



2012 Minerals Yearbook

TANZANIA

THE MINERAL INDUSTRY OF TANZANIA

By Thomas R. Yager

In 2012, Tanzania played a significant role in the global production of gold, accounting for nearly 2% of the world's gold mine output. The country was also the world's only known producer of tanzanite. Other domestically significant mining and mineral processing operations included cement and natural gas. Tanzania was not a globally significant consumer of minerals or mineral fuels (George, 2013).

Minerals in the National Economy

In 2012, the manufacturing sector accounted for 8.4% of the gross domestic product, and mining and quarrying, 3.5%. The value of output in the mining sector increased by 7.8% in 2012 compared with a revised 2.2% in 2011. About 670,000 artisanal miners were estimated to produce colored gemstones, diamond, gold, and other commodities; employment in large-scale mines was about 12,000 workers (Engineering & Mining Journal, 2012; Bank of Tanzania, 2013a, p. 42, 48).

Government Policies and Programs

Tanzania is a signatory to the Kimberley Process Certification Scheme, which is a certification system established to reduce the trade in conflict diamond. In 2010, the Government passed the Mining Act of 2010, which increased royalties, required companies to list domestically, allowed the Government to take a share in future mining projects, and restricted foreign participation in small-scale mining. In late 2012, the Government issued new regulations requiring all foreign-owned mining companies to cede 50% of their shares in their Tanzanian operations to the Tanzanian public. The regulations applied to new mining licenses and could be met by giving a 50% share in the operation to State Mining Co. (Stamico) or by listing on the Dar es Salaam stock exchange and selling 50% of the shares in the operation to Tanzanians (Kabukuru, 2013; Pesa Times, 2013).

Production

In 2012, gypsum production increased by 886%; kaolin, by 699%; diamond, by 348%; natural gas, by 14%; and semimanufactured steel, by 13%. The production of pozzolanic materials decreased by 34%, and copper, by 13% (table 1).

Structure of the Mineral Industry

Tanzania's large-scale gold mines were privately owned; the Minjingu phosphate mines and the Nyanza salt mines, the large-scale tanzanite mines, and the steel and cement plants were also owned by private investors. The Government held minority interests in the privately owned Ngaka coal mine and the Williamson diamond mine. Artisanal miners accounted for most

of the country's colored gemstone production; crushed stone, diamond, and gold were also produced by artisanal miners.

Mineral Trade

Gold exports decreased in value to \$2.17 billion in 2012 from \$2.22 billion in 2011. The share of gold in total exports was 36.3% in 2012; and colored gemstones, copper, diamond, silver, and other minerals combined, 1.3%. Imports of petroleum products increased in value to \$3.39 billion in 2012 from \$3.23 billion in 2011. Petroleum products accounted for 32.8% of the value of total imports, and fertilizers, 1.3% (Bank of Tanzania, 2013b, p. 16–17).

Commodity Review

Metals

Cobalt and Nickel.—Barrick Gold Corp. of Canada (50%) and Xstrata plc of Switzerland (50%) were engaged in a feasibility study on a new mine at the Kabanga nickel deposit in northwestern Tanzania. Depending on the results of the study, Barrick and Xstrata could produce 40,000 metric tons per year (t/yr) of nickel in concentrate at Kabanga. Resources were estimated to be 58.2 million metric tons (Mt) at a grade of 2.62% nickel; the deposit also contained cobalt, copper, and platinum (Barrick Gold Corp., 2013, p. 62).

African Eagle Resources plc (AER) of the United Kingdom planned to complete a feasibility study on a new mine at the Dutwa project, which consists of the Ngasamo and the Wamangola nickel-cobalt laterite deposits, in the first quarter of 2013. Depending on the results of the studies, AER could start construction in mid-2013 and complete the new mine in mid-2015. Production was expected to be about 27,000 t/yr of nickel. The life of the mine was estimated to be more than 20 years. In 2012, resources at Dutwa were estimated to be 107 Mt at a grade of 0.92% nickel and 0.028% cobalt. The iron content at the Ngasamo and the Wamangola deposits was unusually low and the silica content was unusually high for nickel-cobalt laterites (Madlala, 2012; African Eagle Resources plc, 2013, p. 5).

Continental Nickel Ltd. of Canada and its joint-venture partner IMX Resources Ltd. were engaged in a feasibility study on a new mine at the Ntaka Hill nickel sulfide deposit; the companies merged in 2012. The study was expected to be completed in 2013. Depending on the results of the study, mining could start in the fourth quarter of 2015. Nickel production was expected to be between 10,000 t/yr and 15,000 t/yr initially and to increase to between 15,000 t/yr and 20,000 t/yr. Resources at Ntaka Hill were estimated to be 12.8 Mt at a grade of 1.21% nickel; IMX planned to complete an updated resource assessment in the first quarter of 2013 (Pick, The, 2012; Thair, 2012).

Copper.—African Barrick Gold plc (ABG) (Barrick, 73.9%) of the United Kingdom produced copper as a coproduct at the Bulyanhulu and the Buzwagi gold mines. In 2012, Danformation Tanzania Ltd. opened a new small-scale smelter in Dar es Salaam. The plant had a capacity to treat about 18,000 t/yr of ore; Danformation planned to build two new furnaces with a capacity to treat about 120,000 t/yr of ore each. High-grade azurite and malachite ores were purchased from artisanal miners (African Mining, 2012a).

Gold.—Tanzania's gold production decreased to 40,650 kilograms (kg) in 2012 from 42,300 kg in 2011. The Bulyanhulu, the Buzwagi, the Geita, the Golden Pride, the New Luika, the North Mara, and the Tulawaka Mines had a combined capacity to produce about 50,200 kilograms per year (kg/yr) of gold. Tanzania's resources amounted to nearly 1,800 metric tons (t) of contained gold, of which about 690 t was reserves (tables 1, 2, and 3).

The Bulyanhulu Mine, which was located south of Lake Victoria, produced 7,346 kg of gold in 2012 compared with 8,150 kg in 2011. Ore grades and volumes of ore milled decreased in 2012. Starting in early 2014, ABG planned to start re-treating tailings at Bulyanhulu and increase production by about 1,200 kg/yr. ABG also planned to complete a feasibility study in 2013 on the Bulyanhulu Upper East Expansion, which could increase production by about 2,800 kg/yr. Depending on the results of the study, production could start in late 2014. The remaining life of the Bulyanhulu Mine was estimated to be more than 25 years (African Barrick Gold plc, 2013, p. 2, 24, 30).

In 2012, production at the North Mara open pit mine increased to 6,010 kg of gold from 5,313 kg in 2011 because of increased ore grades and recovery rates. ABG planned to complete a revised feasibility study on starting an underground mine at North Mara in 2013; a previous feasibility study estimated that production could increase by between 1,600 kg/yr and 1,900 kg/yr. The life of the mine was estimated to be more than 10 years (Hill, 2010; African Barrick Gold plc, 2013, p. 2, 26, 30).

ABG produced 5,156 kg of gold at the Buzwagi Mine in 2012 compared with 6,113 kg in 2011. Decreased ore grades more than offset increased volumes of ore milled. The life of the mine was estimated to be more than 10 years (African Barrick Gold plc, 2013, p. 2, 25).

ABG and its joint-venture partner MDN Inc. of Canada produced gold at the Tulawaka open pit mine. Production at Tulawaka decreased to 1,379 kg in 2012 from 2,616 kg in 2011 as the mine's reserves approached depletion. ABG and MDN planned to shut down the Tulawaka Mine in 2013. MDN also engaged in exploration at the Ikungu project in 2012 (Dickson, 2012; African Barrick Gold plc, 2013, p. 27).

In 2012, ABG updated its resource assessment for the Nyanzaga project. Resources were estimated to be 96.6 Mt at a grade of 1.48 grams per metric tons (g/t) gold. ABG planned to complete its prefeasibility study on a new mine at Nyanzaga in the first half of 2013 (African Barrick Gold plc, 2013, p. 30, 89).

Geita Gold Mining Ltd. (a subsidiary of AngloGold Ashanti Ltd. of South Africa) produced about 16,500 kg of gold at the Geita Mine in 2012 compared with 15,400 kg in 2011. Increased volumes of ore milled more than offset decreased ore grades. The company planned to maintain production

at about 15,600 kg/yr. AngloGold Ashanti also engaged in exploration at Geita in 2012 (Dickson, 2012; AngloGold Ashanti Ltd., 2013, p. 34, 66).

Since 1998, Resolute Mining Ltd. of Australia had produced more than 62,000 kg of gold at the Golden Pride open pit mine. In fiscal year 2012 (which ran from July 1, 2011, to June 30, 2012), production at the Golden Pride Mine was 3,586 kg of gold compared with 3,823 kg in fiscal year 2011. Decreased gold output was attributable to lower ore grades and volumes of ore milled. The mine was scheduled to shut down in mid-2013 as its reserves were depleted. In addition to its reserves, Golden Pride was estimated to have subeconomic resources of about 24.8 Mt at a grade of 1.7 g/t gold. Resolute engaged in drilling at the Nyakafuru project, which had contained gold resources of about 33,000 kg (Resolute Mining Ltd., 2012, p. 6–7, 12).

Shanta Gold Ltd. of the United Kingdom started mining at the New Luika Mine in the third quarter of 2012. The company planned to produce gold at the rate of about 2,300 kg/yr from 2013 to 2015 and a total of 14,000 kg during the estimated 11-year life of the mine. Shanta was considering an increase in its planned production. In July 2012, resources at New Luika were estimated to be 14.3 Mt at a grade of 3.22 g/t gold. Shanta was also considering the development of the Singida project, which had resources of 9.2 Mt at a grade of 2.9 g/t gold. Development of the mine could commence in 2013; planned production was 1,400 kg/yr during the estimated 10-year life of the mine. Shanta was engaged in resettlement negotiations with the affected communities (Shanta Gold Ltd., 2013).

Ruby Creek Resources Inc. of the United States and Handeni Gold Inc. of Canada engaged in test mining at the Mkuvia Alluvial Gold project in southern Tanzania in 2012. Handeni also explored for gold at its Handeni project in Tanga Region. Lake Victoria Mining Company Inc. of Canada planned to start small-scale production at its Kinyambwiga project in early 2013. Kinyambwiga was the first of four small-scale gold projects that Lake Victoria Mining planned to develop (African Mining, 2012b; Dickson, 2012).

In September 2012, Helio Resource Corp. of Canada announced the completion of a preliminary economic assessment at the SMP property in the Lupa Goldfield in southwestern Tanzania. Helio was considering the development of a new mine that would produce an average of nearly 1,800 kg/yr of gold during its estimated 9-year life (Mining Journal, 2012).

Tanzanian Royalty Exploration Corp. of Canada and its joint-venture partner Stamico completed a preliminary economic assessment on a new mine at the Buckreef project, which was located south of Lake Victoria. The companies were considering the development of a new mine that would produce an average of about 3,500 kg/yr of gold during its estimated 12-year life. Resources at Buckreef were estimated to be 47.2 Mt at a grade of 1.4 g/t gold. Tanzanian Royalty planned further drilling in 2013 (Vaccaro, 2012; Tanzanian Royalty Exploration Corp., 2013, p. 5–6).

Tanzanian Royalty was also considering the possibility of producing about 2,800 kg/yr of gold at the Itetemia and the Kigosi projects, which are located south of Lake Victoria. Kibo Mining relinquished Itetemia to Tanzanian Royalty in December 2011. In early 2012, the company estimated the resources at Itetemia

to be 4.2 Mt at a grade of 3.1 g/t gold (Vaccaro, 2012; Tanzanian Royalty Exploration Corp., 2013, p. 2, 20–21).

Canaco Resources Inc. of Canada estimated that resources at its Magambazi project were 21.9 Mt at a grade of 1.44 g/t gold in 2012. The company received an environmental impact assessment certificate from the Government, which is necessary to obtain a mining license (Dickson, 2012).

In 2012, AER and Rift Valley Resources Ltd. of Australia (formerly BrightStar Resources Ltd.) engaged in drilling at the Miyabi gold deposit south of Lake Victoria. Tembo Gold Corp. of Canada drilled at its Tembo project, which was adjacent to the Bulyanhulu Mine. Currie Rose Resources Inc. of Canada and Liontown Resources Ltd. of Australia drilled at the Jubilee Reef property in Shinyanga Region. Brookemont Capital of Canada engaged in exploration at the Handeni North project in 2012. Great Basin Gold Ltd. of South Africa planned to sell its exploration properties in Tanzania (Dickson, 2012; Murray, 2012; Seccombe, 2012).

Iron Ore, Iron and Steel, Titanium, and Vanadium.—In September 2011, Sichuan Hongda Company Ltd. of China signed an agreement with Government-owned National Development Corp. (NDC) to develop the Liganga iron ore deposits in Njombe Region, which also contains titanium and vanadium. NDC and Sichuan Hongda planned to produce 3 million metric tons per year (Mt/yr) of iron ore for consumption in a new steel plant; steel production was likely to be 1.25 Mt/yr. The iron ore mine originally was planned to start up in 2013. As of late November 2012, the startup date for the mine was uncertain (Thompson, 2011; Ministry of Finance, 2012, p. 77–78; Intra Energy Corp. Ltd., 2013, p. 16–17).

Niobium and Tantalum.—Panda Hill Pty Ltd. (a subsidiary of Verona Capital Pty Ltd. of Australia) owned the exploration rights to the Panda Hill Carbonatite deposit, which is located 35 kilometers (km) southwest of Mbeya. In July 2012, resources at Panda Hill were estimated to be 56 Mt at a grade of 0.5% niobium pentoxide (Cradle Resources Ltd., 2013).

Industrial Minerals

Cement.—Tanzania's cement production capacity amounted to nearly 3.8 Mt/yr at the end of 2012. In October, ARM Cement Ltd. of Kenya (formerly Athi River Mining Ltd.) completed its new plant in Dar es Salaam with a capacity of 750,000 t/yr. ARM Cement postponed the opening of its new plant at Tanga (which would have the capacity to produce 1.2 Mt/yr of clinker and 750,000 t/yr of cement) to the first quarter of 2014 from early 2013. Dangote Cement plc of Nigeria planned to complete a new 3-Mt/yr-capacity plant at Mtwara in southern Tanzania by the second quarter of 2015. The company planned to export its production to other countries in the East African Community and to the Democratic Republic of the Congo [Congo (Kinshasa)] and Malawi (International Cement Review, 2012; ARM Cement Ltd., 2013, p. 15; Dangote Cement plc, 2013).

Diamond.—In fiscal year 2012 (which ran from July 1, 2011, to June 30, 2012), Petra Diamonds Ltd. of the United Kingdom reopened the open pit operations at the Williamson Mine. Petra produced 57,050 carats from open pit and alluvial operations in fiscal year 2012 compared with 29,510 carats in fiscal year 2011,

all of which was alluvial. The company planned to increase production to 147,000 carats in fiscal year 2013 and to 216,000 carats by fiscal year 2016 (Murray, 2012).

Gemstones.—Tanzania produced a variety of gemstones that included amethyst, aquamarine, cordierite, emerald, garnet, ruby, sapphire, spinel, tanzanite, and tourmaline. Tanzanite accounted for a majority of the value of domestic gemstone mining.

Merelani, which is located near Arusha, was the world's only source of tanzanite. Artisanal and small-scale miners operating in Blocks B and D of the Merelani deposit formerly accounted for most of the country's tanzanite production. Kilimanjaro Mines Ltd. and Tanzanite Africa Ltd. operated medium-scale mines in Block A and the Block D Extension, respectively. In recent years, artisanal tanzanite mining has declined. Sharp decreases in tanzanite prices resulting from the world economic crisis rendered most artisanal and small-scale mining operations subeconomic. By March 2009, only 30 of 382 mining operations were still in production in Block D and 20 of 323 mining operations were in production in Block B. As of early September 2011, many of the artisanal and small-scale mining operations were still closed. In 2012, artisanal tanzanite production decreased to 219 kg from 345 kg in 2011 (Guardian, The, 2011).

Richland Resources Ltd. of Bermuda mined tanzanite in Block C; the company also cut high-quality tanzanite at its lapidaries in Tanzania. In 2012, Richland produced 540 kg of rough tanzanite, which was an increase of 13% from 2011. Output increased because of higher ore grades. In February, the company estimated that resources in Block C were 2.1 Mt at a grade of 50.6 carats per metric ton tanzanite (Murray, 2012; Richland Resources Ltd., 2013, p. 4–6).

Richland also completed a new lapidary factory at Merelani in 2012 with a capacity of 200,000 stones per year in response to the Government's export ban on tanzanite stones larger than 1 gram. The lapidary, which was operated by Richland's subsidiary Urafiki Gemstones EPZ Ltd., had the capacity to process all the company's production subject to the export ban (Richland Resources Ltd., 2013, p. 10).

Tsavorite, which is a green grossular garnet that obtains its color from trace amounts of chromium and vanadium, was mined at Lemshuku by Swala Gem Traders. Richland continued exploration at the Lemshuku-Shamberai tsavorite project in 2012. Indicated resources at Lemshuku-Shamberai were between 0.89 million and 2.17 million cubic meters at a grade of 1.6 carats per cubic meter tsavorite. The project was located about 20 km southwest of the tanzanite mines (Richland Resources Ltd., 2013, p. 10, 65).

Graphite.—The Merelani Graphite Mine, which is located in Block C at Merelani, produced about 8,000 t of graphite from 1995 to 1997. In December 2012, Richland announced that it was engaged in a feasibility study on reopening the mine. Resources were estimated to be 25 Mt at a grade of 6.9% graphite in 1992. Richland also had about 100,000 t of waste material from its tanzanite mining operations that contained graphite. Prices for flake graphite were more than \$2,500 per metric ton in December 2012 compared with between \$480 and \$550 per metric ton when mining operations were shut down in 1997 (Richland Resources Ltd., 2012).

In the fourth quarter of 2012, Kibaran Resources Ltd. of Australia (formerly Kibaran Nickel Ltd.) engaged in drilling at the Epanko, the Kasita, and the Ndololo prospects, which were part of the Mahenge graphite project in south central Tanzania. Kibaran also engaged in rock chip sampling at the Merelani-Arusha graphite project in northeast Tanzania (Kibaran Resources Ltd., 2013).

Rare Earths.—In February 2012, Peak Resources Ltd. of Australia estimated the resources at its Ngualla rare-earth project in Rukwa Region to be 170 Mt at a grade of 2.24% rare-earth oxides (REOs). An updated resource assessment was expected to be completed in the first quarter of 2013. Peak Resources planned to complete a prefeasibility study on a new mine at Ngualla in 2013 and a feasibility study in 2014. Depending on the results of the studies, production could be 10,000 t/yr of REOs starting in the first quarter of 2016. Peak Resources planned to produce about 4,700 t/yr of cerium oxide, 2,900 t/yr of lanthanum oxide, 2,200 t/yr of praseodymium oxide and neodymium oxide, and 220 t/yr of heavy REOs and yttrium oxide. The estimated capital cost of the project was \$400 million (Peak Resources Ltd., 2013a–c).

In September 2011, Montero Mining and Exploration Ltd. of Canada estimated that resources at the Wigu Hill project in Morogoro Region were 3.3 Mt at a grade of 2.6% light REOs. Montero planned to open a small-scale mine at Wigu Hill in 2013 or 2014. The company planned to produce 5,000 t/yr of rare-earth minerals. Montero hoped to increase resources to more than 10 Mt at a grade of between 3% and 5% REOs (Montero Mining & Exploration Ltd., 2013).

Mineral Fuels and Related Materials

Coal.—Intra Energy Corp. Ltd. of Australia and its joint-venture partner National Development Corp. (NDC) (owned by the Government of Tanzania) operated the Tancoal project at the Ngaka coalfield near Lake Malawi with a capacity of 420,000 t/yr. Intra Energy planned to increase its production in stages to 5 Mt/yr by 2015 and 7 Mt/yr starting in 2016 by expanding the Tancoal operations and starting mining at the Tanzacoal project in the Songea-Kiwira coalfield. By 2014 or 2015, the company planned to complete a new coal-fired power station at the Tancoal project with a capacity of 120 megawatts (MW). Intra Energy was also considering the development of another coal-fired 400-MW power station at the Tanzacoal project (Intra Energy Corp. Ltd., 2013).

In September 2011, Sichuan Hongda signed an agreement with NDC to develop the Mchuchuma coal deposits in western Tanzania. NDC and Sichuan Hongda planned to produce 3 Mt/yr of coal at Mchuchuma for use in a new 600-MW power station in four phases of 150 MW each. The first 300 MW of capacity was expected to be consumed in the Liganga iron ore and steel project. The original startup date for the power station was 2014. As of late November 2012, the startup date for the mine and power station was uncertain (Thompson, 2011; Ministry of Finance, 2012, p. 77–78; Intra Energy Corp. Ltd., 2013, p. 16–17).

Natural Gas.—In 2012, Orca Exploration Group Inc. produced 992 million cubic meters of natural gas from

Songo Songo Island. The capacity of Orca's gas processing plant was 1.17 billion cubic meters, and the pipeline, 1.05 billion cubic meters. In November, construction started on the expansion of the pipeline and processing plant. Total capacity at Songo Songo was likely to increase to 1.96 billion cubic meters per year by the end of 2014. The Government secured \$1.2 billion in financing from the Chinese Exim Bank for the expansion. Gas-fired power stations and TPCC's cement plant were the leading consumers of gas from Songo Songo (Orca Exploration Group Inc., 2013, p. 2, 5, 10, 17).

Etablissements Maurel et Prom SA of France and its joint-venture partners operated the Mnazi Bay offshore gas project in the Rovuma Basin. Natural gas from Mnazi Bay was consumed at a power station with a capacity of 18 MW. In 2012, Government-owned Tanzania Electric Supply Company Ltd. purchased the power station (Wentworth Resources Ltd., 2013, p. 1, 12).

In July 2012, the Government signed an agreement with China National Petroleum Corp. of China to build a new 532-km pipeline from Mnazi Bay to gas-fired power stations in Dar es Salaam. Construction on the pipeline started in November; completion was scheduled for the third quarter of 2014. Maurel et Prom and its joint-venture partners planned to produce at an initial rate of nearly 830 million cubic meters per year. Depending on the discovery of additional resources at Mnazi Bay, production could reach 2.17 billion cubic meters per year (Wentworth Resources Ltd., 2013, p. 1, 12).

In 2011 and 2012, BG Group plc of the United Kingdom and Ophir Energy plc of the United Kingdom drilled for natural gas in the offshore Blocks 1, 3, and 4. Combined resources at the six wells drilled were estimated to be between 382 and 595 billion cubic meters, of which the Jodari-1 accounted for 127 billion cubic meters, and the Papa-1, between 14 and 57 billion cubic meters. In September 2012, BG Group and Ophir engaged in further drilling at Jodari; the companies planned a production test in the first quarter of 2013 (Petroleum Economist, 2012b; Quinlan, 2012).

Statoil ASA of Norway and Exxon Mobil Corp. of the United States discovered 170 billion cubic meters of natural gas at the Zafarani-1 well and 85 billion cubic meters at the Lavani-1 well in 2012; both wells are located in the offshore Block 2. Aminex plc of Ireland and Solo Oil plc of the United Kingdom discovered natural gas at the Ntorya-1 well in the onshore Rovuma Basin in 2012 (Petroleum Economist, 2012a; Quinlan, 2012).

Uranium.—Mantra Resources Ltd. of Australia completed a feasibility study at the Mkuju River project, which is located in southern Tanzania, in 2011. According to the study, the Nyota property could support a new uranium mine with average production of 1,900 t/yr of uranium oxide (U₃O₈) during an estimated 12-year mine life. In June 2011, Mantra was purchased by Government-owned JSC Atomredmetzoloto of Russia, which made Uranium One Inc. of Canada (JSC Atomredmetzoloto, 51%) the operator at Mkuju River. At the end of 2012, Uranium One was engaged in a revised feasibility study. Depending on the results of the study and the completion of negotiations on a mine development agreement, construction on a new mine could start in 2013, and production,

in 2015 (Thompson, 2011; Murray, 2012; Uranium One Inc., 2013, p. 5, 17).

In 2012, Uranex Ltd. of Australia (IMX Resources NL, 39.5%) estimated that resources at Likuyu North, which is part of the Mkuju project in southern Tanzania, were 11.7 Mt at a grade of 0.024% U₃O₈. Uranium Resources plc of the United Kingdom completed a drilling program at Mtonya in 2012. The company planned to complete a resource estimate in the first quarter of 2013 (Murray, 2012).

Outlook

Tanzania's production of cement, coal, diamond, gold, and natural gas is expected to increase in the near future. Cement output is likely to increase from 2013 through 2017 because of the opening of new plants. Coal production is expected to increase from 2012 through 2016. Diamond production is likely to increase from 2013 through 2016. The outlook for natural gas production is to increase from 2014 through 2019. Increased gold output from the Bulyanhulu and the North Mara Mines and the opening of the New Luika and the Singida Mines is likely to more than offset the shutdown of the Golden Pride and the Tulawaka Mines by 2018. Rare-earth mining is expected to start in 2013 or 2014. Depending on the results of feasibility studies, cobalt, nickel, and uranium production could start in 2015. Graphite production could also restart in the near future.

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TABLE 1
TANZANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012
Bauxite ^e	20,601 ³	122,920 ³	39,000 ^r	30,000 ^r	28,000
Calcite	112	--	152	150 ^e	150 ^e
Cement, hydraulic	1,756	1,941	2,312	2,409	2,581
Coal, bituminous	15,242	--	179 ^r	80,710 ^r	78,672
Copper, contained in concentrates and dore	2,852	3,079 ^r	6,392 ^r	6,748 ^r	5,840
Diamond ⁴	237,676	181,874	80,498	28,378	127,174
Gemstones, excluding diamond: ^{e,5}					
Alexandrite	15 ³	1 ³	-- ³	--	--
Amethyst	200	150	160	160	160
Aquamarine	323 ³	468 ³	466 ³	470	470
Emerald	11 ³	19 ³	--	--	--
Garnet	4,400	8,448 ³	9,934 ³	10,000	10,000
Ruby	2,000	1,500	1,600	1,600	1,600
Sapphire	1,000	750	800	800	800
Tanzanite ³	670 ^r	768 ^r	2,001 ^r	823 ^r	759
Tourmaline	3,865 ³	9,283 ³	9,530 ³	9,600	9,600
Other	1,840,000	1,050,000 ^r	2,620,000 ^r	1,220,000 ^r	1,210,000
Total ³	1,858,287	1,068,481 ^r	2,646,109 ^r	1,241,581 ^r	1,237,625
Gold	36,434	39,112	39,448	42,300 ^r	40,650
Gypsum and anhydrite, crude	55,730	8,105	26,918	9,288 ^r	91,610
Kaolin	13,926	18,624	58 ^r	178 ^r	1,422
Lime ^e	20,000	30,000	30,000	30,000	30,000
Natural gas ⁶	569	668	790 ^r	869 ^r	992
Phosphate rock:					
Gross weight	28,684	752 ^r	17,180	18,000 ^e	18,000 ^e
P ₂ O ₅ content	8,600	230 ^r	5,200	5,400 ^e	5,400 ^e
Salt, all types	25,897	28,444	34,455	32,297 ^r	34,016
Silver, contained in concentrates and dore	10,388	8,231	12,470	10,399 ^r	11,227
Steel, semimanufactured	75,274	122,318	126,054	118,249 ^r	133,239
Stone, sand, and gravel:					
Aggregates	63,821	86,112	152,781	150,000 ^e	150,000 ^e
Dolomite	NA ^r	NA ^r	NA ^r	NA ^r	NA
Limestone, crushed	1,281,805	1,284,100	1,436,600	1,972,100	2,000,000 ^e
Marble	522	2,679	1,109	1,100 ^e	1,100 ^e
Pozzolanic materials	260,403	61,501	60,320 ^r	113,489 ^r	75,193
Sand	NA ^r	NA ^r	NA ^r	NA ^r	NA

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. NA Not available.

-- Zero.

¹Table includes data available through February 21, 2014.

²In addition to the commodities listed, modest quantities of crude construction materials, including brick clay, are produced, but available information is inadequate to make reliable estimates of output.

³Reported figure.

⁴Estimated to represent 85% gem-quality and 15% industrial-quality stones. Does not include smuggled artisanal production.

⁵Other precious and semiprecious stones produced include chrysoprase, kyanite, moonstone, opal, peridot, quartz, and spinel. Does not include smuggled artisanal production.

⁶Orca Exploration Group Inc. only. Artumas Group Inc. also produced small amounts of natural gas.

TABLE 2
TANZANIA: 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		Tanzania Portland Cement Company Ltd. (TPCC) (HeidelbergCement AG, 69.3%)	Plant at Wazo Hill	1,400,000.
Do.		Tanga Cement Company Ltd. [Afrisam Consortium (Pty) Ltd., 62.5%]	Plant at Tanga	1,200,000.
Do.		ARM Cement Ltd.	Plant at Dar es Salaam	750,000.
Do.		Mbeya Cement Company Ltd. (LaFarge Group, 58%)	Plant at Mbeya	350,000.
Coal, bituminous		Intra Energy Corp. Ltd. and National Development Corp.	Ngaka Mine	420,000.
Do.		Kiwira Coal and Power Ltd. (Tanpower Resources Ltd., 85%, and Government, 15%)	Kiwira Mine ¹	150,000 run of mine; 93,000 washed.
Copper:				
Mine		African Barrick Gold plc (Barrick Gold Corp., 73.9%)	Bulyanhulu Mine near Kahama	7,200.
Do.		do.	Buzwagi Mine	4,600.
Smelter		Danformation Ltd.	Dar es Salaam	2,400. ^e
Diamond	carats	Williamson Diamonds Ltd. (Petra Diamonds Ltd., 75%, and Government, 25%)	Williamson Mine near Shinyanga	220,000.
Do.	do.	New Alamasi	Near Shinyanga	13,000. ^e
Do.	do.	Mwadi Mpya Pit	do.	6,000. ^e
Do.	do.	Artisanal miners	do.	NA.
Glass		Kioo Ltd.	Dar es Salaam	55,000.
Gold		Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%)	Geita Mine near Nyakabale	5,200,000 ore processing.
Do.	kilograms	do.	do.	18,000 gold.
Do.		African Barrick Gold plc (ABG)	Bulyanhulu Mine near Kahama	1,100,000 ore processing.
Do.	kilograms	do.	do.	8,800 gold.
Do.		do.	North Mara Mine in Tarime District	2,900,000 ore processing.
Do.	kilograms	do.	do.	7,300 gold.
Do.		do.	Buzwagi Mine	4,400,000 ore processing.
Do.	kilograms	do.	do.	7,000 gold.
Do.		Resolute Mining Ltd.	Golden Pride Mine near Isanga	2,400,000 ore processing.
Do.	kilograms	do.	do.	4,200 gold.
Do.		Pangea Minerals Ltd. (African Barrick Gold plc, 70%, and MDN Inc., 30%)	Tulawaka Mine	480,000 ore processing.
Do.	kilograms	do.	do.	2,600 gold.
Do.	do.	Shanta Gold Ltd.	New Luika Mine	2,300 gold.
Do.	do.	Artisanal miners	Mrito	NA.
Lime		Athi River Mining Ltd. (ARM)	Plant at Tanga	40,000.
Natural gas	million cubic meters	Orca Exploration Group Inc.	Gasfield on Songo Songo Island	1,170.
Do.	do.	Etablissements Maurel et Prom SA, 38.22%, and Wentworth Resources Ltd., 25.4%	Gasfield at Mnazi Bay	100.
Phosphate rock		Minjingu Mines and Fertilizers Ltd. (subsidiary of Mac Group of Companies)	Mine at Minjingu	100,000.
Salt		Nyanza Mines (Tanganyika) Ltd. (subsidiary of Mac Group of Companies)	Nyanza Mines at Uvinza	60,000.
Silver	kilograms	African Barrick Gold plc (ABG)	Bulyanhulu Mine near Kahama	10,000.
Steel		MM Integrated Steel Mills Ltd.	Plant at Dar es Salaam	36,000 ^e rolled.
Do.		Aluminum Africa Ltd.	do.	33,000 ^e rolled.
Do.		Steel Masters Ltd.	do.	22,000 rolled.
Do.		MM Integrated Steel Mills Ltd.	do.	36,000 galvanized.
Do.		Aluminum Africa Ltd.	do.	33,000 galvanized.
Tanzanite		Richland Resources Ltd.	Mine at Merelani, Block C ²	120,000 ore processing.
Do.	kilograms	do.	do.	1,200 tanzanite.
Do.	do.	Tanzanite Africa Ltd. (IPP Media Ltd.)	Mine at Merelani, Block D Extension	NA.
Do.	do.	Kilimanjaro Mines Ltd.	Mine at Merelani, Block A	NA.
Do.	do.	Small-scale and artisanal miners	Mines at Merelani, Blocks B and D	7,500. ^e

^eEstimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

¹Not operating at the end of 2012.

²Formerly the graphite processing plant at Merelani operated by Phoenix Minerals Ltd.

TABLE 3
TANZANIA: GOLD RESOURCES AND RESERVES IN 2012

Project	Major operating companies and major equity owners	Tonnage ¹ (million metric tons)	Grade (grams per metric ton)	Contained gold ¹ (metric tons)
Reserves:				
Bulyanhulu ¹	African Barrick Gold plc (Barrick Gold Corp., 73.9%)	37.0	9.2	338
Geita ²	Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%)	65.0	2.6	169
North Mara ¹	African Barrick Gold plc	34.2	2.7	94
Buzwagi ¹	do.	63.3	1.3	84
Golden Pride ²	Resolute Mining Ltd.	2.2	1.5	3
Total		201.7	3.4	688
Resources:³				
Bulyanhulu	African Barrick Gold plc	56.1	9.7	543
Geita	Geita Gold Mining Ltd.	143.0	2.7	382
North Mara	African Barrick Gold plc	54.4	3.2	173
Nyanzaga	do.	96.6	1.5	143
Buzwagi	do.	85.4	1.3	107
Buckreef	Tanzanian Royalty Exploration Corp.	47.2	1.4	66
SMP	Helio Resource Corp.	31.3	1.3	39
Chunya	Shanta Gold Ltd.	14.3	3.2	46
Golden Pride	Resolute Mining Ltd.	27.0	1.7	46
Nyakafuru	do.	19.4	1.7	33
Magambazi	Canaco Resources Inc.	21.9	1.4	32
Singida	Shanta Gold Ltd.	9.2	2.9	27
Golden Ridge	African Barrick Gold plc	8.6	2.8	24
Igurubi	Peak Resources Ltd.	8.0	2.8	22
Kigosi	Tanzanian Royalty Exploration Corp.	21.8	0.8	18
Imerwu, Lubando, and N'kuluwisi	Great Basin Gold Ltd.	8.6	2.0	17
Miyabi	African Eagle Resources plc	12.4	1.3	16
Itetemia	Tanzanian Royalty Exploration Corp.	4.2	3.1	13
Kitongo	BrightStar Resources Ltd.	4.4	2.0	9
Tulawaka	Pangea Minerals Ltd. (African Barrick Gold plc, 70%, and MDN Inc., 30%)	1.2	6.6	8
Luhala	Tanzanian Royalty Exploration Corp.	1.9	1.9	3
Total		675	2.6	1,767

do. Ditto.

¹Definitions of resources and reserves are based on National Instrument 43–101, as required by Canadian securities regulatory authorities.

²Definitions of resources and reserves are based on the Australasian Code for the Reporting of Identified Mineral Resources and Ore Reserves issued by the Joint Committee for the Australasian Institute of Geoscientists and the Australian Mining Industry Council.

³Resources are inclusive of reserves.

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