



2013 Minerals Yearbook

TANZANIA

THE MINERAL INDUSTRY OF TANZANIA

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In 2013, Tanzania played an important role in the global production of gold, accounting for nearly 1.6% of the world's gold mine output (George, 2014). The country was also the world's only producer of tanzanite. Other domestically important mining and mineral processing operations included cement and natural gas. Tanzania was not a globally important consumer of minerals or mineral fuels in 2013.

Minerals in the National Economy

In 2013, the manufacturing sector accounted for 8.5% of the gross domestic product, and mining and quarrying, for 3.3%. The value of output in the mining sector increased by 6.9% in 2013 compared with 7.8% in 2012. About 670,000 artisanal miners were estimated to produce colored gemstones, diamond, gold, and other commodities in 2012 (the latest year for which data were available); employment in large-scale mines was about 12,000 workers (Engineering & Mining Journal, 2012; Bank of Tanzania, 2014a, p. 38, 44).

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 Government-owned State Mining Co. (Stamico) or by listing on the Dar es Salaam stock exchange and selling 50% of the shares in the operation to Tanzanian companies or individuals (Kabukuru, 2013; Pesa Times, 2013).

Production

In 2013, marble production increased by 398%; limestone, by 218%; gypsum, by 206%; coal, by 64%; diamond and lime, by 41% each; tanzanite, by 19%; and sapphire, by an estimated 13%. The production of pozzolanic materials decreased by 30%; kaolin, by 16%; and bauxite, by an estimated 14% (table 1).

Structure of the Mineral Industry

Tanzania's gold mines were privately owned; the Minjingu phosphate mines and the Nyanza salt mines were also owned by private investors. In 2013, Stamico purchased a 50% share in the tanzanite mine held by Richland Resources Ltd. of Bermuda.

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 (table 2; Mining Journal, 2013).

Mineral Trade

Gold exports decreased in value to \$1.73 billion in 2013 from \$2.2 billion in 2012. The share of gold in total exports was 32.4% in 2013; and colored gemstones, copper, diamond, silver, and other minerals combined, 2.4%. Imports of petroleum products increased in value to \$4.31 billion in 2013 from \$3.39 billion in 2012. Petroleum products accounted for 39.1% of the value of total imports, and fertilizers, 1.5% (Bank of Tanzania, 2014b, p. 16–17).

Commodity Review

Metals

Cobalt and Nickel.—In late 2013, IMX Resources Ltd. of Australia and MMG Ltd. of China formed a joint venture to explore at the Nachingwea project in southeastern Tanzania. IMX and MMG subsequently initiated a drilling program; the companies hoped to identify resources of 400,000 metric tons (t) of contained nickel at grades of at least 1.5% nickel. MMG planned to spend as much as \$60 million at Nachingwea over a 5-year period (Washbourne, 2014).

African Eagle Resources plc (AER) of the United Kingdom had 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 planned to produce about 27,000 metric tons per year (t/yr) of nickel in concentrate. The life of the mine was estimated to be more than 20 years. In mid-2013, AER halted work on the project because of a lack of funding to complete the feasibility study. The company subsequently sold a 90% interest in Dutwa to Blackdown Resources (UK) Ltd. of the United Kingdom (Madlala, 2012; Murray, 2013).

Barrick Gold Corp. of Canada (50%) and Glencore Xstrata plc of Switzerland (50%) (formerly Xstrata plc) held the Kabanga deposit in northwestern Tanzania. Resources were estimated to be 54.4 million metric tons (Mt) at a grade of 2.24% nickel; the deposit also contained cobalt, copper, and platinum (Barrick Gold Corp., 2014, p. 155).

Copper.—African Barrick Gold plc (ABG) (Barrick, 73.9%) of the United Kingdom produced more than 5,400 t of copper as a coproduct at the Bulyanhulu and the Buzwagi gold mines in 2013. Danformation Tanzania Ltd. operated a small-scale smelter in Dar es Salaam with a capacity to process about

18,000 t/yr of ore; high-grade azurite and malachite ores were purchased from artisanal miners. Walkabout Resources Ltd. of Australia started drilling at its Kigoma project in western Tanzania in June 2013 (African Mining, 2012; Piper, 2013).

Gold.—In 2013, ABG produced 7,985 kilograms (kg) of gold at the North Mara Mine compared with 6,010 kg in 2012 because of increased ore grades and recovery rates. Production also increased at the Buzwagi Mine to 5,660 kg in 2013 from 5,156 kg in 2012. At the Bulyanhulu Mine, output decreased to 6,167 kg in 2013 from 7,346 kg in 2012. ABG and its joint-venture partner MDN Inc. of Canada produced 219 kg in 2013 at the Tulawaka Mine compared with 1,379 kg in 2012; Tulawaka's reserves were depleted in the first half of 2013 (African Barrick Gold plc, 2014, p. 16, 18, 20, 25, 27).

ABG planned to produce between 20,200 and 21,500 kg of gold at Bulyanhulu, Buzwagi, and North Mara combined in 2014. In the first half of 2014, ABG planned to start retreating tailings at Bulyanhulu and to increase output by about 1,200 kilograms per year (kg/yr). ABG also planned to complete a revised feasibility study on the Bulyanhulu Upper East Expansion in 2014. In a previous feasibility study, the expansion was planned to increase production by about 2,800 kg/yr. The remaining life of the Bulyanhulu Mine was estimated to be more than 25 years; the North Mara Mine, 10 years, and the Buzwagi Mine, 5 years (Mining Review Africa, 2013a; African Barrick Gold, 2014, p. 1, 13, 17).

In 2013, ABG updated its resource assessment for the Nyanzaga project. Resources were estimated to be 100 Mt at a grade of 1.29 grams per metric ton (g/t) gold. ABG planned to explore further at Nyanzaga in 2014 (African Barrick Gold plc, 2014, p. 24, 91).

Geita Gold Mining Ltd. (a subsidiary of AngloGold Ashanti Ltd. of South Africa) produced about 14,300 kg of gold at the Geita Mine in 2013 compared with 16,500 kg in 2012. Decreased volumes of ore milled more than offset increased ore grades; production decreased because of downtime for the replacement of the mill in early 2013 (AngloGold Ashanti Ltd., 2014, p. 48, 67–68).

Since 1998, Resolute Mining Ltd. of Australia has produced about 68,000 kg of gold at the Golden Pride Mine. Production at Golden Pride was 2,258 kg of gold in 2013; the mine's reserves were depleted in late December. In mid-2013, Golden Pride was estimated to have remaining subeconomic resources of about 23.5 Mt at a grade of 1.8 g/t gold. Resolute engaged in exploration at the Nyakafuru project in 2013, which had estimated reserves of 7.36 Mt at a grade of 1.6 g/t gold. The company hoped to identify additional reserves at Nyakafuru; production levels of more than 3,100 kg/yr during a lifetime of at least 6 to 7 years were estimated to be necessary to build a new mine (Mining Review Africa, 2013b; Resolute Mining Ltd., 2013a, p. 6–7, 13; 2013b; 2014).

Shanta Gold Ltd. of the United Kingdom started mining at the New Luika Mine in the third quarter of 2012. The company produced nearly 2,000 kg of gold in 2013; planned production for 2014 was 2,500 kg. In the fourth quarter of 2013, resources at New Luika were estimated to be 14.3 Mt at a grade of 3.22 g/t gold, of which 2.4 Mt at a grade of 6.1 g/t gold was reserves. 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. The company planned to start a feasibility study of a new mine at Singida by the first half of 2014. Total production from New Luika and Singida could be about 3,900 kg/yr of gold (Shanta Gold Ltd., 2014).

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 in 2012. The study supported the development of a new mine that would produce an average of about 3,500 kg/yr of gold over its estimated 12-year life. Resources at Buckreef were estimated to be 47.2 Mt at a grade of 1.4 g/t gold. In 2013, Tanzanian Royalty announced plans to start mining in 2014 (Vaccaro, 2012; Tanzanian Royalty Exploration Corp., 2013, p. 5–6; 2014, p. 5).

Tanzanian Royalty was also considering the possibility of producing a total of about 2,800 kg/yr of gold at the Itetemia and the Kigosi projects. In 2013, Tanzanian Royalty received a mining license for Kigosi and announced plans to start mining in 2014 (Vaccaro, 2012; Tanzanian Royalty Exploration Corp., 2013, p. 2, 20–21; 2014, p. 2, 5).

Ruby Creek Resources Inc. of the United States held the Gold Plateau properties in southern Tanzania. The company planned to produce gold from the alluvial deposits at Gold Plateau after its processing plants were shipped to Tanzania in the second quarter of 2014. Lake Victoria Mining Company of Canada planned to engage in small-scale gold production at its Kinyambwiga project (Ruby Creek Resources Inc., 2014).

In the fourth quarter of 2013, Helio Resource Corp. of Canada engaged in drilling at its SMP property in the Lupa gold field in southwestern Tanzania. Resources at SMP were estimated to be 31.3 Mt at a grade of 1.3 g/t gold (table 3). Tembo Gold Corp. of Canada drilled at its Tembo project, which was adjacent to the Bulyanhulu Mine. Lione Resources Ltd. of Australia started drilling at the Rupa Suguti property in 2013. Rift Valley Resources Ltd. of Australia agreed to purchase AER's 50% share in the Miyabi deposit. Brookemont Capital of Canada ceased exploration at the Handeni North project in 2013 because of its plans to focus on exploration in Canada (Helio Resource Corp., 2012; Brookemont Capital Inc., 2013).

Iron and Steel, Iron Ore, Titanium, and Vanadium.—State-owned National Development Corp. (NDC) and Sichuan Hongda Company Ltd. of China were engaged in a joint venture to develop the Liganga iron ore deposits, which also contained titanium and vanadium. Inferred resources at Liganga were estimated to be more than 1.5 billion metric tons at grades of 50% iron, 13% titanium dioxide, and 0.4% vanadium pentoxide. 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 output was likely to be 1.25 Mt/yr. The companies planned to process the iron ore to direct-reduced iron and subsequently to steel. The mine and plant were expected to start production in 2018 (Ministry of Energy and Minerals, 2005, p. 87; 2013, p. 24; Ministry of Finance, 2012, p. 77–78).

Niobium.—Panda Hill Pty Ltd. (a subsidiary of Verona Capital Pty Ltd. of Australia) held the Panda Hill carbonatite deposit, which is located 35 kilometers (km) southwest of Mbeya. In April 2013, Cradle Resources Ltd. of Australia

purchased a 50% interest in the Panda Hill deposit. Cradle started a scoping study on a new mine at Panda Hill in July. The company was considering the production of about 9,100 t/yr of niobium pentoxide (Nb_2O_5) that would be processed into ferroniobium, which had a niobium content of about 60%. Resources at Panda Hill were estimated to be 82 Mt at a grade of 0.52% Nb_2O_5 . The estimated life of the mine was more than 40 years (Cradle Resources Ltd., 2013).

Industrial Minerals

Cement.—Tanzania's cement production capacity was about 3.7 Mt/yr at the end of 2013. Tanzania Portland Cement Company Ltd. (TPCC) had cement and clinker production capacities of 1.4 Mt/yr and more than 1.15 Mt/yr, respectively, at Wazo Hill. In March 2013, TPCC announced plans to increase its cement capacity at Wazo Hill to 2.1 Mt/yr by September 2014. Tanga Cement Company Ltd. planned to increase its clinker capacity by 600,000 t/yr by the first quarter of 2015. ARM Cement of Kenya planned on opening its new plant at Tanga with a capacity of 1.2 Mt/yr of clinker and 750,000 t/yr of cement in the second half of 2014 (International Cement Review, 2013a, c; ARM Cement Ltd., 2014, p. 10).

Banco Products of India planned to open the Lake Cement plant, which had a capacity of 500,000 t/yr, in 2013. At yearend, the plant was not completed. Dangote Cement plc of Nigeria planned to complete a new plant at Mtwara in southern Tanzania with a capacity of 3 Mt/yr by the second quarter of 2015. The company planned to export its production to other countries in the East African Community, the Democratic Republic of the Congo, and Malawi (International Cement Review, 2013b, c).

Diamond.—In 2012, Petra Diamonds Ltd. of the United Kingdom reopened the open pit operations at the Williamson Mine. Petra mined 170,775 carats from open pit and alluvial operations in 2013, which was about 95% of the diamond produced in Tanzania. The company had planned to increase production to 600,000 carats per year. In 2013, Petra scaled back its expansion plans to 300,000 carats per year by 2017. Resources at Williamson were estimated to be nearly 40 million carats; the estimated remaining life of the mine was more than 50 years (Murray, 2013; Williams, 2013; Petra Diamonds Ltd., 2014, p. 1, 14).

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 operated in Blocks B and D of the Merelani deposit. Kilimanjaro Mines Ltd. and Tanzanite Africa Ltd. operated medium-scale mines in Block A and the Block D Extension, respectively (table 2).

Richland Resources Ltd. of Bermuda mined tanzanite in Block C; the company also cut high-quality tanzanite at its lapidaries in Tanzania. In 2013, Richland produced 690 kg of rough tanzanite, which was an increase of 28% from 2012. Output was limited by incursions of artisanal miners from

Blocks B and D that resulted in damage to equipment and infrastructure and reduced the available mining areas. The company estimated that contained resources in Block C were 19,800 kg of tanzanite at yearend; the estimated remaining life of the mine was 28 years (Richland Resources Ltd., 2014, p. 2, 5, 62).

Tsavorite, which is a green grossular garnet that obtains its color from trace amounts of chromium and vanadium, was mined near Merelani. Richland continued bulk sampling at the Lemshuku-Shamberai tsavorite project in 2013. Indicated resources at Lemshuku-Shamberai were between 0.89 million and 2.17 million cubic meters at a tsavorite grade of 1.6 carats per cubic meter. The project was located about 20 km southwest of the tanzanite mines (Richland Resources Ltd., 2014, p. 8, 62).

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 2013, Richland 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 (Richland Resources Ltd., 2013).

In 2013, Kibaran Resources Ltd. of Australia estimated that resources at the Epanko project were 14.9 Mt at a grade of 10.5% graphite. The company completed a scoping study on a new mine at Epanko with positive results in July. Kibaran signed an offtake agreement with a European company to sell 10,000 t/yr of graphite for at least 10 years from Epanko depending on the success of a feasibility study. The estimated capital cost of the project was \$39 million (Andrews, 2013a).

In 2013, Uranex Ltd. of Australia started a trenching program at the Nachu graphite project in southeastern Tanzania. Uranex planned to start a prefeasibility study on a new mine at Nachu in the second quarter of 2014 and a feasibility study by yearend (Andrews, 2013b).

Lime.—Tanzania's lime production increased to an estimated 120,000 t in 2013 from 85,000 t in 2012 and 50,000 t in 2011. Increased output was attributable to the opening of Neelkanth Lime Ltd.'s new plant in Tanga with a capacity of 144,000 t/yr (Neelkanth Lime Ltd., 2013).

Rare Earths.—In April 2013, Peak Resources Ltd. of Australia estimated that resources at its Ngualla rare-earth project were 195 Mt at a grade of 2.26% rare-earth oxides (REOs), which includes a high-grade bastnaesite zone with 21.6 Mt at a grade of 4.54% REOs. Peak Resources planned to complete a prefeasibility study on a new mine at Ngualla in early 2014 and a feasibility study by the end of 2014. Depending on the results of the studies, production could be 10,000 t/yr of REOs starting in late 2016. Peak Resources planned to produce about 4,800 t/yr of cerium oxide, 2,800 t/yr of lanthanum oxide, 2,100 t/yr of mixed praseodymium oxide and neodymium oxide, and 290 t/yr of heavy rare-earth oxides and yttrium oxide (Peak Resources Ltd., 2013a–c).

Montero Mining and Exploration Ltd. of Canada engaged in exploration at the Wigu Hill project near Kisaki in early 2013. At yearend, the project was on care-and-maintenance status (Montero Mining and Exploration Ltd., 2014, p. 6).

Mineral Fuels and Related Materials

Coal.—Intra Energy Corporation Ltd. of Australia and its joint-venture partner National Development Corp. (NDC) (owned by the Government of Tanzania) operated a coal mine at the Ngaka coal field in the Ruvumu District. Production increased in 2013; Intra Energy and NDC were producing at the rate of about 200,000 t/yr in September. The companies planned to increase production to 360,000 t/yr by the end of 2014 and to 500,000 t/yr by 2015. Coal was likely to be exported to Kenya, Malawi, and Uganda (Makene, 2013).

NDC and Sichuan Hongda planned to build a new mine at the Mchuchuma coal deposits in western Tanzania. Mining was likely to start in 2018; NDC and Sichuan Hongda planned to produce 3 Mt/yr of coal. The companies also planned to complete the 300-megawatt (MW) first phase of a coal-fired power station in 2018. About 100 MW of capacity was expected to be used by the Liganga iron ore and steel project. The 400-MW second phase of the power station was likely to be completed between 2021 and 2024, and the 300-MW third phase, between 2026 and 2028 (Ministry of Finance, 2012, p. 77–78; Ministry of Energy and Minerals, 2013, p. 24, 64).

Natural Gas.—In 2013, Orca Exploration Group Inc. produced 995 million cubic meters of natural gas from Songo Songo Island, which was nearly unchanged from that of 2012. Gas-fired power stations and TPCC's cement plant were the leading consumers of gas from Songo Songo. The capacity of Orca's gas processing plant was 1.14 billion cubic meters per year, and of the pipeline, 1.05 billion cubic meters per year. In November 2012, construction started on the expansion of the pipeline and a new processing plant. The initial capacity of the plant was likely to be 1.45 billion cubic meters per year, and the final capacity of the plant and pipeline, 2.17 billion cubic meters per year. Orca planned to utilize as much as 90% of the new plant and pipeline's final capacity (Orca Exploration Group Inc., 2014, p. 2, 8, 20).

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 2013, China National Petroleum Corp. of China was building a new 532-km pipeline from Mnazi Bay to gas-fired power stations in Dar es Salaam. The completion of the pipeline was scheduled for the end of 2014; a new gas processing plant with a capacity of 2.17 billion cubic meters per year was also under construction. Maurel et Prom and its joint-venture partners planned to produce 830 million cubic meters in 2015 and to reach the plant's full capacity in 2017. Production capacity could increase to nearly 2.8 billion cubic meters per year in 2019 (Wentworth Resources Ltd., 2014, p. 7, 9).

In 2013, 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. The companies estimated that reserves in Block 1 were about 270 billion cubic meters of natural gas; in Block 4, 150 billion cubic meters; and in Block 3, 23 billion cubic meters. Statoil ASA of Norway and Exxon Mobil Corp. of the United States estimated that reserves were between 140 billion and 170 billion cubic meters at the Zafarani-1 well and 85 billion cubic meters at the Lavani-1 well

in 2013; both wells are located in the offshore Block 2 (Brower, 2013; Ophir Energy plc, 2014, p. 22–23).

BG and Statoil were considering the development of a liquefied natural gas (LNG) plant near Mtwara that would use natural gas from Blocks 1 and 2. The plant would have a capacity of 10 Mt/yr of LNG, which was equivalent to 13.8 billion cubic meters per year of natural gas. BG and Statoil could make an investment decision by late 2016; production could start in 2020 or 2021. The estimated capital cost of the project was between \$10 billion and \$16 billion (Brower, 2013).

Petróleo Brasileiro S.A. of Brazil and Royal Dutch Shell plc of the Netherlands explored for natural gas in offshore Blocks 5 and 6 in 2013. Ophir and Mubadala Petroleum of the United Arab Emirates explored in Block 7. A total of 17 exploration wells were expected to be drilled in Tanzanian waters between July 2013 and June 2014 (Brower, 2013).

Uranium.—Uranium One Inc. of Canada (Rosatom of Russia, 100%) was engaged in a new feasibility study on a mine at the Mkuju River project in 2013. A previous feasibility study estimated that Mkuju River could support a new uranium mine with average production of 1,900 t/yr of uranium oxide (U_3O_8) during an estimated 12-year mine life. Measured and indicated resources were 143 Mt at a grade of 0.03% U_3O_8 . The Government awarded a mining license to Uranium One in April. At yearend, Uranium One was in negotiations with the Government over the terms of a mining agreement (Thompson, 2011; Murray, 2013; Uranium One Inc., 2014, p. 5, 16).

Uranex held the Manyoni deposit, which had resources of 92 Mt at a grade of 0.014% U_3O_8 and the Mkuju deposit, which had resources of 11.7 Mt at a grade of 0.024% U_3O_8 . In 2013, Uranex put exploration at Manyoni and Mkuju on hold because of its plans to focus on its graphite prospects. The exploration and development of graphite deposits was less expensive compared with that of uranium deposits (Andrews, 2013b).

In March 2013, Uranium Resources plc of the United Kingdom estimated that contained resources at the Mtonya project were nearly 1,100 t of U_3O_8 . East African Resources Ltd. of Australia engaged in drilling at its Mkuju South project in 2013 (Murray, 2013).

Outlook

Tanzania's production of cement, coal, diamond, and natural gas is expected to increase in the near future. Cement output is likely to increase from 2014 through 2017 because of the opening of new plants and the expansion of existing plants. Coal production is expected to increase from 2014 through 2020. Diamond production is likely to increase from 2014 through 2017. The outlook for natural gas production is to increase from 2014 through 2023. Mining of rare earths is expected to start in 2016, and iron ore, in 2018. Graphite production could also restart, and uranium production could start in the near future.

Increased gold output from the Bulyanhulu and the New Luika Mines and the opening of the Buckreef, the Kigosi, and the Singida Mines is likely to more than offset the shutdown of the Golden Pride and the Tulawaka Mines from 2015 through 2018. Gold production is likely to decrease starting in 2019 because of the closure of the Buzwagi Mine.

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TABLE 1
TANZANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2009	2010	2011	2012	2013
Bauxite ^e	122,920 ³	39,000	30,000	58,000 ^r	50,000
Calcite	--	152	70 ^{r, e}	-- ^r	2
Cement, hydraulic thousand metric tons	1,941	2,312	2,409	2,581	2,600 ^e
Coal, bituminous	--	179	80,710	78,672	128,920
Copper, contained in concentrates and dore	3,079	6,392	6,748	5,840	5,752
Diamond ⁴ carats	181,874	80,498	28,378	127,174	179,631
Gemstones, excluding diamond: ^e					
Alexandrite kilograms	1 ³	-- ³	--	--	--
Amethyst do.	150	160	160	160	160
Aquamarine do.	468 ³	466 ³	470	470	470
Emerald do.	19 ³	--	--	--	--
Garnet do.	8,448 ³	9,934 ³	10,000	10,000	10,000
Ruby do.	1,500	1,600	1,600	1,600	1,700
Sapphire do.	750	800	800	800	900
Tanzanite ³ do.	768	2,001	823	759	900
Tourmaline do.	9,283 ³	9,530 ³	9,600	9,600	9,600
Other ⁵ do.	1,050,000	2,620,000	1,220,000	1,210,000	1,280,000
Total ³ do.	1,068,481	2,646,109	1,241,581	1,237,625	1,300,000
Gold do.	39,112	39,448	42,300	40,650	43,390
Gypsum and anhydrite, crude	8,105	26,918	9,288	91,610	280,476
Kaolin	18,624	58	178	2,161 ^r	1,816
Lime ^e	30,000	30,000	50,000 ^r	85,000 ^r	120,000
Natural gas ⁶ million cubic meters	668	790	869	992	995
Phosphate rock:					
Gross weight	752	17,180	18,000 ^e	19,984 ^r	20,000 ^e
P ₂ O ₅ content	230	5,200	5,400 ^e	5,600 ^r	5,600 ^e
Salt, all types	28,444	34,455	32,297	34,016	34,032
Silver, contained in concentrates and dore kilograms	8,231	12,470	10,399	11,227	11,014
Steel, semimanufactured	122,318	126,054	118,249	133,239	140,000
Stone, sand, and gravel:					
Aggregates	86,112	152,781	150,000 ^e	150,000 ^e	150,000 ^e
Limestone, crushed	1,284,100	1,436,600	1,972,100	1,224,475 ^r	3,899,151
Marble	2,679	1,109	1,100 ^e	2,153 ^r	10,719
Pozzolanic materials	61,501	60,320	113,489	75,193	52,349

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

¹Table includes data available through February 27, 2015.

²In addition to the commodities listed, smelter copper and 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 2013

(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) (Scancem International DA, 69.25%)	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.
Copper:				
Mine		African Barrick Gold plc (Barrick Gold Corp., 73.9%)	Bulyanhulu Mine near Kahama	6,200.
Do.		do.	Buzwagi Mine	4,400.
Smelter		Danformation Tanzania Ltd.	Dar es Salaam	2,400. ^c
Diamond	carats	Williamson Diamonds Ltd. (Petra Diamonds Ltd., 75%, and Government, 25%)	Williamson Mine near Shinyanga	220,000.
Do.	do.	New Alamasasi	Near Shinyanga	13,000. ^c
Do.	do.	Mwadui Mpya Pit	do.	6,000. ^c
Do.	do.	Artisanal miners	do.	NA.
Gold	kilograms	Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%)	Geita Mine near Nyakabale	17,000 gold.
Do.	do.	African Barrick Gold plc (ABG)	North Mara Mine in Tarime District	9,300 gold.
Do.	do.	do.	Bulyanhulu Mine near Kahama	8,600 gold.
Do.	do.	do.	Buzwagi Mine	6,200 gold.
Do.	do.	Resolute Mining Ltd.	Golden Pride Mine near Isanga ¹	4,300 gold.
Do.	do.	Shanta Gold Ltd.	New Luika Mine	2,300 gold.
Do.	do.	State Mining Co. (Stamico)	Tulawaka Mine ¹	1,200 ^c gold.
Do.	do.	Artisanal miners	Mrito	NA.
Lime		Neelkanth Lime Ltd.	Plant at Tanga	144,000.
Do.		Athi River Mining Ltd. (ARM)	do.	40,000.
Natural gas	million cubic meters	Orca Exploration Group Inc.	Gasfield on Songo Songo Island	1,140.
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	8,800.
Steel		Aluminum Africa Ltd.	Plant at Dar es Salaam	70,000 ^c rolled.
Do.		MM Integrated Steel Mills Ltd.	do.	36,000 ^c rolled.
Do.		Steel Masters Ltd.	do.	22,000 rolled.
Do.		Aluminum Africa Ltd.	do.	70,000 galvanized.
Do.		MM Integrated Steel Mills Ltd.	do.	36,000 galvanized.
Tanzanite	kilograms	Richland Resources Ltd., 50%, and State Mining Co., 50%	Mine at Merelani, Block C ²	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. ^c

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

¹Not operating at the end of 2013.

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

TABLE 3
TANZANIA: GOLD RESOURCES AND RESERVES IN 2013

Project	Major operating companies	Tonnage (million metric tons)	Grade (grams per metric ton)	Contained gold (metric tons)
Reserves:				
Bulyanhulu ¹	African Barrick Gold plc (Barrick Gold Corp., 73.9%)	37.6	7.8	292
Geita ²	Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%)	36.9	3.3	121
North Mara ¹	African Barrick Gold plc	21.7	3.2	69
Buzwagi ¹	do.	24.1	1.4	35
New Luika	Shanta Gold Ltd.	2.4	6.1	15
Nyakafuru ²	Resolute Mining Ltd.	7.4	1.6	12
Total		130.1	4.2	544
Resources:				
Bulyanhulu	African Barrick Gold plc	54.4	8.9	486
Geita	Geita Gold Mining Ltd.	110.0	3.0	332
North Mara	African Barrick Gold plc	47.7	3.2	155
Nyanzaga	do.	100.0	1.3	130
Buzwagi	do.	80.4	1.3	107
Buckreef	Tanzanian Royalty Exploration Corp.	47.2	1.4	66
SMP	Helio Resource Corp.	31.3	1.3	39
New Luika	Shanta Gold Ltd.	14.3	3.2	46
Golden Pride	Resolute Mining Ltd.	23.5	1.8	42
Nyakafuru	do.	32.7	1.0	33
Magambazi	East Africa Metals 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
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
Luhala	Tanzanian Royalty Exploration Corp.	1.9	1.9	3
Total		634	2.5	1,600

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.

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