



2006 Minerals Yearbook

TANZANIA

THE MINERAL INDUSTRY OF TANZANIA

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In 2006, Tanzania was the world's only producer of tanzanite. The country also played a significant role in the global production of gold, accounting for nearly 2% of the world's gold mine output. Other domestically significant mining and mineral processing operations included cement and diamond. Tanzania was not a globally significant consumer of minerals or mineral fuels (George, 2007).

Minerals in the National Economy

The manufacturing sector accounted for 6.5% of the gross domestic product, and mining and quarrying, 3.5%. The value of output in the mining sector grew by 16.4% in 2006 after rising by 15.7% in 2005. Formal employment in the mining sector amounted to about 8,000; an estimated 550,000 artisanal miners produced colored gemstones, diamond, gold, and other commodities (Mwamunyange, 2006; Bank of Tanzania, 2007a, p. 29, 35; Phillips, 2007).

Government Policies and Programs

The mining sector is regulated by the Mining Act of 1998, which, when enacted, simplified previous laws on mining and mineral trading. Tanzania is a signatory to the Kimberley Process, which is a certification system established to reduce the trade in conflict diamond.

Production

In 2006, the production of colored gemstones increased by 296%; gypsum, 41%; natural gas, 25%; diamond, 24%; and semimanufactured steel and silver, 16% each. Coal production decreased by 76%; salt, 32%; pozzolanic materials, 21%; limestone, 20%; and gold, 10%.

Structure of the Mineral Industry

Tanzania's gold mines were privately owned. The Government held minority interests in the privately owned Kiwira coal mine and Williamson diamond mine. In 2006, the Government sold its share in Tanzania Portland Cement Company Ltd. (TPCC). The Nyanza salt mines and the Minjingu phosphate mines were also owned by private investors. 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 increased in value to \$737 million in 2006 from \$656 million in 2005. In 2006, the share of gold in total exports was 44%; diamond, 1%; and colored gemstones, copper, silver, and other minerals combined, 2%. The Bank of Tanzania reported that imports of petroleum products increased in value

to nearly \$1.15 billion in 2006 from \$847 million in 2005. Petroleum products accounted for 27% of the value of total imports, and fertilizers, 1% (Bank of Tanzania, 2007b, p. 22-23).

Commodity Review

Metals

Cobalt, Copper, and Nickel.—Barrick Gold Corp. of Canada produced copper as a coproduct at the Bulyanhulu gold mine. Reserves at Bulyanhulu were estimated to be nearly 160,000 metric tons (t) of contained copper (Barrick Gold Corp., 2007a, p. 133).

Barrick and Falconbridge Ltd. of Canada (50% each) had a joint venture for the exploration and development of the Kabanga nickel sulfide deposit in northwestern Tanzania. In 2006, Xstrata plc of Switzerland purchased Falconbridge. Resources at Kabanga were estimated to be 50.7 million metric tons (Mt) at a grade of 2.5% nickel. Xstrata spent \$50 million on exploration and development by the end of 2006; the company planned to spend an additional \$95 million on activities that included a prefeasibility study. Xstrata planned to complete the prefeasibility study in 2007 and, depending upon the results of the study, to complete a full feasibility study in late 2008 (Barrick Gold Corp., 2007a, p. 33, 135; Guardian, 2007).

Goldstream Mining NL of Australia explored for cobalt, copper, and nickel at the Mibango project near Lake Tanganyika and at the Luwumbu project near Lake Malawi in 2006. The company had joint-venture agreements with Lonmin plc of the United Kingdom for these projects; Albidon Ltd. of Australia also held a share in the Luwumbu project. Lonmin was required to complete feasibility studies at Luwumbu by the end of March 2009, and at Mibango, by the end of March 2012. Goldstream also explored at its Nachingwa nickel-copper-cobalt property in southeastern Tanzania in May 2006. In the second quarter of 2006, Albidon and BHP Billiton Ltd. of Australia explored at the former company's Songea nickel-platinum project, which comprised five prospecting licenses in southwestern Tanzania near Lake Malawi (Albidon Ltd., 2006; Goldstream Mining NL, 2006, p. 18, 20, 27).

Gold.—Tanzania's gold production declined to an estimated 47,000 kilograms (kg) in 2006 from 52,236 kg in 2005. The Buhemba, the Bulyanhulu, the Geita, the Golden Pride, the North Mara, and the Tulawaka Mines had a combined capacity to produce about 53,000 kilograms per year (kg/yr) of gold. Tanzania's resources amounted to about 1,600 t of contained gold, of which about 850 t was reserves (tables 1, 2, and 3).

Barrick operated the Bulyanhulu underground gold mine. In 2006, the Bulyanhulu Mine produced nearly 10,300 kg of gold compared with 9,700 kg in 2005. Barrick was engaged in an upgrade of its processing plant that was expected to increase gold recovery rates to about 91.5% from 87.5%. The cost of the project was estimated to be \$27 million. Barrick also produced

copper and silver as coproducts. The majority of gold was recovered from copper concentrates; the remainder was from gold doré (Mining Review Africa, 2006a; Barrick Gold Corp., 2007b).

Placer Dome Gold Inc. of Canada operated the North Mara open pit gold mine, which encompassed the Gokona, the Nyabigena, and the Nyabirama pits. Production at the North Mara Mine amounted to about 11,600 kg of gold compared with 7,788 kg in 2005. In January 2006, Placer Dome's board of directors approved a bid by Barrick to purchase the company (Placer Dome Gold Inc., 2006, p. 3, 5; Barrick Gold Corp., 2007b).

Barrick and its joint-venture partner Explorations Minières du Nord Ltée (MDN) of Canada started production at the Tulawaka open pit gold mine in March 2005. Production at Tulawaka increased to nearly 4,400 kg in 2006 (the mine's first full year of production) from 3,900 kg in 2005. Barrick and MDN were engaged in a feasibility study of underground mining at Tulawaka that could add 12 months to the life of the mine. In September 2006, MDN and its joint-venture partners Jope Business Associates and Lakota Resources Inc. of Canada conducted a drilling program at the Simba project, which is located north of the Tulawaka Mine. Barrick also engaged in a joint-venture agreement to explore near Tulawaka (Mining Review Africa, 2006a; African Mining, 2007; Barrick Gold Corp., 2007b).

Barrick completed a feasibility study on mining the Buzwagi deposit in 2006. The Government was expected to make a decision on the Environmental Impact Assessment for Buzwagi in the first quarter of 2007. If Barrick were to receive Government approval, construction of the mine was expected to start in late 2007 and production, in late 2009. Costs for the project were estimated to be \$400 million. Barrick planned to produce between 7,500 and 7,800 kg/yr of gold; the life of the mine was expected to be at least 10 years (Barrick Gold Corp., 2007a, p. 32, 131-132; Guardian, 2007).

In 2006, Barrick's exploration activities were focused on the Nyanzaga project, which is located northeast of the Bulyanhulu Mine. Barrick had a joint-venture agreement with Sub-Sahara Resources NL of Australia to explore at Nyanzaga, which included the Tusker deposit. Resources at Tusker were estimated to be 123.3 Mt of ore at a grade of 1.15 grams per metric ton (g/t) (Mining Review Africa, 2006a; Resource Information Unit, 2007).

Geita Gold Mining Ltd. (a subsidiary of AngloGold Ashanti Ltd. of South Africa) operated the Geita open pit gold mine. The Geita Mine produced nearly 9,600 kg of gold in 2006 compared with about 19,100 kg in 2005; the decrease in production was mostly attributable to lower ore grades and heavy rains. In 2007, production at Geita was expected to increase to about 12,400 kg. In September, AngloGold Ashanti ended its joint-venture agreement to explore for gold at Kigosi (AngloGold Ashanti Ltd., 2007, p. 18, 80-81; Resource Information Unit, 2007).

Resolute Mining Ltd. of Australia owned the Golden Pride open pit mine. In fiscal year 2005-06, the Golden Pride Mine produced 4,511 kg of gold compared with 4,661 kg in fiscal year 2004-05. Lower production was attributable to a decrease in ore grades and recovery rates. In March 2006, Resolute increased its estimate of reserves at Golden Pride by about 22 t; the life of the mine was increased to about 8 years (Resolute Mining Ltd., 2006, p. 9-10).

Resolute explored for gold in the area near the Golden Pride Mine. Resolute also conducted drilling and completed a new resource study at the Nyakafuru project in May 2006; the Nyakafuru project was a joint venture with IAMGOLD Corp. of Canada (Resolute Mining Ltd., 2006, p. 19-21).

Gallery Gold Ltd. of Australia held the Buckreef/Rwamagaza and the Kitongo deposits; IAMGOLD purchased Gallery in early 2006. IAMGOLD planned to complete a feasibility study of the Buckreef/Rwamagaza project in mid-2007. If the study were to yield favorable results, IAMGOLD planned to start production in 2008; the mine was expected to produce nearly 4,400 kg/yr of gold. Resources at Buckreef/Rwamagaza amounted to nearly 61 t of contained gold (IAMGOLD Corp., 2006, p. 12, 22).

In March 2006, African Eagle Resources plc (AER) of the United Kingdom increased its estimate of resources at the Miyabi project to 16 t of contained gold from about 12 t. AER signed a joint-venture agreement with MDN to explore at AER's Msasa project in May. MDN agreed to invest \$200,000 initially on exploration to earn a 51% interest in the project. Depending upon the results, MDN's share could increase to 65% after the company invests an additional \$1.7 million in exploration by January 2010 and completes a feasibility study. MDN commenced drilling at Msasa in July (Resource Information Unit, 2007).

Tanzanian Royalty Exploration Corp. (formerly known as Tan Range Exploration Corp.) of the United States completed a drilling program at its Luhala Gold project in March 2006. The company also carried out a trenching program at the Kibara Gold project in February and March and commenced an exploration program at Kigosi in November (African Mining, 2006, 2007).

Currie Rose Resources Inc. of Canada and Sub-Sahara had joint-venture agreements to explore at the Jubilee Reef, the Mabale, and the Nyamirembe properties. In the first quarter of 2006, Sub-Sahara sold its interest in Jubilee Reef to Currie Rose. Currie Rose and Sub-Sahara explored at Mabale and Nyamirembe in 2006 (Resource Information Unit, 2007).

In 2006, Randgold Resources Ltd. engaged in drilling at its Kiabakari project. Randgold was re-evaluating the status of the project in November because of the lack of substantial mineralization. Shanta Gold Ltd. engaged in exploration at Singida in the third quarter of 2006. Midlands Minerals Corp. of Canada commenced a drilling program at its Itilima property in the Lake Victoria goldfield in late October. Coeur d'Alene Mines Corp. of the United States explored at Kiziba Hill and Saragurwa in the second half of 2006. Helio Resource Corp. of Namibia completed a drilling program at its Saza project in southwestern Tanzania in 2006. Lakota Resources started drilling at its Tembo project in July; the company planned to continue the program through the end of 2006 (African Mining, 2007; Resource Information Unit, 2007).

Platinum-Group Metals.—Goldstream explored for platinum-group metals (PGM) at the Mibango project near Lake Tanganyika and at the Luwumbu project near Lake Malawi. Goldstream's joint-venture partner Lonmin planned to spend \$2.4 million on exploration at Luwumbu in 2006. Lonmin also planned to invest \$2.1 million in Mibango (Goldstream Mining NL, 2006, p. 23, 30).

Titanium and Zirconium.—Tiomin Resources Inc. of Canada acquired an exploration license for mineral sands that extended for about 90 kilometers along the Indian Ocean coastline. The Pangani and the Tajiri prospects were the principal zones of ilmenite, rutile, and zircon mineralization (African Mining, 2006).

Industrial Minerals

Cement.—In 2006, cement production increased to 1.42 Mt from nearly 1.37 Mt in 2005 and 900,000 t in 2001. National cement capacity amounted to approximately 1.47 million metric tons per year (Mt/yr). TPCC planned to spend about \$100 million from mid-2006 to 2009 to increase its capacity to 1.2 Mt/yr from 670,000 metric tons per year (t/yr). TPCC's production supplied about 40% of domestic cement demand. Tanga Cement Company Ltd. was also considering an expansion of its capacity; the company's operations were affected by power blackouts and shortages of coal (Bank of Tanzania, 2007a, p. 40; HeidelbergCement AG, 2007a, b).

Diamond.—In 2006, national diamond production increased to 272,200 carats from 219,600 carats in 2005. Diamond recovery at the Williamson Mine remained nearly unchanged at 189,396 carats in 2006. DeBeers Group planned to increase production at the Williamson Mine by 20% in 2007 through greater efficiencies at the main ore treatment plant. In 2006, the company also completed a study of a new ore treatment plant that would increase capacity to 7 Mt/yr from 4 Mt/yr. Diamond production was expected to increase to 500,000 carats per year. Depending upon approval of the project, DeBeers planned to complete the new plant in July 2008 and to reach full production by the end of 2008 (Mining Review Africa, 2006b; Bank of Tanzania, 2007a, p. 43; DeBeers Group, 2007, p. 15).

El Hillal Minerals Ltd. produced diamond from alluvial deposits at Mwadui near the Williamson Mine. In 2006, the company produced 23,434 carats of diamond at a value of \$4.45 million. El Hillal planned to produce 24,000 carats in 2007 (Mande, 2007).

Gemstones.—Tanzania produced a variety of gemstones that included amethyst, aquamarine, cordierite, emerald, garnet, ruby, sapphire, spinel, tanzanite, and tourmaline. In 2006, the total production of gemstones was about 2,490,000 kg compared with 628,000 kg in 2005 and 96,866 kg in 2001 (Bank of Tanzania, 2007a, p. 43).

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 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. Production at Blocks B and D has declined in recent years as near-surface resources have been depleted and mine tunnels became intertwined. The artisanal and small-scale miners lacked the capital needed to buy equipment for deep underground mining (Kondo, 2007).

TanzaniteOne Ltd. of South Africa mined tanzanite in Block C; the company cut high-quality tanzanite at its lapidaries in South Africa and Tanzania. In 2006, TanzaniteOne produced 246 kg of rough tanzanite; lower output in the first half of the year was partially attributable to power shortages. The company

planned to increase its production by about 24% in 2007 and by 15% per year from 2007 to 2010. The life of TanzaniteOne's mining operations was expected to be between 12 and 14 years; this figure was based on resources measured to a depth of 400 meters (m). In 2006, however, a drilling program discovered mineralization at a depth of 1,200 m (Mining Review Africa, 2007; TanzaniteOne Ltd., 2007, p. 14-15).

Tanzania had about 400 experienced gemstone cutters and 20 lapidaries in early 2005; the Tanzania Mineral Dealers Association (TAMIDA) planned to train and employ 5,000 tanzanite cutters by 2010. The financing of new lapidaries could require Government assistance. In July 2006, the Chair of TAMIDA reported that 80% of licensed tanzanite dealers owned 2 or 3 cutting and polishing machines (East African, 2005; Ihucha, 2006).

By March 2006, TanzaniteOne had opened a new lapidary in Arusha to cut high-quality tanzanite. The company planned to centralize its cutting and polishing operations at Merelani. TanzaniteOne planned to expand the Merelani facility from 8 cutters to 25 initially and to 200 as skilled workers and distribution channels became available (Bondia, 2006).

Tsavorite, which is a green grossular garnet that obtains its color from trace amounts of chromium and vanadium, was mined by Swala Gem Traders at the Komolo deposit (also known as the Lemshuko Mine). Swala engaged in mechanized mining of alluvial deposits.

Longido Ruby Zoisite Company Ltd. mined ruby and zoisite in the Arusha District. Mechanized ruby and sapphire mining was carried out by Tansta Mining Co. and World Gem Supplies Ltd. in the Songea District in the Ruvuma Region; artisanal miners also worked at these deposits. Ruby was also produced at Longido Mine in the Monduli District.

Artisanal and small-scale miners produced alexandrite and emerald sporadically at the Manghola and the Manyara deposits in the Mbulu District in north central Tanzania. The Manghola deposit was alluvial. Alexandrite was also produced at Tunduru, and emerald, in the Sumbawanga District. In October 2006, Douglas Lake Minerals Inc. of Canada announced that it had completed negotiations to acquire the Lake Manyara emerald and alexandrite property (Douglas Lake Minerals Inc., 2006).

Lime.—Athi River Mining Ltd. of Kenya produced lime for consumption in the gold mining industry at its plant in Tanga. The company planned to double its capacity to 40,000 t/yr in 2007 (Mogusu, 2006).

Mineral Fuels and Related Materials

Coal.—Kiwira Coal and Power Ltd. operated the Kiwira underground mine in Ileje District. Production declined sharply in 2006 because of mechanical problems. In 2006, the company announced plans to double the Kiwira Mine's capacity to 300,000 t/yr by 2008. The mine's output was expected to be consumed by a new coal-fired power station with a capacity of 200 megawatts (Fundisha, 2006; Tarimo, 2006).

Natural Gas.—Orca Exploration Group Inc. (formerly known as EastCoast Energy Corp.) produced natural gas from Songo Songo Island. In 2006, the company increased production to more than 500 million cubic meters from 408 million cubic

meters in 2005. The gas-fired Ubungo Power Plant increased its consumption of natural gas to offset decreased generation by hydroelectric plants. Output was expected to increase to between 600 and 620 million cubic meters in 2007 and between 780 and 890 million cubic meters in 2008 because of higher demand from new gas-fired power stations and the Village Electrification Program. Orca planned to increase the capacity of its gas processing plant to more than 1.4 billion cubic meters per year from 720 million cubic meters per year (Orca Exploration Group Inc., 2007, p. 9-10, 21).

In December 2006, Artumas Energy (Tanzania) Ltd. (a subsidiary of Artumas Group Inc. of Canada) started production at its Mtwara energy project, which involved the development of natural gas resources in Mnazi Bay in southeastern Tanzania. Artumas commissioned the gas processing facilities in December and planned to commission a gas-fired power station at Mtwara in 2007 (Artumas Energy (Tanzania) Ltd., 2006).

Petroleum.—Aminex plc of the United Kingdom planned to drill at Nyuni in 2007 and at the Ruvuma Basin in southern Tanzania in 2008. Maurel et Prom of France drilled at the Rufiji and Mafia Block in 2006. Ophir Energy plc of South Africa signed production-sharing agreements with the Government for Blocks 3 and 4 in June. Petrobrás Group of Brazil held offshore Blocks 5 and 6 (Maurel et Prom, 2006; Ophir Energy plc, 2006; Aminex plc, 2007).

Uranium.—Uranex NL of Australia (Goldstream Mining NL, 39.5%) explored for uranium at its Lake Bahi and Mkuju properties in 2006; the company planned additional exploration that included drilling, geochemical surveying, and trenching at Mkuju starting in May 2007. In the second half of 2006, Uranium Resources plc of Australia conducted geologic mapping, radiometric surveys, surface sampling, and trench digging at its Mtonya project in southern Tanzania. Mantra Resources Ltd. of Australia held the Bahi North and the Mkuju River properties (African Mining, 2007; Resource Information Unit, 2007).

Outlook

Tanzania's mineral industry, particularly gold mining, is likely to grow in the near future. With increased production from the Geita Mine and the development of such projects as Buckreef and Buzwagi, Tanzania's gold production could rise to about 57 t in 2011. Diamond production could increase to more than 500,000 carats in 2009. Cement, lime, and natural gas output is also expected to increase. Artisanal tanzanite production is likely to decline because of resource depletion; it is unclear to what extent increased production by TanzaniteOne will offset the decline. The development of nickel resources depends heavily upon world market conditions.

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TABLE 1
TANZANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity ² | 2002 | 2003 | 2004 | 2005 | 2006 | |
|--|----------------------|---------------------|---------------------|------------------------|------------------------|------------------------|
| Calcite ^e | 40 | 40 | 40 | 40 | 40 | |
| Cement, hydraulic | thousand metric tons | 1,026 | 1,186 | 1,281 | 1,366 ^r | 1,422 |
| Coal, bituminous | | 79,210 | 54,610 | 65,041 | 74,800 | 17,940 |
| Copper, contained in concentrates and doré | | 4,222 | 3,715 | 4,240 | 3,462 | 3,284 |
| Diamond ³ | carats | 239,761 | 236,582 | 303,920 | 219,600 | 272,200 |
| Gemstones, excluding diamond: ⁴ | | | | | | |
| Amethyst ^e | kilograms | 270 | 270 | 270 | 270 ^r | 270 |
| Aquamarine ^e | do. | 600 | 278 ⁵ | 280 ^r | 280 ^r | 280 |
| Cordierite (iolite) ^e | do. | 310 | 310 | 310 ^r | 310 ^r | 310 |
| Garnet | do. | 13,000 ^e | 5,911 | 5,900 ^{r,e} | 5,900 ^{r,e} | 5,900 ^e |
| Ruby | do. | 1,800 ^e | 2,675 | 2,700 ^{r,e} | 2,700 ^{r,e} | 2,700 ^e |
| Sapphire | do. | 2,400 ^e | 1,338 | 1,300 ^{r,e} | 1,300 ^{r,e} | 1,300 ^e |
| Tanzanite | do. | 6,461 | 4,490 | 3,400 ^{r,e} | 3,400 ^{r,e} | 3,400 |
| Other ^e | do. | 171,000 | 1,520,000 | 1,600,000 | 614,000 ^r | 2,480,000 |
| Total | do. | 196,000 | 1,540,000 | 1,610,000 | 628,000 ^r | 2,490,000 |
| Gold | do. | 43,320 | 48,018 | 48,178 | 52,236 | 47,000 |
| Gypsum and anhydrite, crude | | 73,000 | 33,232 | 59,231 | 23,100 | 32,600 |
| Lime | | -- | -- | 20,000 | 20,000 | 20,000 |
| Natural gas | million cubic meters | -- | -- | 119 | 408 | 510 ^e |
| Phosphate minerals: | | | | | | |
| Apatite | | 1,182 | 3,738 | 6,570 | 7,096 | 2,881 |
| P ₂ O ₅ content | | 350 | 1,100 | 1,300 ^r | 1,300 | 580 |
| Salt, all types | | 71,200 | 58,978 | 57,062 | 51,200 ^r | 34,800 |
| Silver, contained in concentrates and doré | kilograms | 7,669 | 7,986 | 13,216 | 12,891 | 14,906 |
| Steel, semimanufactured | | 25,418 | 38,794 | 40,029 | 47,652 | 55,212 |
| Stone, sand, and gravel: | | | | | | |
| Aggregates | | 20,223 | 107,960 | 120,000 ^e | 140,000 ^e | 140,000 ^e |
| Dolomite | | NA | 2,197 | 2,500 ^e | 2,900 ^e | 2,900 ^e |
| Limestone, crushed | | 2,856,711 | 1,206,000 | 1,390,900 | 2,006,400 ^r | 1,607,600 |
| Pozzolanic materials | | 52,000 | 24,460 ^r | 152,679 | 163,499 | 129,295 |
| Sand | | 503,485 | 2,035,960 | 2,400,000 ^e | 2,800,000 ^e | 2,800,000 ^e |

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

¹Table includes data available through October 24, 2007.

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

³Diamond figures are estimated to represent 85% gem-quality or semigem-quality and 15% industrial-quality stones. Does not include smuggled artisanal production.

⁴Other precious and semiprecious stones produced include alexandrite, chrysoprase, emerald, kyanite, moonstone, opal, peridot, quartz, spinel, and tourmaline. Does not include smuggled artisanal production.

⁵Reported figure.

TABLE 2
TANZANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2006

(Metric tons unless otherwise specified)

| Commodity | | Major operating companies | Location of main facilities | Annual capacity |
|----------------------------------|----------------------------|---|---|--|
| Cement | | Tanzania Portland Cement Company Ltd. (HeidelbergCement AG, 69.3%) | Plant at Wazo Hill | 670,000. |
| Do. | | Tanga Cement Company Ltd. (Holcim South Africa (Pty) Ltd., 62.5%) | Plant at Tanga | 500,000. |
| Do. | | Mbeya Cement Company Ltd. (LaFarge Group, 58%) | Plant at Mbeya | 300,000. |
| Coal, bituminous | | Kiwira Coal and Power Ltd. (Tanpower Resources Ltd., 85%, and Government, 15%) | Kiwira Mine | 150,000 run of mine; 93,000 washed. |
| Copper, in concentrates and doré | | Bulyanhulu Gold Mine Ltd. (Barrick Gold Corp., 100%) | Bulyanhulu Mine near Kahama | 6,300. |
| Diamond | | Williamson Diamonds Ltd. (DeBeers Group, 75%, and Government, 25%) | Williamson Mine near Shinyanga | 4,000,000 ore processing. |
| Do. | carats | do. | do. | 260,000 diamond. |
| Do. | do. | El Hillal Minerals Ltd. | Near Williamson Mine | 24,000. ^c |
| Glass | | Kioo Ltd. | Dar es Salaam | 36,000. |
| Gold | | Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%) | Geita Mine near Nyakabale | 6,000,000 ore processing. |
| Do. | kilograms | do. | do. | 19,800 gold. |
| Do. | | Bulyanhulu Gold Mine Ltd. | Bulyanhulu Mine near Kahama | 1,100,000 ore processing. |
| Do. | kilograms | do. | do. | 12,600 gold. |
| Do. | | North Mara Gold Mine Ltd. (Barrick Gold Corp., 100%) | North Mara Mine in Tarime District | 2,900,000 ore processing. |
| Do. | kilograms | do. | do. | 9,300 gold. |
| Do. | | Resolute Mining Ltd. | Golden Pride Mine near Isanga | 3,000,000 ore processing. |
| Do. | kilograms | do. | do. | 4,800 gold. |
| Do. | | Pangea Minerals Ltd. (Barrick Gold Corp., 70%, and Explorations Minières du Nord Ltée, 30%) | Tulawaka Mine | 365,000 ore processing. |
| Do. | kilograms | do. | do. | 4,000 gold. |
| Do. | | Time Mining Operations (subsidiary of Time Mining Group) | Buhemba Mine, 47 kilometers southeast of Musoma | 1,300,000 ore processing. |
| Do. | kilograms | do. | do. | 2,600 gold. |
| Lime | | Athi River Mining Ltd. | Plant at Tanga | 40,000. |
| Natural gas | million cubic meters | Orca Exploration Group Inc. | Gasfield on Songo Songo Island | 720. |
| Do. | do. | Artumas Energy (Tanzania) Ltd. (subsidiary of Artumas Group Inc.) | Gasfield at Mnazi Bay | 100. |
| Petroleum products ¹ | thousand 42-gallon barrels | Tanzanian and Italian Petroleum Refining Co. Ltd. | Refinery at Dar es Salaam | 5,440. |
| Phosphate rock | | Minjingu Mines and Fertilizers Ltd. | Mine at Minjingu | 30,000. |
| Salt | | Nyanza Mines (Tanganyika) Ltd. | Nyanza Mines at Uvinza | 60,000. |
| Silver | kilograms | Bulyanhulu Gold Mine Ltd. | Bulyanhulu Mine near Kahama | 9,200. |
| Steel | | Aluminum Africa Ltd. | Plant at Dar es Salaam | 45,000. ^c |
| Do. | | SITA Rollings Ltd. | do. | 14,000 rolled. |
| Do. | | MM Integrated Steel Mills Ltd. | do. | 2,000 rolled. |
| Do. | | Aluminum Africa Ltd. | do. | 40,000 galvanized. |
| Do. | | MM Integrated Steel Mills Ltd. | do. | 36,000 galvanized. |
| Tanzanite | | TanzaniteOne Ltd. | Mine at Merelani, Block C ² | 120,000 ore processing. |
| Do. | kilograms | do. | do. | 1,600 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 | NA. |

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

¹Shut down in 2000.

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

TABLE 3
TANZANIA: GOLD RESOURCES AND RESERVES IN 2006

| Project | Major operating companies | Tonnage (million metric tons) | Grade (grams per metric ton) | Contained gold (metric tons) |
|---------------------------|---|----------------------------------|------------------------------------|---------------------------------|
| Reserves: | | | | |
| Bulyanhulu ¹ | Bulyanhulu Gold Mine Ltd. (Barrick Gold Corp., 100%) | 30.5 | 11.4 | 348 |
| Geita ² | Geita Gold Mining Ltd. (AngloGold Ashanti Ltd., 100%) | 79.0 | 3.3 | 264 |
| North Mara ¹ | North Mara Gold Mine Ltd. (Barrick Gold Corp., 100%) | 31.8 | 3.2 | 102 |
| Buzwagi ^{1, 3} | Barrick Gold Corp. | 45.2 | 1.8 | 82 |
| Golden Pride ² | Resolute Mining Ltd. | 25.2 | 1.6 | 39 |
| Tulawaka ¹ | Pangea Minerals Ltd. (Barrick Gold Corp., 70%, and Exploration Minières du Nord Ltée, 30%) | 1.3 | 11.1 | 15 |
| Total | | 213.0 | 4.7 | 850 |
| Resources: | | | | |
| Bulyanhulu | Bulyanhulu Gold Mine Ltd. | 39.0 | 12.3 ⁴ | 481 |
| Geita | Geita Gold Mines | 142.5 | 3.2 | 458 |
| Tusker | Barrick Gold Corp., 51%, and Sub-Sahara Resources NL, 49% | 123.3 | 1.2 | 142 |
| North Mara | North Mara Gold Mine Ltd. | 40.2 | 3.1 | 124 |
| Buzwagi ³ | Barrick Gold Corp. | 53.5 | 1.8 ⁴ | 97 |
| Buckreef/Rwamagaza: | IAMGOLD Corp. | 27.2 | 2.2 | 61 |
| Golden Pride | Resolute Mining Ltd. | 38.6 | 1.5 | 57 |
| Golden Ridge | Kahama Mining Corp. Ltd. | 33.1 | 1.5 | 46 |
| Nyakafuru | do. | 19.4 | 1.7 | 33 |
| Buhemba | Time Mining Group | 11.4 | 2.0 | 23 |
| Mgusu | Shanta Gold Ltd. | 6.2 | 3.7 | 23 |
| Tulawaka | Pangea Minerals Ltd. | 1.8 | 11.1 | 20 |
| Kitongo: | | | | |
| Main Zone | IAMGOLD Corp. | 10.5 | 1.3 | 14 |
| Isegenghe Hill | do. | 0.2 | 14.4 | 2 |
| Miyabi | African Eagle Resources plc | 12.4 | 1.3 | 16 |
| Ikungu | Lakota Resources Inc. | 2.5 | 2.3 | 6 |
| Total | | 523 | 3.6 | 1,600 |

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.

³Formerly known as Chocolate Reef.

⁴Note that, in most cases, the grade of resources is lower than the grade for reserves, but in this case, the grade of the less economic material is higher, leading to the paradox of a higher resource grade.

Sources:

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