



2019 Minerals Yearbook

KENYA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF KENYA

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In 2019, 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, 3%; and natural soda ash and zircon, 2% each. Other domestically significant mining and mineral processing operations included cement production. Kenya was not a globally significant consumer of minerals in 2019 (Bolen, 2021; Gambogi, 2021; Sangine, 2021).

Minerals in the National Economy

In 2019, the manufacturing sector accounted for 7.5% of the country's gross domestic product; the construction sector, 5.6%; and the mining and quarrying sector, 0.7%. The value of output in the mining and quarrying sector increased by 2.5% in 2019 and 2.7% in 2018. Iron and steel accounted for 3% of Kenya's total exports of about \$5.1 billion in 2019; ilmenite, rutile, and zircon, 2.7%; soda ash, 1.2%; and other minerals and mineral products, including cement, glassware, salt, scrap metal, and stone, sand, and gravel, 1.9%. Petroleum products accounted for more than 17% of total imports of \$17.7 billion in 2019; iron and steel, 5.8%; chemical fertilizers, 1.5%; nonferrous metals, 0.8%; and clinker, 0.5% (Kenya National Bureau of Statistics, 2020, p. 27, 29, 100–101, 115).

Formal employment in the mining and quarrying sector was reported to be about 15,900 workers in 2019 compared with 15,364 in 2018 and 12,850 in 2014. Privately owned mining operations accounted for 96% of mining employment in 2019. The clay, sand, and stone quarrying subsector employed 9,066 Kenyans in 2018 (the latest year for which data were available); chemical and fertilizer mineral mining, 2,815; and other mining and quarrying, 3,483. Employment in mineral processing operations was reported to be at least 20,052 workers in 2018. The basic iron and steel manufacturing subsector employed 7,995 Kenyans in 2018; cement, lime, and plaster, 5,219; other nonmetallic mineral products, 3,669; glass and glass products, 1,898; refractory products, 1,031; and refined petroleum products, 240 (Kenya National Bureau of Statistics, 2019, p. 25–26; 2020, p. 46).

Kenya's mining sector was governed by the Mining Act 2016. In March 2019, the Petroleum Act 2019 replaced the Petroleum (Exploration and Production) Act, Chapter 308 Laws of Kenya. The new legislation consolidated upstream, midstream, and downstream regulations into a single law and established local content requirements for petroleum operations. The new legislation mandates that the national Government receive 75% of tax revenues from upstream petroleum operations; the county governments, 20%; and the communities in which upstream petroleum operations take place, 5% (Nyabira, 2019).

Production

In 2019, Kenya's production of refined aluminum increased by an estimated 10%. Between 2015 and 2019, gold production increased by 195%; garnet other than green garnet, by 191%; and green garnet, by 81%. Diatomite output decreased by 41% in 2019; lime, by an estimated 34%; soda ash, by 32%; crude petroleum, by an estimated 27%; ilmenite, by 25%; rutile, by 18%; zircon, by 17%; gold, by 16%; sulfuric acid, by an estimated 15%; and silica sand, by an estimated 12%. Between 2015 and 2019, aquamarine production decreased by an estimated 99%; cordierite, by an estimated 97%; and tourmaline, by an estimated 76% (table 1; Kenya National Bureau of Statistics, 2020, p. 146; Ngigi Colin, Kenya Ministry of Mines, written commun., August 4, 2017).

Decreased silica sand production in 2019 was attributable to lower demand in the domestic glass industry. Lime production decreased because of plant closures. Data on mineral production are in table 1.

Structure of the Mineral Industry

Most of Kenya's mining and mineral-processing operations were privately owned, including the diatomite, fluorspar, gemstone, ilmenite, iron ore, rutile, salt, soda ash, and zircon mines; the lime plants; and the steel mills except for Government-owned Numerical Machining Complex Ltd. All cement plants except for East Africa Portland Cement Company Ltd. (EAPC) were privately owned. The Government held a 52% share in EAPC. Crude petroleum, diatomite, ilmenite, iron ore, rutile, soda ash, and zircon were produced by one company each.

Artisanal miners produced gemstones and gold. Capacity, location, ownership, and production information were not readily available for many of these operations. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Gold and Mercury.—In 2019, artisanal and small-scale miners produced 395 kilograms (kg) of gold compared with 472 kg in 2018, most of which was produced near Lake Victoria. It is likely that additional production was unreported; Kenya had no legal framework to formalize artisanal mining until the Mining Act 2016 was passed. The Mining Act 2016 has mining permits for artisanal miners. Mercury emissions from artisanal and small-scale gold mining in Kenya were estimated to be 2,100 kilograms per year (kg/yr). Kenya was not a mercury producer and relied on imports (Kenya National Bureau of Statistics, 2020, p. 146; planetGOLD, undated).

Iron Ore and Iron and Steel.—Samruddha Resources Kenya Ltd. of India mined iron ore at Kishushe. The company

produced about 161,000 metric tons (t) in 2019 compared with 167,000 t in 2018; mining restarted in April 2018 after being suspended by the Government in 2013 because of a legal dispute (table 1; Mnyamwezi, 2018; Shadrack Kimomo, Chief Geologist, Kenya Ministry of Mines, written commun., July 17, 2014).

Kenya's rolling mills produced an estimated 800,000 t of steel products in 2019 compared with a revised 770,000 t in 2018. Devki Steel Mills Ltd. planned to build a new raw-steel plant with a capacity of 300,000 metric tons per year (t/yr) by 2020. The company planned to open new iron ore mines in Kenya to supply its plant. Kenya also imported 1.59 million metric tons (Mt) of iron and steel products in 2019 compared with about 1.31 Mt in 2018 (table 1; Jiwaji 2014; Kariuki, 2018; Kenya National Bureau of Statistics, 2020, p. 99, 174).

Manganese.—Geofirm (EA) Ltd. produced small amounts of manganese from its mine at Kilifi. In February 2019, the Government awarded Universal Resources International Ltd. (URI) of Australia a mining license for manganese deposits at Mmbabarinyi in Taita Taveta County. URI planned to produce 120,000 t/yr of manganese ore initially and to increase production subsequently to 360,000 t/yr. The company planned to start mining by March 2020 (Universal Resources International Ltd., 2018; Muingi, 2019).

Titanium and Zirconium.—Base Resources Ltd. of Australia operated a mine at the Kwale mineral sands deposit. In 2019, Base Resources produced about 341,000 t of ilmenite, 79,000 t of rutile, and 30,400 t of zircon compared with about 453,000 t of ilmenite, 95,700 t of rutile, and 36,400 t of zircon in 2018. Decreased production in 2019 was attributable to lower ore grades as mining shifted from the Central Dune to the South Dune. The company planned to produce between 335,000 and 355,000 t of ilmenite, between 75,000 and 81,000 t of rutile, and between 29,000 and 32,000 t of zircon at Kwale in its fiscal year 2020. All the mine's production between 2015 and 2019 was exported (Base Resources Ltd., 2019, 2020).

Industrial Minerals

Cement.—At the end of 2019, Kenya had six cement-producing companies with a combined capacity of about 10.7 million metric tons per year (Mt/yr). National cement output was 5.97 Mt in 2019 compared with 6.07 Mt in 2018. The expansion of Bamburi Cement Ltd.'s capacity in 2018 was offset by ARM Cement Ltd. entering bankruptcy proceedings. National Cement Ltd. acquired ARM Cement's plants in 2019 (International Cement Review, 2016; 2018a, b, d, e; Kariuki, 2018; Kenya National Bureau of Statistics, 2020, p. 179; Mwangi, 2020).

Mombasa Cement Ltd. 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 one at Nakuru with a capacity of 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 Ltd.'s plant to 2.4 Mt/yr from 1.5 Mt/yr was expected to start in late 2019 or early 2020. As of the end of 2019, Devki's

and Mombasa's expansions were not completed (International Cement Review, 2018b, c; Kariuki, 2018; Mwangi, 2020).

Cement consumption in Kenya was 5.93 Mt in 2019, which was nearly unchanged from that of 2018. Bamburi Cement held a 33% market share; National Cement, 21%; Mombasa Cement, 16%; and EAPC and Savannah Cement, 15% each. From 2014 to 2018, private nonresidential and residential construction activity in Kenya's main cities increased by 148% and 44%, respectively. The country's paved-road network increased to 18,655 kilometers (km) from 11,278 km between 2014 and 2018 (Kenya National Bureau of Statistics, 2019, p. 175, 179, 2020, p. 179; Mwangi, 2020).

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 5.97 Mt and clinker imports of 1.81 Mt, clay and shale production for use in cement was estimated to be 800,000 t in 2019 (table 1; Kenya National Bureau of Statistics, 2020, p. 99, 178).

Fluorspar.—In 2016, Kenya Fluorspar Co. Ltd. suspended mining operations because of decreased demand and prices for fluorspar on world markets. The mine remained on care-and-maintenance status because of high logistical costs after fluorspar prices increased in 2017. Kenya Fluorspar's mining lease expired at the end of March 2018 and control of the mine reverted to the Government. As of the end of 2019, production had not restarted (Lismore-Scott, 2017; Roskill Information Services Ltd., 2018; Kenya National Bureau of Statistics, 2020, p. 146).

Gemstones.—Amethyst, aquamarine, cordierite, garnet, ruby, sapphire, tourmaline, and other gemstones were mined in Kenya. Amethyst was mined at locations that included the Baobab Mine in Kitui County. Garnet and tourmaline were mined in Taita Taveta County. Most of Kenya's gemstone production was exported before cutting and polishing. Between 2017 and 2019, total cut and polished gemstone production was about 4 kg/yr (Kenya National Bureau of Statistics, 2020, p. 146).

Nitrogen, Phosphate Rock, and Potash.—Between 2014 and 2018, Kenya's fertilizer consumption averaged about 590,000 t/yr, most of which was sourced from imports. KEL Chemicals Ltd. produced small amounts of single superphosphate between 2014 and 2017. Agricultural production was limited by high fertilizer costs (AfricaFertilizer.org, 2019).

Toyota Tsusho East Africa Ltd. (a subsidiary of Toyota Tsusho Corp. of Japan) operated a fertilizer blending plant at Chesegem. The company had planned to upgrade its plant to a manufacturing facility with production starting after 2020. As of October 2019, it was unclear when production would start (Andae, 2017, 2019).

Soda Ash.—Tata Chemicals Magadi Ltd. (an indirect subsidiary of Tata Group of India) mined trona from Lake Magadi; the company produced 230,355 t in 2019 compared with 339,025 t in 2018. About 96% of soda ash production was exported in 2018 and 2019. Decreased production could be attributable to the siltation of Lake Magadi (Kenya National Bureau of Statistics, 2020, p. 98, 146; Otieno, 2020).

Industrial applications of soda ash from Lake Magadi were limited by the relatively high fluoride content of between 0.5% and 3%. By July 2019, Tata Chemicals had developed a process to remove fluoride from soda ash (IndustryARC, 2019).

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. The planned capacity of the plant was 1,050 megawatts. In June 2019, the National Environmental Tribunal ruled that the environmental impact assessment for the power station was insufficient. Development of the project would be halted until a new environmental impact assessment was completed (BBC News, 2019).

Petroleum.—In 2018 and 2019, Tullow Oil plc of the United Kingdom and its joint-venture partners Africa Oil Corp. of Canada and Mærsk Olie og Gas A/S of Denmark produced small amounts of crude petroleum from two oilfields in Turkana County. The companies planned to make a final investment decision on large-scale production from Blocks 10BB and 13T in the Turkana oilfields by the second half of 2020. Production could start in late 2023 and reach 100,000 barrels per day (Smith, 2019).

The development of the project depended on finalizing a water supply agreement and obtaining financing and Government approval of environmental and social impact assessments. Tullow and its joint-venture partners planned to export their production from Lamu. The estimated cost of the upstream facilities was about \$1.8 billion, and the pipeline from the oilfields to Lamu, \$1.1 billion (Smith, 2019).

Outlook

Cement production is likely to increase between 2020 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 also likely to result in increased steel demand. Kenya's steel production could increase between 2020 and 2022 with the construction of Devki's new plant. Iron ore production also could increase between 2020 and 2022 as Samruddha Resources ramps up to full capacity and Devki opens mines to supply its new steel plant.

Manganese production could increase starting in 2020 with the opening of a new mine in Taita Taveta County. Large-scale crude petroleum production could start in late 2023. The outlook for gemstones, ilmenite, rutile, soda ash, and zircon will likely depend on world market conditions.

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TABLE 1
KENYA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
METALS					
Aluminum, metal, secondary	8,145	9,300 ^c	9,700 ^c	10,000 ^{r,c}	11,000 ^c
Gold, mine, Au content kilograms	134	160	503	472	395
Iron ore, mine:					
Gross weight	--	--	--	167,078 ^{r,3}	161,001 ³
Fe content	--	--	--	94,000 ^{r,c}	90,000 ^c
Iron and steel, steel:					
Raw steel ^c	360,000	410,000	430,000	460,000 ^r	480,000
Products:					
Galvanized	256,829	268,652	262,759	270,400	274,400
Rolled ^c	600,000	690,000	720,000	770,000 ^r	800,000
Lead, refinery, secondary ^c	1,100	1,100	1,400	1,500 ^r	1,500
Titanium, mineral concentrates:					
Ilmenite and leucoxene	444,999	468,903	470,317	453,133	341,182
Rutile	78,947	88,288	91,456	95,715	78,961
Zirconium, zircon concentrates	25,951	39,687	42,217	36,387	30,350
INDUSTRIAL MINERALS					
Cement, hydraulic thousand metric tons	6,353	6,715	6,230	6,070	5,967
Clay: ^c					
Bentonite	130	130	140	140	140
Unspecified	880,000	940,000	950,000	810,000	800,000
Diatomite	1,090	1,238	1,406	1,548 ^r	921
Feldspar, mine	--	3	-- ^c	-- ^c	-- ^c
Fluorspar, acid grade	64,395	42,656	--	--	--
Gemstones:					
Amethyst kilograms	40,243	24,168	48,000 ^c	48,000 ^c	48,000 ^c
Aquamarine do.	858	60	8 ^c	8 ^c	8 ^c
Cordierite do.	59	1	2 ^c	2 ^c	2 ^c
Garnet:					
Green do.	994	1,253	1,800 ^c	1,800 ^c	1,800 ^c
Other do.	826	381	2,400 ^c	2,400	2,400 ^c
Ruby do.	6,000	4,300 ^c	3,400 ^c	3,400 ^c	3,400 ^c
Sapphire do.	9,810	22,939	5,600 ^c	5,600 ^c	5,600 ^c
Tourmaline do.	15,530	8,064	3,700 ^c	3,700 ^c	3,700 ^c
Gypsum, including anhydrite, crude	5,800	5,900 ^c	5,800 ^c	6,000 ^c	6,000 ^c
Lime ^c	52,000	52,000	52,000	44,000	29,000
Salt, refined	245,878	262,787 [\]	289,940	290,000 ^c	290,000 ^c
Sand and gravel, industrial, silica sand ^c	27,000	27,000	25,000	25,000	22,000
Soda ash, natural	319,761	301,719	303,580	339,025	230,355
Sulfur, compounds, sulfuric acid ^c	19,000	20,000	21,000	34,000	29,000
Vermiculite	410	--	-- ^c	-- ^c	-- ^c
MINERAL FUELS AND RELATED MATERIALS					
Petroleum, crude thousand 42-gallon barrels	--	--	--	330 ^c	240

^cEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through December 9, 2020. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

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

³Department of Economic and Social Affairs/United Nations Statistics Division, United Nations Comtrade database.

TABLE 2
KENYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(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.	National Cement Company Ltd. (a subsidiary of Devki Group of Companies)	Plant at Athi River	900,000.
Do.	do.	Plant at Nairobi	650,000.
Do.	do.	Plant at Kaloleni	350,000.
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%]	do.	1,300,000.
Do.	Karsan Ramji & Sons Ltd.	do.	220,000.
Do.	do.	Plant at Nakuru	220,000.
Diatomite	African Diatomite Industries Ltd.	Mines at Kariandusi and Soysambu	10,800.
Fluorspar	Kenya Fluorspar 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. ^c
Tourmaline	Artisanal and small-scale miners	Mines in Taita Taveta County	NA.
Gold	do.	Mines in Nyanza, Rift Valley, and Western Provinces	NA.
Iron ore	Samruddha Resources Kenya Ltd.	Mine at Kishushe	180,000. ^c
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.
Phosphate fertilizers	Kel Chemicals Ltd.	Plant at Thika ¹	3,300. ^c
Salt	Krystalline Salt Ltd.	Plant near Malindi	280,000. ^c
Do.	Kensalt Ltd.	Plant at Mombasa	200,000. ^c
Do.	Tata Chemicals Magadi Ltd.	Plant at Magadi	45,000.
Soda ash	do.	Mine at Magadi	715,000. ²
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. (Tononoka Group)	Plant at Nairobi	91,000.
Do.	Numerical Machining Complex (Government, 100%)	do.	20,000.
Rolled	Devki Steel Mills Ltd.	Three plants in Kenya	250,000. ^c
Do.	Mabati Rolling Mills Ltd.	Plant at Mombasa	200,000. ^c
Do.	Athi Steel Ltd.	Plant at Athi River	120,000. ^c
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, mineral concentrates	Base Resources Ltd.	Mine in Kwale County	480,000 ilmenite; 93,000 rutile.
Zirconium concentrates, zircon	do.	do.	47,000.

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

¹Not operating at the end of 2019.

²Only 360,000 metric tons of capacity operating at the end of 2019.

³In addition to its billet and rolled steel facilities, Kenya has several galvanized steel plants.