



2012 Minerals Yearbook

MALAWI

THE MINERAL INDUSTRY OF MALAWI

By Thomas R. Yager

Malawi was a producer of brick clay, cement, coal, crushed stone, lime, limestone, and sulfuric acid for domestic consumption. The country also mined and exported bentonite; uranium; such gemstones as amethyst, garnet, ruby, sapphire, and tourmaline; and such ornamental stones as agate and rose quartz. In 2012, Malawi accounted for nearly 2% of world uranium mine production (World Nuclear Association, 2013).

Production

In 2012, ornamental stone production increased by 62%; brick clay, by an estimated 38%; gemstones, by 33%; uranium, by 30%; gravel and crushed stone and sulfuric acid, by 29% each; coal, by 27%; and limestone for use in cement, by 22%. Cement production decreased by an estimated 14% in 2012. Bentonite and dimension stone production shut down in 2012 (table 1; Cassius Chiwambo, Mining Engineer, Malawi Department of Mines, written commun., January 13, 2014).

Structure of the Mineral Industry

Most of the mining and mineral processing operations in Malawi were privately owned, including the cement plants, the coal mines, the Kayelekera uranium mine, and the Nyala ruby and sapphire mine. Small-scale and artisanal miners produced aggregates, brick clay, gemstones, and lime (table 2). In 2010 (the latest year for which data were available), employment in the mineral industry amounted to 21,022 workers. The aggregate subsector employed 12,030 Malawians; lime, 1,640; terrazzo, 1,340; gemstones, 1,260; coal, 907; and uranium, 859 (Ministry of Development Planning and Cooperation, 2011, p. 41).

Commodity Review

Metals

Gold.—From November 2011 to April 2012, South East African Mining Ltd. (SEAM) of the United Kingdom engaged in rock and soil sampling at its Dwanga property. SEAM subsequently started a drilling program at Dwanga (Murray, 2012).

Niobium (Columbium) and Tantalum.—Globe Metals & Mining Ltd. of Australia (East China Mineral Exploration and Development Bureau, 51%) was engaged in a feasibility study on a new mine at the Kanyika pyrochlore deposit. Depending on favorable results of the study, Globe planned to approve development of the mine in 2013 and to start production in 2015. Production was expected to be 5,000 metric tons per year (t/yr) of niobium pentoxide (Nb_2O_5) and 200 t/yr of tantalum pentoxide (Ta_2O_5). Resources at Kanyika were estimated to be 60 million metric tons (Mt) at grades of 0.3% Nb_2O_5 , 0.014% Ta_2O_5 , and 0.009% uranium oxide (U_3O_8) (Mining Journal, 2010; Murray, 2012; Jockel, 2013, p. 11).

Titanium and Zirconium.—Tengani Titanium Minerals Ltd., which was a consortium of Malawian and South African investors, held a mining license for the Tengani ilmenite, rutile, and zircon deposit. The company planned to conduct a prefeasibility study on a new mine that could produce 240,000 t/yr of ilmenite and 37,000 t/yr of rutile during an estimated life of more than 20 years. Depending on the results of the study, the mine could consume between 20 and 25 megawatts (MW) of capacity. The project depended on the purchase of more locomotives for the domestic rail network, which carried about 300,000 t/yr of cargo (Chimwala, 2012a).

Industrial Minerals

Cement.—Malawi had two cement plants with a total production capacity of 260,000 t/yr. In 2012, national cement production decreased to about 175,000 metric tons (t) from 203,200 t in 2011. Cement Products Ltd. was engaged in the construction of a new cement plant with a capacity of 460,000 t/yr. Shayona Cement Corp. planned to complete a new plant at Wimbe with a capacity of about 440,000 t/yr by 2015 (Chimwala, 2012b; National Statistical Office, 2012, p. 15; Malawi Nation, 2013).

Gemstones.—Mzimba Gemstone Mining Cooperative Society Ltd. mined amethyst and other quartz, aquamarine, carnelian, garnet, sodalite, and tourmaline in northern Malawi; the majority of production took place in Mzimba District. The company also had a cutting and polishing facility in Mzimba. Nyala Mines Ltd. operated the Nyala ruby and sapphire mine.

Graphite.—In 2012, Sovereign Metals Ltd. of Australia purchased the Central Malawi graphite project near Lilongwe. Sovereign initiated rock-chip sampling and planned to conduct drilling and trenching. In September, Globe purchased the Chiziro project, which is located east of Lilongwe. Globe subsequently started a rock-chip-sampling program; the company hoped to identify a resource of between 15 and 20 Mt at a grade of between 5% and 10% graphite (Australia's Paydirt, 2012; Globe Metals & Mining Ltd., 2012, p. 4–5; Murray, 2012).

Rare Earths.—In the third quarter of 2012, Globe engaged in drilling at the Machinga property near Kasupe, which was prospective for niobium, tantalum, and rare-earth minerals that include heavy rare earths. Globe purchased Resource Star Ltd. of Australia's share in Machinga. The company also engaged in rock-chip and soil sampling at the Salimbidwe project to the southwest of Machinga. Resource Star engaged in rock-chip sampling at its Ilomba property (Globe Metals & Mining Ltd., 2012, p. 8, 10).

In October 2012, Mkango Resources Ltd. of Canada estimated that resources at the Songwe Hill rare earths project in southern Malawi were 31.8 Mt at a grade of 1.48% rare-earth oxides (REO). Heavy rare earths made up about 7.3% of the

rare earths at Songwe Hill. Spring Stone Ltd. (Japan Oil, Gas, and Metals National Corp., 67%, and Gold Canyon Resources Inc. of Canada, 33%) started the second phase of its exploration for rare-earth elements (REEs) on the west side of Mulanje Mountain in August 2012; the company planned to start a prefeasibility study by mid-2013 (Mining Journal, 2012; Murray, 2012).

Lynas Corp. Ltd. of Australia explored for REEs at the Kangankunde deposit, which is located southwest of Balaka. The company hoped to increase resources, which were estimated to be 2.53 Mt at a grade of 4.24% REO. In 2012, Lynas was engaged in a dispute concerning the ownership of Kangankunde (Clarke, 2012; Corcoran, 2012).

Mineral Fuels and Related Materials

Coal.—Malawi's coal output was consumed by the brewery, cement, ethanol, sugar, tea, textile, and tobacco industries. Coal was mined by Eland Coal Mining Co., Kaziwiziwi Mining Co., and Mchenga Coal Mines Ltd. In August 2012, China Gezhouba Group Corp. signed an agreement with the Government to build a new coal-fired power station with a capacity of 1,000 MW. The company planned to start construction in 2013 and to complete the plant by 2015 at an estimated cost of \$500 million. Malawi's demand for electricity amounted to about 300 MW of capacity; national hydropower capacity was 280 MW (Banda, 2012).

Uranium.—In January 2009, Paladin Energy Ltd. opened Malawi's first uranium mine at Kayelekera in the northern part of the country. In 2012, production increased to 1,298 t of U_3O_8 from 998 t in 2011; the mine's capacity was 1,500 t/yr of U_3O_8 . Paladin planned to commission a new acid recovery plant that would reduce sulfuric acid consumption by 11,000 t/yr in July 2013. The company also engaged in exploration drilling at the Mpata license; uranium mineralization was reported to be subeconomic. In 2013, Paladin planned to drill at Nthalire in the South Rukuku basin, which is located south of the Kayelekera Mine (Paladin Energy Ltd., 2013).

Uranium accounted for 8.4% of Malawi's exports by value in 2011. From 2008 to 2011, the share of the mining sector in the gross domestic product increased to 2.9% from 1%; most of the increase was attributable to increased uranium production (National Statistical Office, 2012, p. 1, 4, 34).

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TABLE 1
MALAWI: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012
Bentonite	7,023	8,050	2,100	2,450 ^r	--
Brick clay	NA	NA	960,405	1,015,200 ^r	1,400,000 ^e
Cement, hydraulic	237,100	232,000	187,500	203,200	175,000 ^e
Coal, bituminous	57,477	59,201	65,006	72,300 ^r	91,910
Gemstones kilograms	11,946	306,700	190,340	215,000 ^r	285,000
Kaolin ^e	1,100	--	--	--	--
Lime	23,495	25,900	45,851	93,549 ^r	95,543
Ornamental stone	332	241	5,300	4,434 ^r	7,200
Stone:					
Crushed for aggregate	522,120	970,550	965,600	1,039,237	1,338,600
Dimension:					
Crude and partly worked	NA	NA	201	277 ^r	--
Worked	NA	NA	116	167	--
Limestone, for cement	45,980	47,150	27,122	33,701 ^r	41,150
Sulfuric acid ^e	-- ³	5,900	32,000	49,000	63,000
Uranium, U ₃ O ₈ content	--	115	790	998	1,298

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. NA Not available. -- Zero.

¹Table includes data available through January 22, 2014.

²In addition to commodities listed, the production of other unspecified industrial minerals amounted to 3,500 metric tons (t) in 2008. Malawi reportedly produced modest quantities of gypsum and salt, but information is inadequate to make reliable estimates of output.

³Reported data.

TABLE 2
MALAWI: 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	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
Do.	Eland Coal Mining Co. (subsidiary of Allied Procurement Agency)	Mine at Lufira coal field	25,000. ^e
Dimension stone	Ilomba Granite Company Ltd.	Mine at Ilomba Hill in Chitipa District ¹	NA.
Do.	Granite Ltd.	Mine in Mzimba District ¹	NA.
Fertilizer	Optichem Ltd.	Plant at Blantyre	120,000.
Gemstones:			
Amethyst, aquamarine, garnet, and tourmaline	Mzimba Gemstone Mining Cooperative Society Ltd.	Mines in Mzimba District	NA.
Ruby and sapphire kilograms	Nyala Mines Ltd. (subsidiary of Columbia Gem House Inc.)	Nyala Mine at Chimwadzulu Hill	300 sapphire; 150 ruby. ^e
Lime	Various producers, including the following: Zalewa Agricultural Lime Co. LimeCo Balaka Limeworks Supply Co. Ltd.	Various sites, including the following: Blantyre NA Balaka	42,000.
Do.	Lirangwe Lime Makers Assoc.	Lirangwe	NA.
Do.	Balaka Lime Makers Assoc.	Balaka	NA.
Limestone	Shayona Cement Corp.	Mine at Wimbe	80,000. ^e
Phosphate rock	Optichem Ltd.	Mine at Tundulu ¹	NA.
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.

¹Not in operation at the end of 2012.