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2017–2018 Minerals Yearbook

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The Mineral Industry of Kenya

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Note: In this chapter, information for 2017 is followed by information for 2018.

In 2017, Kenya played a significant role in the world's production of ilmenite, rutile, natural soda ash, and zircon. The country's share of the world's mine production of rutile was about 11%; ilmenite, 5%; zircon, 3%; and natural soda ash, 2%. Other domestically significant mining and mineral processing operations included cement production. Kenya was not a globally significant consumer of minerals in 2017 (Bedinger, 2019a, b; Bolen, 2019).

Minerals in the National Economy

In 2017, the manufacturing sector accounted for 8.4% of the country's gross domestic product (GDP); the construction sector, 5.8%; and the mining and quarrying sector, 0.8%. The value of output in the mining and quarrying sector increased by 6.1% in 2017 and 9.5% in 2016. Ilmenite, rutile, and zircon accounted for 2.6% of Kenya's total exports of about $5.1 billion[1] in 2017; iron and steel, 2.2%; soda ash, 1.3%; and other minerals and mineral products, including cement, fluorspar, glassware, salt, scrap metal, and stone, sand, and gravel, 2.4%. Cement was exported, including to the countries of Tanzania and Uganda. Mineral fuels accounted for 14.6% of the total imports of $16.7 billion in 2017; iron and steel, 4.8%; chemical fertilizers, 1.7%; and nonferrous metals, 1% (Kenya National Bureau of Statistics, 2018, p. 22, 24, 95, 97, 112).

Formal employment in the mining and quarrying sector was reported to be about 15,000 workers in 2017 compared with 15,196 in 2016 and 9,001 in 2012. Privately owned mining operations accounted for 96% of mining employment in 2017. The clay, sand, and stone quarrying subsector employed 8,864 Kenyans in 2016 (the latest year for which data were available); chemical and fertilizer mineral mining, 2,841; and other mining and quarrying, 3,491. Employment in mineral-processing operations was reported to be at least 19,872 workers in 2016. The basic iron and steel manufacturing subsector employed 7,985 Kenyans in 2016; cement, lime, and plaster, 5,111; other nonmetallic mineral products, 3,568; glass and glass products, 1,866; refractory products, 1,068; and refined petroleum products, 274 (Kenya National Bureau of Statistics, 2017, p. 62–63; 2018, p. 41, 44).

In May 2016, the President of Kenya signed the Mining Act 2016, which replaced the Mining Act 1940. The new legislation gave the Government a 10% free-carried interest in mining operations, legalized artisanal mining, simplified the types of mining and exploration licenses, established requirements to use domestic goods and services and submit mine closure plans, and mandated that companies' production volumes and revenues paid to the Government and copies of mining agreements be made publicly available. The Mining Act 2016 also created a new National Mining Corporation and mandated that the national Government receive 70% of mining royalties; the County Governments, 20%; and the communities in which mining operations take place, 10% (Piper, 2016; Finan and Nyabira, 2017).

Production

In 2017, Kenya's production of garnet (other than green garnet) increased by an estimated 530%; gold, by 214%; cordierite, by an estimated 100%; amethyst, by an estimated 99%; green garnet, by an estimated 44%; refined lead, by an estimated 27%; diatomite, by 14%; and refined salt, by 10%. Between 2013 and 2017, Kenya became a globally significant ilmenite, rutile, and zircon producer. Aquamarine output decreased by an estimated 87% in 2017; sapphire, by an estimated 76%; tourmaline, by an estimated 54%; and ruby, by an estimated 21%. Fluorspar mining shut down in 2016. Between 2013 and 2017, cordierite production decreased by an estimated 99%; aquamarine, by an estimated 98%; tourmaline, by an estimated 89%; other garnet, by an estimated 84%; and gold, by 76% (table 1; Kenya National Bureau of Statistics, 2018, p. 143; Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Structure of the Mineral Industry

Most of Kenya's mining and mineral-processing operations were privately owned, including the diatomite, fluorspar, gemstone, ilmenite, rutile, salt, soda ash, and zircon mines; the lime plants; and the steel mills except for Numerical Machining Complex Ltd. All cement plants except for East Africa Portland Cement Company Ltd. (EAPC) were privately owned. The Government owned Kenya Petroleum Refineries Ltd. (KPRL), which remained closed in 2017, and held a 52% share in EAPC. Artisanal miners produced gemstones and gold. Diatomite, ilmenite, rutile, soda ash, and zircon were produced by one company each (table 2).

Commodity Review

Metals

Gold.—In May 2015, Mid Migori Mining Company Ltd. (Red Rock Resources plc of the United Kingdom, 75%) started legal action against the Government after its special prospecting licenses at the Migori project were revoked. As of the end of 2017, the dispute had not been resolved (Red Rock Resources plc, 2018a).

[1]Where necessary, values have been converted from Kenyan shilling (KSh) to U.S. dollars (US$) at an annual average exchange rate of KSh103.41=US$1.00 for 2017.

Iron Ore and Iron and Steel.—Wanjala Mining Co. mined iron ore at Kishushe in 2012; the company's mining operations were suspended by the Government in 2013 because of a legal dispute with Kishushe Ranching Co-operative Society Ltd. regarding land ownership. In January 2017, the Government ordered Wanjala to restart mining. As of yearend, production had not yet restarted (Mkanyika, 2017; Mnyamwezi, 2018).

Kenya's rolling mills produced an estimated 720,000 metric tons (t) of steel products in 2017 compared with a revised 690,000 t in 2016. Tononoka Steel Ltd. (a subsidiary of Tononoka Group) produced steel products from scrap; the company planned to increase its production capacity to 220,000 metric tons per year (t/yr) from 91,000 t/yr by the end of 2017. The country also imported 1.37 million metric tons (Mt) of iron and steel products in 2017 compared with about 1.44 Mt in 2016 and about 778,000 t in 2012 (table 1; Jiwaji, 2014; Ngugi, 2016; Kenya National Bureau of Statistics, 2017, p. 161; 2018, p. 94, 164).

Niobium (Columbium) and Rare Earths.—Before August 2013, Pacific Wildcat Resources Corp. (PAW) of Canada explored for niobium and rare earths at the Mrima Hill project. The Government canceled all exploration, mining, and prospecting licenses issued between January 15, 2013, and May 15, 2013, including PAW's mining license, in August 2013, because the licenses reportedly were issued without proper documentation. As of the end of 2017, PAW was engaged in a legal dispute with the Government regarding the mining license (Jiwaji, 2013; Business Daily, 2018).

Titanium and Zirconium.—In December 2013, Base Resources Ltd. of Australia started mining at the Kwale mineral sands deposit. In 2017, Base Resources produced 470,317 t of ilmenite, 91,456 t of rutile, and 42,217 t of zircon compared with 468,903 t of ilmenite, 88,288 t of rutile, and 39,687 t of zircon in 2016. Zircon recovery rates increased to 77% in December 2017 from 73% in December 2016. The company planned to produce between 450,000 and 480,000 t of ilmenite, between 88,000 and 94,000 t of rutile, and between 36,000 and 41,000 t of zircon at Kwale in its fiscal year 2018. Production from the mine was exported to Europe and China (Base Resources Ltd., 2017, 2018b).

Industrial Minerals

Cement.—At the end of 2017, Kenya had seven cement-producing companies with a combined capacity of about 9.7 million metric tons per year (Mt/yr). National cement output was 6.23 Mt in 2017 compared with 6.72 Mt in 2016 and 4.69 Mt in 2012. Increased cement production in recent years was attributable to the opening of new plants and the expansion of existing plants. Recent additions to capacity included National Cement Company Ltd.'s expansion to 900,000 t/yr from 350,000 t/yr in 2015 and Mombasa Cement Ltd.'s upgrades and process optimizations in 2017 that increased capacity at its Athi River plant to 2 Mt/yr from 1.6 Mt/yr. Karsan Ramji & Sons Ltd. opened a new plants in Athi River in 2015 and Nakuru in 2017, each with a capacity of 220,000 t/yr (Kiarie and Njihia, 2014; International Cement Review, 2016a; 2018a, b, f; Kenya National Bureau of Statistics, 2017, p. 203; 2019, p. 166; Mwangi, 2017).

Cemtech Ltd. of India started construction in the first half of 2016 on its new plant at Pokot with a capacity of 1.2 Mt/yr. As of yearend 2017, it was unclear when the plant would start operations. ARM Cement Ltd. planned to complete a new plant in Kitui County by 2021; the capacity was expected to be 2.5 Mt/yr. Dangote Group of Nigeria's two new plants with a capacity of 1.5 Mt/yr each at Mombasa and Nairobi were expected to be completed by 2021 or 2022 (Global Cement, 2016; International Cement Review, 2016b, 2017).

Cement capacity also was likely to increase because of the expansions of existing plants. Savannah Cement Ltd. planned to increase capacity at its Athi River plant to 2.4 Mt/yr from 1.5 Mt/yr by 2018. In January 2017, Bamburi Cement Ltd. started the expansion of its Athi River plant by 900,000 t/yr. The company planned to complete the expansion by 2018 or 2019; total capacity would increase to 3.2 Mt/yr from 2.3 Mt/yr. National Cement also planned to increase capacity at its Athi River plant to 1.8 Mt/yr from 900,000 t/yr by 2018 (International Cement Review, 2016a, 2017, 2018a).

Kenya's cement consumption was 5.79 Mt in 2017 compared with 6.31 Mt in 2016 and 3.99 Mt in 2012 because of growth in the construction sector. As of December, Bamburi Cement held a 33% market share; Mombasa Cement, 16%; EAPC and Savannah Cement, 15% each; ARM Cement, 13%; and National Cement, 8%. From 2011 to 2016, private nonresidential and residential construction activity in Kenya's main cities increased by 209% and 130%, respectively. From 2012 to 2016, the paved road network increased to 11,976 kilometers (km) from 9,612 km (Kenya National Bureau of Statistics, 2017, p. 207, 211, 245, 2018, p. 174-175; Mwangi, 2017).

Clay and Shale and Crushed Stone.—The majority of Kenya's cement was produced from domestically quarried limestone and shale. Based on cement production of 6.23 Mt and clinker imports of 1.5 Mt, clay and shale production for use in cement was estimated to be 950,000 t in 2017 (Kenya National Bureau of Statistics, 2018, p. 94, 168).

Fluorspar.—In 2016, Kenya Fluorspar Co. Ltd. produced 42,656 t of fluorspar at its Kimwarer Mine compared with 64,395 t in 2015. The company suspended mining operations in 2016 because of decreased demand and prices for fluorspar on world markets; production remained shut down in late 2017 (Lismore-Scott, 2017; Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Gemstones.—Amethyst, aquamarine, cordierite, garnet, ruby, sapphire, tourmaline, and other gemstones were mined in Kenya. The production of amethyst increased to an estimated 48,000 kilograms (kg) in 2017 from 24,168 kg in 2016; total garnet, to an estimated 4,200 kg from 1,634 kg; and cordierite, to an estimated 2 kg from 1 kg. In 2017, color-change garnet production was estimated to be more than 2,300 kg; green garnet, 1,800 kg; and red garnet, 55 kg. Amethyst was mined at locations including the Baobab Mine in Kitui County. Color-change garnet and green garnet were mined in Taita Taveta County (Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Tourmaline production decreased to an estimated 3,700 kg in 2017 from 8,064 kg in 2016. In 2017, mixed-color tourmaline production was estimated to be more than 1,700 kg, green tourmaline, more than 1,600 kg; and yellow tourmaline, 340 kg. Sapphire production decreased to an estimated 5,600 kg in

2017 from 22,939 kg in 2016. In 2017, more than 99% of national sapphire production was estimated to be blue sapphire. Ruby production decreased to an estimated 3,400 kg in 2017 from 4,300 kg in 2016 and aquamarine, to an estimated 8 kg from 60 kg. Yellow and green tourmaline were mined in Taita Taveta County (Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Most of the gemstones produced in Kenya were exported before cutting and polishing. Between 2015 and 2017, total cut and polished gemstone production was less than 1 kilogram per year (Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Nitrogen, Phosphate Rock, and Potash.—Between 2013 and 2017, Kenya's fertilizer imports were an average of about 660,000 t/yr. Agricultural production was limited by high fertilizer costs. Toyota Tsusho East Africa Ltd. (a subsidiary of Toyota Tsusho Corp. of Japan) operated a fertilizer blending plant at Chesegem. The company planned to upgrade its plant to a manufacturing facility; production could start after 2020. Ammonia for use in fertilizers could be produced from hydrocarbons after the startup of crude petroleum production (Andae, 2017; Kenya National Bureau of Statistics, 2018, p. 94).

Soda Ash.—Tata Chemicals Magadi Ltd. (an indirect subsidiary of Tata Group of India) mined trona from Lake Magadi. In 2017, production was 303,580 t compared with 301,719 t in 2016 and 468,215 t in 2013. Production decreased since 2013 because of the closure of one of the company's processing plants and the siltation of Lake Magadi. About 94% of soda ash production was exported between 2015 and 2017. Soda ash was consumed domestically by glass producers and by ARM Cement in the production of sodium silicate (Kenya National Bureau of Statistics, 2018, p. 93, 143).

Mineral Fuels

Coal.—Centum Investment Company Plc and a consortium of Chinese companies planned to build a new coal-fired power station at an estimated cost of $2 billion in Lamu County. As of the end of 2017, development of the project was on hold because of a lawsuit regarding environmental concerns (Sengupta, 2018).

Petroleum.—In March 2017, Tullow Oil plc of the United Kingdom and its joint-venture partners Africa Oil Corp. of Canada and Maersk Olie og Gas A/S of Denmark signed a production-sharing agreement with the Government for the Turkana oilfields. The companies planned to start small-scale production of about 2,000 barrels per day (bbl/d) of crude petroleum at Turkana in June and large-scale production of 100,000 bbl/d in 2020. The estimated life of the Turkana oilfields was 25 years. Production was expected to be exported by truck and rail during the small-scale production phase and by an 865-kilometer pipeline from the oilfields to the Port of Lamu in the large-scale production phase (Otuki, 2017).

As of the end of September 2017, the startup of small-scale production was delayed until at least February 2018. Delays were attributable to civil unrest in Turkana County and disputes between the National and Turkana County governments regarding revenue sharing from crude petroleum production (Michira, 2017).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

In 2018, Kenya's GDP was nearly $88 billion.[2] The mining and quarrying sector accounted for about 0.8% of the GDP. The principal mineral exports were ilmenite, iron and steel, soda ash, rutile, and zircon (Kenya National Bureau of Statistics, 2019, p. 22, 94, 110).

Production

Sulfuric acid production increased by an estimated 62% in 2018, and soda ash, by 12%. The production of lime and clay other than bentonite decreased by an estimated 15% each in 2018, and zircon, by 14%. Crude petroleum production started and iron ore remining restarted.

Commodity Review

In October 2018, the Government withdrew its opposition to Mid Migori obtaining its licenses for the Migori gold project. A tribunal at the International Centre for Settlement of Investment Disputes ruled against PAW in its dispute with the Government regarding the Mrima Hill niobium and rare-earths project (Obulutsa and Malalo, 2018; Red Rock Resources plc, 2018b).

Samruddha Resources Kenya Ltd. of India restarted iron ore mining at Wanjala's former operation in April 2018; the company produced at least 55,000 t by yearend. In early December, the High Court of Kenya ordered the Kenya Revenue Authority (KRA) to allow Samruddha Resources to export its production to India. KRA previously had withdrawn its permission for the company to export its production (Mnyamwezi, 2018; Muyanga, 2018).

In July 2018, Devki Steel Mills Ltd. announced plans to build a new raw steel plant with a capacity of 300,000 t/yr by 2020. The company planned to open new iron ore mines in Kenya to supply its plant. At the end of 2018, it was unclear whether Tononoka Steel had completed its expansion (Kariuki, 2018).

Base Resources produced 453,133 t of ilmenite, 95,715 t of rutile, and 36,387 t of zircon in 2018 compared with 470,317 t of ilmenite, 91,456 t of rutile, and 42,217 t of zircon in 2017. Ilmenite and zircon ore grades decreased in 2018. The company planned to produce between 385,000 and 415,000 t of ilmenite, between 88,000 and 94,000 t of rutile, and between 31,000 and 34,000 t of zircon at Kwale in its fiscal year 2019. In mid-2018, reserves were estimated to be 857 Mt at grades of 4.4% ilmenite, 0.37% zircon, and 0.12% rutile. The estimated remaining life of the mine was 5 years (Base Resources Ltd., 2018a, p. 24, 80; 2018b; 2019).

National cement output was 6.07 Mt in 2018 compared with 6.23 Mt in 2017 and 5.06 Mt in 2013. Kenya's total cement capacity increased to about 10.6 Mt/yr in 2018. Bamburi Cement completed the expansion of its Athi River plant's capacity by 900,000 t/yr. ARM Cement entered bankruptcy proceedings in August (table 2; International Cement Review, 2018e; Kariuki, 2018; Kenya National Bureau of Statistics, 2018, p. 168; 2019, p. 166).

[2]Where necessary, values have been converted from Kenyan shilling (KSh) to U.S. dollars (US$) at an annual average exchange rate of KSh101.29=US$1.00 for 2018.

Mombasa Cement planned to increase the cement capacity at its Athi River plant to 3.5 Mt/yr and the clinker capacity at its Vipengo plant to 2.5 Mt/yr. The projects were expected to be completed in 2019 or 2020. Devki Group planned to build a new plant at Mombasa with a capacity of 1 Mt/yr, and at Nakuru, 750,000 t/yr. The company expected to complete the plant at Nakuru in 2019 and the plant at Mombasa in 2020. The expansion of Savannah Cement's new plant was delayed; construction was expected to start in late 2019 or early 2020 (International Cement Review, 2018b, d; Kariuki, 2018).

Kenya's cement consumption was 5.95 Mt in 2018 compared with 5.79 Mt in 2017 and 4.27 Mt in 2013. Consumption was constrained by cutbacks in Government spending on construction (International Cement Review, 2018c; Kenya National Bureau of Statistics, 2018, p. 8; 2019, p. 166).

Soda ash production at Lake Magadi was 339,025 t in 2018 compared with 303,580 t in 2017. ARM Cement, which used soda ash in the production of sodium silicate, entered bankruptcy proceedings in August (International Cement Review, 2018e; Kenya National Bureau of Statistics, 2019, p. 141).

In 2018, a Kenyan court suspended the Lamu project, and remanded the case to an environmental tribunal. As of yearend, the dispute was unresolved (Obulutsa, 2019).

In early June 2018, Africa Oil, Maersk, Tullow, the National Government, and the government of Turkana County started production at the Turkana oilfields. The Early Oil Pilot Scheme produced 2,000 bbl/d of crude petroleum; operations were shut down for nearly 7 weeks starting on June 27 because of local protests regarding community benefits from oil production (Makore, 2018; Kenya National Bureau of Statistics, 2019, p. 160).

Outlook

Cement production is likely to increase between 2019 and 2023 because of the planned new plants and expansions of existing plants. Cement demand is expected to increase because of the Government's plans to build new infrastructure, including airports, railways, and roads. The production of clay and shale, gypsum, and limestone for use in the cement industry also is likely to increase because of planned expansions of clinker production capacity.

Growth in the construction sector is likely to result in increased steel demand. Kenya's steel production could increase between 2019 and 2022 with the increase in Tononoka's capacity and the construction of Devki's new plant. Iron ore production also could increase between 2019 and 2022 as Samruddha Resources ramps up to full capacity and Devki opens mines to supply its new steel plant.

Ilmenite and zircon production are expected to decrease in 2019. Fertilizer production could increase with the opening of Fertiplant East Africa's and Toyota Tsusho East Africa's plants. The development of the Turkana oilfields will depend on political stability and the resolution of disputes regarding revenue allocation. The outlook for fluorspar, gemstones, and soda ash will depend mostly on world market conditions.

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TABLE 1
KENYA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2014	2015	2016	2017	2018
METALS						
Aluminum, metal, secondary		8,200 r, e	8,145 r	9,300 r, e	9,700 e	9,900 e
Gold, mine, Au content	kilograms	200	134	160 r, e	503	472
Iron ore, mine:						
Gross weight		--	--	--	--	55,000 e
Fe content		--	--	--	--	31,000 e
Iron and steel:						
Steel:						
Raw steel[e]		370,000	360,000	410,000	430,000	440,000
Products:						
Galvanized		284,508	256,829	268,652 r	262,759	270,400
Rolled[e]		610,000	600,000	690,000 r	720,000	730,000
Lead, refinery, secondary[e]		1,000	1,100	1,100	1,400	1,400
Titanium, mineral concentrates:						
Ilmenite and leucoxene		368,239	444,999	468,903	470,317	453,133
Rutile		59,348	78,947	88,288	91,456	95,715
Zirconium, zircon		15,004	25,951	39,687	42,217	36,387
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	5,883	6,353	6,715 r	6,230	6,070
Clay:[e]						
Bentonite		110	130	130	140	140
Unspecified		920,000 r	880,000 r	940,000 r	950,000	810,000
Diatomite		1,195	1,090	1,238 r	1,406	1,538
Feldspar, mine		--	--	3	-- e	-- e
Fluorspar, acid grade		74,000	64,395	42,656	--	--
Gemstones:[3]						
Amethyst	kilograms	30,000 e	40,243	24,168	48,000 e	48,000 e
Aquamarine	do.	680 e	858	60	8 e	8 e
Cordierite	do.	180 e	59	1	2 e	2 e
Garnet:						
Green	do.	1,210	994	1,253	1,800 e	1,800 e
Other	do.	8,000 e	826	381	2,400 e	2,400
Ruby	do.	6,100	6,000	4,300 r, e	3,400 e	3,400 e
Sapphire	do.	9,200 e	9,810	22,939 r	5,600 e	5,600 e
Tourmaline	do.	25,000 e	15,530	8,064	3,700 e	3,700 e
Gypsum, including anhydrite, crude[4]		5,900	5,800	5,900 e	5,800 e	6,000 e
Lime[e]		52,000 r	52,000 r	52,000 r	52,000	44,000
Salt, refined		226,265 r	245,878 r	262,787 r	289,940	290,000 e
Sand and gravel, industrial, glass sand[e]		22,000	27,000	27,000	25,000	25,000
Soda ash, natural		409,845	319,761	301,719	303,580	339,025
Sulfur, compounds, sulfuric acid[e]		17,000 r	19,000 r	20,000 r	21,000	34,000
Vermiculite		440	410	--	-- e	-- e
MINERAL FUELS AND RELATED MATERIALS						
Petroleum, crude	thousand 42-gallon barrels	--	--	--	-- e	330 e

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through October 10, 2019. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, brick clays, gravel, murram (laterite), crushed rock, and construction sand may have been produced, but available information was inadequate to make reliable estimates of output.

[3]Small amounts of zoisite also were produced in 2015.

[4]Not including gypsum production for use in cement.

TABLE 2
KENYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, secondary		Kaluworks Ltd.	Plant at Mombasa	15,000.
Do.		Booth Manufacturing Ltd.	Plant at Nairobi	4,000.
Do.		Aluminium Enterprises	Plant at Kikuyu	1,200.
Do.		Crystal Industries Ltd.	do.	1,000.
Do.		Narcol Aluminium Rolling	Plant at Mombasa	1,000.
Cement		Bamburi Cement Ltd. (Lafarge Group, 58.6%)	Plants at Athi River and Mombasa	3,200,000.
Do.		Mombasa Cement Ltd.	Plant at Athi River	2,000,000.
Do.		do.	Plant at Vipengo	300,000.
Do.		Savannah Cement Ltd. (Savannah Heights, 40%; Wan-Ho, 40%; Acme Cement, 20%)	Plant at Athi River	1,500,000.
Do.		East African Portland Cement Company Ltd. (EAPC) [Lafarge Group, 41.7%; National Social Security Fund (Government-owned), 27%; Government, 25%]	Plant at Athi River	1,300,000.
Do.		ARM Cement Ltd.	Plant at Nairobi[1]	650,000.
Do.		do.	Plant at Kaloleni[1]	350,000.
Do.		National Cement Company Ltd. (a subsidiary of Devki Group of Companies)	Plant at Athi River	900,000.
Do.		Karsan Ramji & Sons Ltd.	do.	220,000.
Do.		do.	Plant at Nakuru	220,000.
Diatomite		African Diatomite Industries Ltd.	Kariandusi and Soysambu	10,800.
Fluorspar		Kenya Fluorspar Co. Ltd.	Mine at Kimwarer[1]	120,000.
Gemstones:				
Amethyst		Crystal Springs Mining Co.	Mine in Kitui County	NA.
Garnet		Artisanal and small-scale miners	Mines in Taita Taveta County	NA.
Ruby and sapphire	kilograms	Rockland Kenya Ltd.	Mine at Kasigau	6,000.[e]
Tourmaline		Artisanal and small-scale miners	Mines in Taita Taveta County	NA.
Gold	kilograms	do.	Mines in Nyanza, Rift Valley, and Western Provinces	NA.
Iron ore		Samruddha Resources Kenya Ltd.	Mine at Kishushe	170,000.[e]
Lead, refined secondary		Associated Battery Manufacturers Company Ltd.	Plant at Athi River	3,000.
Lime		Homa Lime Company Ltd.	Plant at Koru	33,000.
Do.		ARM Cement Ltd.	Plant at Kaloleni[1]	25,000.
Manganese ore		Geofirm (EA) Ltd.	Mine at Kilifi	NA.
Petroleum, crude	thousand 42-gallon barrels	Early Oil Pilot Scheme (Tullow Oil plc, 50%)	Amosing and Ngamia oilfields in Turkana County	730.
Salt		Krystalline Salt Ltd.	Plant near Malindi	280,000.[e]
Do.		Kensalt Ltd.	Plant at Mombasa	200,000.[e]
Do.		Tata Chemicals Magadi Ltd.	Plant at Magadi	45,000.
Soda ash		do.	Mine at Magadi	715,000.[2]
Sodium silicate		ARM Cement Ltd.	Plant at Athi River[1]	60,000.
Steel:[3]				
Crude		Devki Steel Mills Ltd.	Three plants in Kenya	250,000.
Do.		Athi Steel Ltd.	Plant at Athi River	120,000.
Do.		Tononoka Steel Ltd. (subsidiary of Tononoka Group)	Plant at Nairobi	91,000.
Do.		Numerical Machining Complex	do.	20,000.
Rolled		Devki Steel Mills Ltd.	Three plants in Kenya	250,000.[e]
Do.		Mabati Rolling Mills Ltd.	Plant at Mombasa	200,000.[e]
Do.		Athi Steel Ltd.	Plant at Athi River	120,000.[e]
Do.		Numerical Machining Complex	Plant at Nairobi	100,000.
Sulfuric acid		Kel Chemicals Ltd.	Plant at Thika	14,600.
Do.		Pan Africa Chemicals Ltd.	Plant at Webuye	NA.
Titanium minerals		Base Resources Ltd.	Mine in Kwale County	480,000 ilmenite; 93,000 rutile.
Zirconium minerals, zircon		do.	do.	47,000.

[e]Estimated. Do., do. Ditto. NA Not available.
[1]Not operating at the end of 2018.
[2]Only 360,000 metric tons of capacity operating at the end of 2018.
[3]In addition to its billet and rolled steel facilities, Kenya has several galvanized steel plants.