



2013 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 in 2013; Malawi's consumption of minerals and mineral fuels, however, was not globally or regionally significant. The country also mined and exported uranium; such gemstones as amethyst, garnet, ruby, sapphire, and tourmaline; and such ornamental stones as agate and rose quartz. Malawi accounted for nearly 2% of world uranium mine production in 2013 (World Nuclear Association, 2014).

In 2013, the manufacturing sector accounted for a projected 9.4% of the gross domestic product (GDP), and the mining and quarrying sector, 5.2%. The value of output in the mining and quarrying sector was projected to increase by 8.5% in real terms in 2013 compared with 14.6% in 2012. Growth in the mining and quarrying sector was likely to be attributable to demand from the domestic agricultural, construction, and manufacturing sectors (Reserve Bank of Malawi, 2013, p. 22, 24, 60).

The mining sector accounted for only 0.8% of the GDP in 2009. In 2010, the value of output increased by 524.8% because of increased production from the Kayelekera uranium mine. The growth in the mining sector accounted for 45% of all GDP growth in Malawi in 2010 (Reserve Bank of Malawi, 2013, p. 60).

Production

In 2013, limestone production for use in cement increased by an estimated 362%; cement, by an estimated 86%; and lime, by an estimated 20%. Bentonite and dimension stone production shut down in 2012 (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 coal mines, the Kayelekera uranium mine, and the Nyala ruby and sapphire mine. Malawi's mineral industry also included numerous artisanal and small-scale mining operations that produced aggregates, brick clay, gemstones, and lime. Partial data on capacity, location, and ownership were available for artisanal and small-scale gemstone and lime operations (table 2).

In 2010 (the latest year for which data were available), employment in the mineral industry amounted to 21,022 workers. The aggregates 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.—In early 2013, South East African Mining Ltd. (SEAM) of the United Kingdom engaged in drilling at its South Dwangwa

property. SEAM's initial focus was on the Kadyalumba Hill and the Kamwala-Mtenhela prospects (Murray, 2013).

Iron Ore.—Britannia Mining Inc. of the United States explored for iron ore at Mphwamphwa in northern Malawi and at Nthale and Ntechu in southern Malawi. The company hoped to identify 100 million metric tons (Mt) of iron ore resources at Nthale (Britannia Mining Inc., 2013).

Niobium (Columbium) and Tantalum.—Globe Metals & Mining Ltd. of Australia (East China Mineral Exploration and Development Bureau, 51%) revised its resource estimate at the Kanyika pyrochlore deposit in early 2013. Resources were estimated to be 68.3 Mt at grades of 0.28% niobium pentoxide (Nb_2O_5), 0.014% tantalum pentoxide (Ta_2O_5), and 0.008% U_3O_8 (uranium oxide). Globe also completed a feasibility study on a new mine at Kanyika in the second quarter of 2013 (Globe Metals & Mining Ltd., 2013; Jockel, 2013, p. 11).

Depending on results of the study, Globe planned to produce 5,000 metric tons per year (t/yr) of Nb_2O_5 and 200 t/yr of Ta_2O_5 ; uranium and zircon concentrate from the mine would be stockpiled for future sale. The company determined that an optimization program to increase concentrate grades and a study on a smelting process to produce ferroniobium were necessary (Globe Metals & Mining Ltd., 2013; Jockel, 2013, p. 11).

Titanium and Zirconium.—Tengani Titanium Minerals Ltd. (TTM), which was a consortium of Malawian and South African investors, held a mining license for the Tengani ilmenite, rutile, and zircon deposit. The company was engaged in a prefeasibility study on a new mine with an estimated life of more than 20 years. In 2013, TTM indicated that difficulties in separating ilmenite and rutile from each other and low recovery rates because of dilution by other minerals, such as garnet, would delay the project (Chimwala, 2013).

Industrial Minerals

Cement.—Malawi had three cement plants with a total production capacity of 740,000 t/yr. In 2013, national cement production increased to about 320,000 metric tons (t) from 172,000 t in 2012. Cement Products Ltd. opened a new plant at Njereza with a capacity of 460,000 t/yr in December 2012. Portland Cement Company Ltd. (LaFarge S.A., 75.17%) operated a plant with a capacity of 200,000 t/yr that produced cement from imported clinker. Shayona Cement Corp.'s plant had a capacity of 80,000 t/yr; the company planned to complete a new plant at Wimbe with a capacity of about 360,000 t/yr by 2015. National cement consumption was estimated to be 370,000 t in 2012 compared with 340,000 t in 2011 (International Cement Review, 2013).

Gemstones.—Mzimba Gemstone Mining Cooperative Society Ltd. mined amethyst and other quartz, aquamarine, carnelian, garnet, sodalite, and tourmaline from pegmatites in northern Malawi; the majority of production took place in

Mzimba District. Artisanal miners were producing rose quartz at the rate of 56 t/yr at Mzimba in 2013. Silver Hill Gems of South Africa mined amethyst and Aquismart (Pty) Ltd. of South Africa engaged in bulk sampling for aquamarine near Mzimba in November. Nyala Mines Ltd. operated the Nyala ruby and sapphire mine (Integrated Regional Information Networks, 2013).

Graphite.—In 2013, Sovereign Metals Ltd. of Australia engaged in rock-chip sampling and trenching at the Central Malawi graphite project near Lilongwe. Globe engaged in rock-chip and stream-sediment sampling at the Chiziro project, which is located east of Lilongwe. Globe planned to initiate trenching at Chiziro in the first quarter of 2014 (Globe Metals & Mining Ltd., 2013, 2014).

Rare Earths.—In 2013, Mkango Resources Ltd. of Canada was engaged in a prefeasibility study on a new mine at the Songwe Hill rare-earth project in southern Malawi; the company planned to complete the study in early 2014. Resources at Songwe were 31.8 Mt at a grade of 1.48% rare-earth oxides. In the fourth quarter of 2013, Globe engaged in soil sampling at the Machinga property near Kasupe, which was prospective for niobium, tantalum, and rare-earth minerals that include heavy rare earths. At yearend, Globe was awaiting Government approval for the renewal of its license at Machinga (Mkango Resources Ltd., 2013; Globe Metals and Mining Ltd., 2014).

Spring Stone Ltd. (Japan Oil, Gas, and Metals National Corp., 67%, and Gold Canyon Resources Inc. of Canada, 33%) deferred exploration at its Mulanje property in southern Malawi after determining that deposits at Chambe Basin would be subeconomic because of their small size. The company also decided not to renew its prospecting license for Mangochi (Gold Canyon Resources Inc., 2014).

Lynas Corp. Ltd. of Australia was engaged in a dispute with Rift Valley Resource Development of South Africa concerning the ownership of the Kangankunde deposit, which is located southwest of Balaka. As of mid-2013, the project was on hold pending resolution of the ownership dispute (Lynas Corp. Ltd., 2013).

Mineral Fuels and Related Materials

Coal.—Bituminous coal was mined by four companies in 2013. Eland Coal Mining Co. increased its production capacity by 150%. Intra Energy Corp. (IEC) of Australia purchased a 90% share in the Nkhachira Mine in early 2013. The company planned to mine at the initial rate of 60,000 t/yr of coal and to subsequently increase production to 150,000 t/yr (Murray, 2013; Saunders, 2013).

Coal output was consumed by Malawi's brewing, cement, ethanol, sugar, tea, textile, and tobacco industries. Domestic industrial demand for coal was estimated to be between 120,000 and 150,000 t/yr (Saunders, 2013).

Malawi's power stations had a combined capacity of 300 megawatts (MW), most of which was hydropower. Only 160 MW of capacity was functional in 2013 because of aquatic weeds and river siltation. 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.

Construction on the plant, however, had not started by yearend. IEC was engaged in a feasibility study on a new coal-fired power station with a capacity of 120 MW. Depending on the results of the study, IEC could open the new Pamodzi power station starting in 2017; coal would be provided by IEC's mines in Malawi and Tanzania (Africa Project Newsletter, 2013; Moodley, 2013; Saunders, 2013).

Uranium.—Paladin Energy Ltd. opened Malawi's first uranium mine at Kayelekera in the northern part of the country in January 2009. In 2013, production was 1,335 t of U_3O_8 , which was an increase of about 3% from that of 2012. Paladin commissioned a new acid recovery plant in December. The Kayelekera Mine's capacity was 1,500 t/yr of U_3O_8 ; Paladin was considering an increase in capacity to more than 1,700 t/yr by 2015. The expansion depended on increased uranium prices (Northern Miner, 2013; Paladin Energy Ltd., 2014).

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TABLE 1
MALAWI: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity ² | 2009 | 2010 | 2011 | 2012 | 2013 ^c |
|--|--------------------|---------------------|---------------------|------------------------|--------------------|
| Bentonite | 8,050 | 2,100 | 2,450 | -- | -- |
| Brick clay | NA | 960,405 | 1,015,200 | 1,400,000 ^e | 1,500,000 |
| Cement, hydraulic | 232,000 | 187,500 | 203,200 | 172,000 ^r | 320,000 |
| Coal, bituminous | 59,201 | 65,006 | 72,300 | 91,910 | 98,000 |
| Gemstones kilograms | 306,700 | 190,340 | 215,000 | 285,000 | 310,000 |
| Lime | 25,900 | 45,851 | 93,549 | 95,543 | 115,000 |
| Ornamental stone | 241 | 5,300 | 4,434 | 7,200 | 7,800 |
| Stone: | | | | | |
| Crushed for aggregate | 970,550 | 965,600 | 1,039,237 | 1,338,600 | 1,450,000 |
| Dimension: | | | | | |
| Crude and partly worked | NA | 201 | 277 | -- | -- |
| Worked | NA | 116 | 167 | -- | -- |
| Limestone, for cement | 47,150 | 27,122 | 33,701 ^r | 41,150 | 190,000 |
| Sulfuric acid ^f | 6,400 ^r | 37,000 ^r | 56,000 ^r | 73,000 ^r | 75,000 |
| Uranium, U ₃ O ₈ content | 115 | 790 | 998 | 1,298 | 1,335 ³ |

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

¹Table includes data available through June 27, 2014.

²Malawi 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 2013

(Metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|--|---|---|---|
| Cement | Cement Products Ltd. | Plant at Njereza | 460,000. |
| Do. | Portland Cement Company Ltd. (Lafarge S.A., 75.17%) | Plant at Blantyre | 200,000. |
| Do. | Shayona Cement Corp. | Plant at Livwezi | 80,000. |
| Coal, bituminous | Mchenga Coal Mines Ltd. (subsidiary of Coal Products Ltd.) | Mchenga Mine in Rumphi District | 90,000. |
| Do. | Eland Coal Mining Co. (subsidiary of Allied Procurement Agency) | Mine at Lufira coalfield | 72,000. ^e |
| Do. | Intra Energy Corp. (IEC) | Nkhachira Mine near Kayelekera | 60,000. |
| Do. | Kaziwiziwi Mining Co. | Mine at Kaziwiziwi | 5,000. ^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. |
| Aquamarine kilograms | Silver Hill Gems | NA | 7,000. ^e |
| Quartz, rose | Artisanal miners | Mine near Mzimba | 56. ^e |
| 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 | 100,000. ^e |
| Do. | Cement Products Ltd. | Mine at Njereza | 45,000. |
| Do. | Artisanal miners | do. | NA. |
| Sulfuric acid | Paladin Energy Ltd. | Plant near Kayelekera | 84,000. |
| Uranium, U ₃ O ₈ | do. | Mine near Kayelekera | 1,500. |

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

¹Not in operation at the end of 2013.