



2009 Minerals Yearbook

MALAWI

THE MINERAL INDUSTRY OF MALAWI

By Thomas R. Yager

Malawi was a producer of cement, coal, crushed stone, dolomite, kaolin, lime, limestone, and sulfuric acid for domestic consumption. The country also mined and exported ornamental stone, uranium, and such gemstones as amethyst, garnet, ruby, sapphire, and tourmaline. Malawi was not a globally significant producer or consumer of minerals.

Production

In 2009, sulfuric acid and uranium production started in Malawi; the production of most other minerals was estimated to have remained nearly unchanged. In 2008, limestone production for use in the cement industry increased by an estimated 76%, and cement, by an estimated 30% (table 1).

Structure of the Mineral Industry

Most of the mining and mineral processing operations in Malawi were privately owned, including the cement plants, the Mchenga coal mine, and the Nyala ruby and sapphire mine. Small-scale and artisanal miners produced aggregates, brick clay, gemstones, and lime (table 2).

Commodity Review

Metals

Copper and Nickel.—In 2009, Lisungwe plc of the United Kingdom completed its resource assessment of the Chimimbe Hill property in western Malawi. Resources amounted to nearly 8.6 million metric tons (Mt) of ore at grades of 0.52% nickel and 0.03% cobalt. Development of the project depended on adequate supplies of sulfuric acid (Lisungwe plc, 2009a).

Niobium (Columbium), Tantalum, and Zirconium.—In April, Globe Metals & Mining Ltd. of Australia estimated that resources at the Kanyika pyrochlore deposit were 55.3 Mt of ore at grades of 0.3% niobium pentoxide (Nb_2O_5), 0.014% tantalum pentoxide (Ta_2O_5), and 0.008% uranium oxide (U_3O_8); the deposit also contained zircon. Pyrochlore mineralization is found in a nepheline syenite intrusive into biotitic gneiss host rock. The ratios of Nb_2O_5 , Ta_2O_5 , and U_3O_8 were reported to be fairly consistent throughout the deposit; the ratios of zircon to other minerals were much less consistent (Globe Metals & Mining Ltd., 2009a).

Globe formed a joint venture with Thuthuka Group of South Africa in August 2009; the companies planned to complete a feasibility study on developing a new mine at Kanyika in 2011. Depending on favorable results of the study, Globe planned to produce 3,000 metric tons per year (t/yr) of niobium contained in ferroniobium, 194 t/yr Ta_2O_5 , and 117 t/yr of U_3O_8 starting in 2013. Globe was also considering the production of zircon. The life of the mine was estimated to be more than 20 years (Globe Metals & Mining Ltd., 2009a).

The production of ferroniobium at Kanyika depended on adequate supplies of power, skilled labor, and hydrofluoric or sulfuric acid. In 2008, the Electricity Supply Corp. of Malawi had hydroelectric plants with a rated capacity of 300 megawatts (MW); however, 40 MW of capacity was unavailable because of equipment failures, and between 30 and 36 MW was unavailable because of reduced water flow and siltation in the Shire River. National demand amounted to about 250 MW of capacity. Globe would require 20 MW of capacity to produce ferroniobium; the company planned to produce Nb_2O_5 in concentrate if power supplies are not available (Jere, 2008, p. 58-59).

Industrial Minerals

Cement.—Portland Cement Company Ltd. (a subsidiary of LaFarge S.A. of France) produced cement from imported clinker and gypsum. Shayona Cement Corp. had a plant with a capacity of 60,000 t/yr; the company was producing at 80% to 90% of capacity in 2009. Bwanje Cement Co. Ltd. was engaged in a joint venture with a Chinese company to build a new cement plant at Bwanje. Depending on favorable results of an environmental impact assessment planned to be completed in 2010, production could start in 2011.

Gemstones.—In 2009, Columbia Gem House Inc. of the United States increased capacity at the Nyala Mine to 36 kilograms per year (kg/yr) of gem-quality ruby and sapphire from 3.6 kg/yr. Between 5% and 10% of the mine's output was gem quality. Plans to increase production were on hold because of the difficulties in obtaining credit during the global economic downturn (Ministry of Energy and Mines of Malawi, 2009).

Phosphate Rock.—In mid-2008, Optichem Ltd. started trial mining at the Tundulu phosphate deposit in the Phalombe District. Optichem estimated that the use of locally mined phosphate rock could lower the price of fertilizers by at least 33%. Resources at Tundulu were estimated to be 1.5 Mt at a grade of 17.5% phosphorous pentoxide (P_2O_5) (Chimwala, 2009a).

Rare-Earth Elements.—Lynas Corp. Ltd. of Australia planned to produce 5,000 t/yr of rare-earth minerals at the Kangankunde deposit southwest of Balaka. The company planned to purchase Kangankunde from Rare Earths Co., which was awarded the license to the deposit in 2003. At the end of 2009, development at Kangankunde was on hold pending the resolution of a legal dispute between Rare Earths Co. and Rift Valley Resources of South Africa, which previously held the license to the deposit (Curtis, 2009, p. 15).

In November 2009, Globe formed a joint venture with Resource Star Ltd. of Australia to explore at the Machinga property near Kasupe, which is prospective for niobium, tantalum, and rare-earth minerals that include heavy rare earths. Mineralization is located at the boundary of a syenite intrusive into pluton host rock. Globe and Resource Star planned drilling programs for 2010. In accordance with the joint-venture

agreement, a feasibility study was planned to be completed within 8 years (Globe Metals and Mining Ltd., 2009b).

Sulfur.—Paladin Energy Ltd. of Australia produced sulfuric acid from imported sulfur for use in its Kayelekera uranium mine. The company's plant had a capacity of 84,000 t/yr. At full capacity, the mine is likely to consume 73,000 t/yr of sulfuric acid.

In early 2009, Lisungwe was awarded an exclusive prospecting license for the Malingunde Hill pyrite deposit near Lilongwe. The company was considering the production of about 360,000 t/yr of sulfuric acid from pyrite for use at the Chimimbe Hill nickel project. Development depended on the startup of a new mine at Chimimbe Hill and the expansion of resources at Malingunde Hill. In 1978, resources were estimated to be 10 Mt at a grade of 10% sulfur; Lisungwe hoped to increase the deposit's resources to at least 18 Mt at a grade of 10% sulfur (Lisungwe plc, 2009b).

Mineral Fuels and Related Materials

Coal.—Bituminous coal was produced in the Rumphu District by Mchenga Coal Mines Ltd. and Kaziwiziwi Mining Co. In 2009, Mchenga produced at the rate of about 36,000 t/yr, and Kaziwiziwi, 25,000 t/yr. During a visit in early 2010, the author learned that Mchenga planned to increase annual output to about 45,000 metric tons (t) in 2010 and to between 50,000 and 60,000 t in 2011. The company's production was limited by a lack of capital. Malawi's coal production was used in local boilers.

Uranium.—In January 2009, Paladin opened Malawi's first uranium mine at Kayelekera in the northern part of the country. Production amounted to 122 t of U_3O_8 in 2009. Paladin planned to increase production to the mine's full capacity of 1,500 t/yr of U_3O_8 in 2010. The company planned to produce at full capacity for 9 years; mining of low-grade ore was likely to continue for an additional 3 to 4 years. Reserves were estimated to be 12.6 Mt at a grade of 0.11% U_3O_8 at the end of 2009; Paladin expected to complete an updated resource assessment in early 2010 (Paladin Energy Ltd., 2010).

By the end of the second quarter of 2009, Mantra Resources Ltd. of Australia withdrew from all its properties in Malawi

because of disappointing exploration results. African Energy Resources Ltd. of the United Kingdom decided not to renew its licenses for the Majete and the Rumphu properties after their expiration in September. Lisungwe was also involved in exploration for uranium in central Malawi. In early 2009, Ilomba Granite Co. Ltd. was engaged in a dispute with Block and Rock Italia srl of Italy regarding control of the granite deposit at Ilomba Hill, which was prospective for niobium and uranium (Africa Mining Intelligence, 2009; African Energy Resources Ltd., 2009, p. 14; Chimwala, 2009b; Mantra Resources Ltd., 2009).

References Cited

- Africa Mining Intelligence, 2009, Uranium found in Ilomba granite: Africa Mining Intelligence, no. 202, April 29, p. 3.
- African Energy Resources Ltd., 2009, Annual report 2009: West Perth, Australia, African Energy Resources Ltd., 80 p.
- Chimwala, Marcel, 2009a, Trial run: Creamer Media's Mining Weekly, v. 15, no. 6, February 20-26, p. 46.
- Chimwala, Marcel, 2009b, Under scrutiny: Creamer Media's Mining Weekly, v. 15, no. 6, February 20-26, p. 46.
- Curtis, Nicholas, 2009, Investor Presentation—September 2009: Sydney, Australia, Lynas Corp. Ltd., Presentation, 39 p.
- Globe Metals & Mining Ltd., 2009a, About Globe Metals & Mining Ltd.: West Perth, Australia, Globe Metals & Mining Ltd., November 12, 4 p.
- Globe Metals & Mining Ltd., 2009b, Rare earth project joint venture—Malawi: West Perth, Australia, Globe Metals & Mining Ltd. press release, November 25, 6 p.
- Jere, Paul, 2008, Institutional mapping for Malawi—Final draft report: Nairobi, Kenya, UNDP-UNEP Environment-Poverty Initiative, 87 p.
- Lisungwe plc, 2009a, A JORC resource for the Chimembe Hill nickel prospect: Maidstone, United Kingdom, Lisungwe plc press release, March 25, 4 p.
- Lisungwe plc, 2009b, Scoping studies for the nickel and the pyrite/sulphuric acid projects: Maidstone, United Kingdom, Lisungwe plc press release, April 2, 2 p.
- Mantra Resources Ltd., 2009, June 2009 quarterly report: Perth, Australia, Mantra Resources Ltd., 10 p.
- Ministry of Energy and Mines of Malawi, 2009, Mineral potential of Malawi—Deposits resulting from residual weathering, placer, and rift-related sedimentation: Lilongwe, Malawi, Ministry of Energy and Mines of Malawi, 8 p.
- Paladin Energy Ltd., 2010, Kayelekera Mine, Malawi, South Africa in production ramp-up: Subiaco, Australia, Paladin Energy Ltd., 4 p.

TABLE 1
MALAWI: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2005	2006	2007	2008 ^e	2009 ^e
Cement, hydraulic	166,000	187,600	185,300	240,000	240,000
Coal, bituminous	51,870	60,408	58,550	61,000 ^r	61,000
Dolomite ^e	5,400	5,400	5,400	5,400	5,400
Gemstones kilograms	1,994	2,171	3,710	3,700	3,700
Kaolin ^e	790	920	1,000	1,000	1,000
Lime	22,733	21,147	18,965	19,000	19,000
Ornamental stone	72	126	179	180	180
Stone:					
Crushed for aggregate	171,284	191,968	226,351	230,000	230,000
Limestone, for cement	28,755	34,226	42,088	74,000	69,000
Sulfuric acid	--	--	--	-- ³	5,900
Uranium, U ₃ O ₈ content	--	--	--	-- ³	122 ³

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. -- Zero.

¹Table includes data available through June 11, 2010.

²In addition to commodities listed, modest quantities of brick clay, dimension stone, gypsum, phosphate rock, and salt were reportedly produced, but information is inadequate to make reliable estimates of output.

³Reported figure.

TABLE 2
MALAWI: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Portland Cement Company Ltd. (LaFarge S.A., 75.17%)	Plant at Blantyre	200,000.
Do.	Shayona Cement Corp.	Plant at Livwezi	60,000.
Coal, bituminous	Mchenga Coal Mines Ltd. (subsidiary of Coal Products Ltd.)	Mchenga Mine in Rumphi District	72,000.
Do.	Kaziwiziwi Mining Co.	Mine at Kaziwiziwi	25,000. ^e
Dimension stone	Ilomba Granite Company Ltd.	Mine at Ilomba Hill in Chitipa District	NA.
Do.	Granite Ltd.	Mine in Mzimba District	NA.
Fertilizer	Optichem Ltd.	Plant at Blantyre	40,000.
Limestone	Shayona Cement Corp.	Mine at Livwezi	80,000. ^e
Phosphate rock	Optichem Ltd.	Mine at Tundulu	NA.
Ruby and sapphire kilograms	Nyala Mines Ltd. (subsidiary of Columbia Gem House Inc.)	Nyala Mine at Chimwadzulu Hill	300 sapphire; 150 ruby. ^e
Sulfuric acid	Paladin Energy Ltd.	Plant near Kayelekera	84,000.
Uranium	do.	Mine near Kayelekera	1,500 U ₃ O ₈ .

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

