, 2, 2B, 3, 4, 5, 6 & 7	Line Data

Source: MEMD, Annual report 2009/10

## 9. Appendices

<p><b>1. Uganda Investment Authority</b> P.O. Box 7418 Kampala, Uganda Tel. +256-41-4301000 Fax +256- 41-4342903 E-mail: <a href="mailto:info@ugandainvest.com">info@ugandainvest.com</a> <a href="http://www.ugandainvest.com">www.ugandainvest.com</a></p> <p>(Investment Licensing)</p>	<p><b>2. Ministry of Energy &amp; Mineral Development, Amber House</b> P. O. Box 7270, Kampala - UGANDA Tel: +256 41 4234733 Fax: +256 41 4234732 E-mail: <a href="mailto:psmemd@energy.go.ug">psmemd@energy.go.ug</a> Website: <a href="http://www.energyandminerals.go.ug">www.energyandminerals.go.ug</a></p> <p>(Policy and Legislation oversight)</p>
<p><b>3. Uganda Revenue Authority</b> Headquarters: Nakawa Industrial Area, Postal Address: P.O.Box 7279, Kampala Uganda, General Lines: +256-41-4334000/1 -10 Email: <a href="mailto:prte@ura.go.ug">prte@ura.go.ug</a> Email: <a href="mailto:mgimbo@ugandainvest.com">mgimbo@ugandainvest.com</a> Website: <a href="http://www.ura.go.ug">http://www.ura.go.ug</a></p> <p>(Taxes and Incentives Administration)</p>	<p><b>4. Uganda Registration Services Bureau (URSB)</b> Plot No. 5 George Street, Amamu House General:+256 – 41 – 4235915/233219 Fax:+256 – 41 – 4250712 Official Receiver: 256 – 41 -4345727 P.O.Box 6848, Kampala <a href="http://www.ursb.go.ug">http://www.ursb.go.ug</a></p> <p>(Business Registration)</p>
<p><b>5. Rural Electrification Agency</b> Plot 1 Pilkington Road 10th Floor, Worker’s House P.O Box 7317, Kampala, Uganda Tel: 256-312-264095/264103/4/5 Fax: 256-414-346013 <a href="mailto:rea@rea.or.ug">rea@rea.or.ug</a> Website: <a href="http://www.rea.or.ug">www.rea.or.ug</a></p> <p>(Regulation of rural energy and subsidies)</p>	<p><b>6. National Environment Management Authority</b> NEMA House, Plot 17/19/21, Jinja Road P. O. BOX 22255 Kampala Uganda Tel. 256-414-251064/414-251065/414-251068 Fax: 256-414-257521 Email: <a href="mailto:info@nemaug.org">info@nemaug.org</a> <a href="http://www.nemaug.org">www.nemaug.org</a></p> <p>(Environment Compliance)</p>

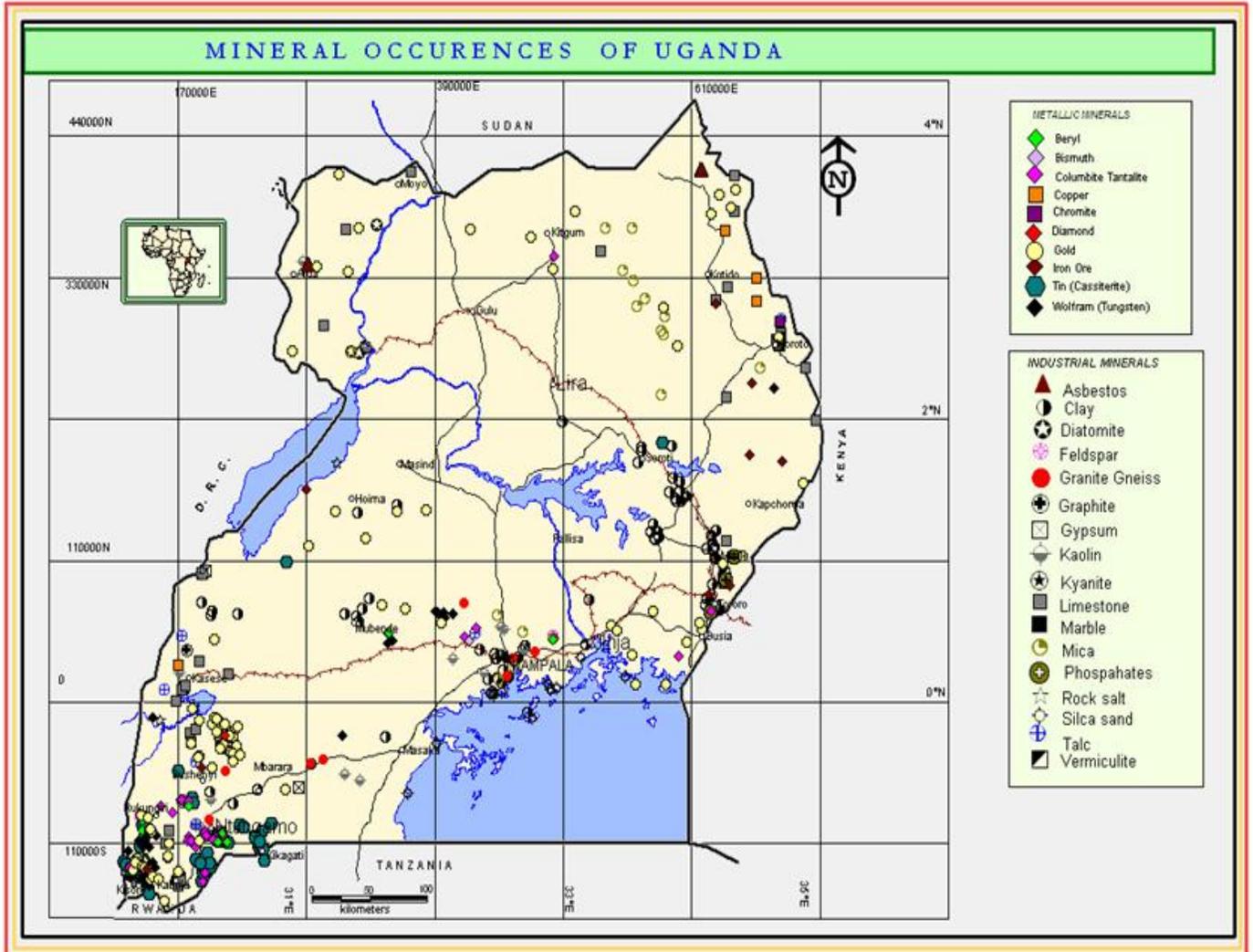
<p><b>5. Rural Electrification Agency</b>  Plot 1 Pilkington Road  10th Floor, Worker’s House  P.O Box 7317, Kampala, Uganda  Tel: 256-312-264095/264103/4/5  Fax: 256-414-346013  rea@rea.or.ug  Website: <a href="http://www.rea.or.ug">www.rea.or.ug</a></p> <p>(Regulation of rural energy and subsidies)</p>	<p><b>6. National Environment Management Authority</b>  NEMA House, Plot 17/19/21, Jinja Road  P. O. BOX 22255 Kampala Uganda  Tel. 256-414-251064/414-251065/414-251068  Fax: 256-414-257521  Email: <a href="mailto:info@nemaug.org">info@nemaug.org</a>  <a href="http://www.nemaug.org">www.nemaug.org</a></p> <p>(Environment Compliance)</p>
<p><b>7. Department of Geological Survey and Mines of Uganda</b>  Plot 21-29, Johnstone Road  P.O. Box 9, Entebbe / Uganda  Tel +256 414 320656/312 262902  Fax +256 414 320364  <a href="mailto:minerals@infocom.co.ug">minerals@infocom.co.ug</a>  <a href="mailto:dgsm@minerals.go.ug">dgsm@minerals.go.ug</a>  <a href="http://www.uganda-mining.go.ug">www.uganda-mining.go.ug</a></p> <p>(Licensing and granting of mineral rights)</p>	<p><b>8. Uganda National Council for Science &amp; Technology</b>  Plot 10 Kampala Road – Uganda House  Tel. +256-41-4705500  Fax: +256-41-4250499  Email: <a href="mailto:uncst@starcom.co.ug">uncst@starcom.co.ug</a>  Website: <a href="http://www.uncst.go.ug">www.uncst.go.ug</a></p>
<p><b>9. Uganda Metal Industries Association (UMIDA)</b>  P.O. Box 8752, Kampala  Tel. +256-752-694567  Fax:+256-414-530277</p>	<p><b>10. Head Department of Geology Makerere University</b>  P.O. Box 7062, Kampala  Tel.+256-414-541258  Fax. +256-414-541258/531061  <a href="mailto:geology@sci.mak.ac.ug">geology@sci.mak.ac.ug</a></p>
<p>11. Mr. Sasirwe Jonny  Chairman, National Association of Small Scale Miners (NASMA), Tel. 0772-415028</p>	

## Appendix 2: Companies with significant mining operations in Uganda

	Company	Commodity	Location by district	Contact person	Phone	Fax no.
1	Anglo-Uganda Cooperation	Gold	Mubende	Moses Masagazi	256 -414-200743/ 256- 712-848906	256-414-345580
2	Ataco Services Limited	Gypsum	Bundibugyo	Not available	Not available	
3	Busitema Mining CIE Ltd.	Gold	Busia	Paul Sherwen busitema@mac.com	256-772-2230005	256-414-231327
4	Busongora Lime Ltd.	Limestone	Kasese	Not available	Not available	
5	Gulf Resources Limited	Vermiculite	Manafwa	Dennis Kusasira	256-414-230151	
6	Hima Cement Ltd.	Limestone	Kasese	David Njoroge	256-414-241552/ 256 031213100	256-414-245901
7	Kasese Cobalt Co.Ltd.	Cobalt	Kasese	Adrian Gale	256-414-251175	
8	Kelvin Shaun Investments Limited	Limestone	Kasese	Charles Musekuura	256-772-664030	
9	Kilembe Mines Ltd.	Base metals	Kasese	Fred W. Kyakonye	256-414234909/ 256 772445642	256-414-245687
10	Kisita Mining Co. Ltd.	Gold	Mubende	Edward Ssenfuma:	256-772-310457	info@kisitamining.com
11	Krone Uganda Limited	Wolfram	Kabale	Kakiza Amooti	256-414-236638 256- 772553862	256-414259201
12	Marubeg Company Ltd	Tantalite/Col umbite	Ntungamo	Kayonga Kellen	256 772415138	
13	Muhindo Enterprises	Kaolin, Tin, Feldspar, Beryl, Tantalite/Col umbite	Bushenyi	Jamal Muhimdo	256 752731951	256-414-233829
14	Nilefos Minerals Limited	Appatite	Tororo	Niresh Kanabar	256-782-587426	256-414-241588
15	Rwenzori Lime Co. Ltd.	Limestone	Kasese	Not available		
16	Tororo Cement Limited	Limestone	Bududa	S.K. Pokhama tci@africaonline.co.ug	256-414-485213,256-045-45075	256-045-45084
17	V.E.K Global Mining Ltd.	Tantalite/Col umbite	Ntungamo	Not available		

Source: Department of Geological Surveys and Mines

### Appendix 3: Map Showing Mineral Occurrences in Uganda



Source: Department Geological Survey and Mines

#### Appendix 4: Mineral Royalties by Contributing Mining Companies, 2010

Mining Entities	Total Amount (UGX)
Africa Minerals Limited	4,313,000
Ahmed Elias	67,455
ARRM Investment Limited	49,131,629
Bazigu James Kilomba	187,913
Great Lakes Cement Limited	5,669,220
Gulf Resources (U) Limited	630,000
Harambe Africa (U) Limited	2,451,000
<b>Hima Cement Limited</b>	<b>1,333,768,056</b>
Kaolin Uganda Limited	516,000
<b>Kasese Cobalt Company Limited</b>	<b>1,029,387,639</b>
Kisita Mining Company Limited	6,227,916
Makugem (U) Limited	300,000
Shivji and Sons 1951 Limited	94,379
<b>Tororo Cement Limited</b>	<b>683,896,810</b>
Turyamulika Obadiah	134,000
Zarnack Holdings (U) Limited	11,414,254
<b>Grand Total</b>	<b>3,128,189,271</b>

Source: Department of Geological Survey and Mines