



2012 Minerals Yearbook

KENYA

THE MINERAL INDUSTRY OF KENYA

By Thomas R. Yager

In 2012, Kenya played a significant role in the world's production of fluor spar and natural soda ash. The country's share of the world's mine production of soda ash amounted to 5%, and fluor spar, 2% (Kostick, 2013; Miller, 2013). Other domestically significant mining and mineral processing operations included cement and petroleum refining. Kenya was not a globally significant consumer of minerals.

Minerals in the National Economy

In 2012, the manufacturing sector accounted for 9.2% of the gross domestic product, and mining and quarrying, 0.7%. The mining and quarrying sector grew by 4.1% in 2012 compared with 7.1% in 2011. Formal employment in the mining and quarrying sector was reported to be about 8,400, or less than 1% of total employment (Kenya National Bureau of Statistics, 2013a).

Production

The production of refined petroleum products decreased by an estimated 37% in 2012, and that of soda ash, by 12%. Cement production increased by 64% from 2008 to 2012; vermiculite, by an estimated 63%; and galvanized steel sheets, by 35%. Iron ore production also increased sharply in recent years (table 1).

Structure of the Mineral Industry

Most of Kenya's mining and mineral processing operations were privately owned, including the diatomite, fluor spar, gemstone, salt, and soda ash mines, the lime plants, and the steel mills. All cement plants except for East African Portland Cement Company Ltd. (EAPC) were privately owned. The Government held a 52% share in EAPC and a 50% share in Kenya Petroleum Refineries Ltd. (KPRL). Artisanal miners produced gemstones and gold (table 2). In late 2012, the Government issued new regulations requiring a 35% domestic share in the Kenyan operations of mining companies. The Government planned to allow companies between 3 and 5 years to comply with the regulations (Wanjohi, 2013).

Commodity Review

Metals

Copper, Gold, Silver, and Zinc.—Artisanal miners accounted for most of Kenya's gold production. Goldplat plc of South Africa started producing small amounts of gold at the Kilimapesa project in January 2012.

In July 2012, Aviva Corporation Ltd. of Australia announced plans to sell its properties in Kenya, which included the Bumbo polymetallic deposit, to African Barrick Gold plc of the United Kingdom. In December, Red Rock Resources plc of the

United Kingdom estimated that total resources at the Mikei Gold project were 29.4 Mt at a grade of 1.26 grams per metric ton gold (Andrews, 2012; Red Rock Resources plc, 2012).

Iron Ore and Iron and Steel.—Kenya imported about 240,000 metric tons per year (t/yr) of iron ore from China, India, the Republic of Korea, and South Africa. Wanjala Mining Company Ltd. mined iron ore at Kishushe (Kenya Engineer, 2012a).

National steel demand was estimated to be between 480,000 and 600,000 t/yr, of which about 10% was imported from South Africa. Tarmal Wire Products Ltd. opened a new rolling mill with a capacity of 84,000 t/yr in late 2011. Devki Steel Mills Ltd. (a subsidiary of Devki Group of Companies) produced about 250,000 t/yr from its three steel plants. By 2014, Devki planned to build a new steel mill in Taita-Taveta District with a capacity of 1 million metric tons per year (Mt/yr). The company planned to import about 60% of the required iron ore from South Africa and to mine 40% in Kenya. The Government also planned to build a new steel plant with a capacity of 350,000 t/yr (Odihambo, 2011; Kenya Engineer, 2012a).

Niobium (Columbium).—In July 2011, Pacific Wildcat Resources Corp. (PAW) of Canada estimated that niobium resources at the Mrima Hill project were 105 Mt at a grade of 0.65% niobium pentoxide. PAW planned to complete an updated resource estimate in the second quarter of 2013; the company hoped to identify sufficient resources for a mine with a 15-year life (Pacific Wildcat Resources Corp., 2012, p. 20, 36).

Titanium and Zirconium.—In May 2012, Base Resources Ltd. of Australia completed a feasibility study on a new mine at the Kwale mineral sands deposit. Base Resources planned to start mining in 2013. The life of the mine was estimated to be 13 years. During the first 7 years of the project, ilmenite production was likely to be 330,000 t/yr; rutile, 79,000 t/yr; and zircon, 30,000 t/yr. In the subsequent 6 years, production was expected to decrease to an average of 200,000 t/yr of ilmenite, 55,000 t/yr of rutile, and 19,000 t/yr of zircon (Ollett, 2012).

Industrial Minerals

Cement.—Kenya had six cement producers with a combined capacity of about 7.8 Mt/yr. National cement output increased to 4.64 Mt in 2012 from 4.48 Mt in 2011 and 3.71 Mt in 2010. Savannah Cement Ltd. (Savannah Heights, 40%; Wan-Ho of China, 40%; and Acme Cement of China, 20%) opened a new plant in Athi River with a capacity of 1.5 Mt/yr in 2012. Bamburi Cement Ltd. increased its capacity to 2.5 Mt/yr. National Cement Company Ltd. (a subsidiary of Devki Group) planned to increase its capacity to 2 Mt/yr from 350,000 t/yr in 2013 by opening a new plant (Dyer & Blair Investment Bank Ltd., 2012; Mutegi, 2012; Bamburi Cement Ltd., 2013, p. 9; Kenya National Bureau of Statistics, 2013b, p. 34).

Cement consumption increased to 3.94 Mt in 2012 from 3.87 Mt in 2011. Bamburi's market share was estimated to be 40% prior to the opening of Savannah's plant; EAPC, 24%; ARM Cement Ltd., 16%; Mombasa Cement Ltd., 13%; and National, 7% (Dyer & Blair Investment Bank Ltd., 2012; Kenya National Bureau of Statistics, 2013b, p. 34).

Fluorspar.—In 2012, Kenya Fluorspar Company Ltd. (KFC) produced 110,000 metric tons (t) of fluorspar at its Kimwarer Mine compared with 117,420 t in 2011. KFC's plans to increase production were on hold in late 2012 because of low worldwide demand for fluorspar; prices of downstream products declined in 2012 (Hughes, 2012).

Rare Earths.—PAW planned to complete a rare-earths resource estimate at Mrima Hill in the first quarter of 2013. The company hoped to identify resources of between 30 and 40 Mt at a grade of between 4% and 5% rare-earth oxides (Pacific Wildcat Resources Corp., 2012, p. 25).

Soda Ash.—Tata Chemicals Magadi Ltd. of India (formerly Magadi Soda Ash Ltd.) mined trona from Lake Magadi. Production was constrained by flooding in the second quarter of 2012. Tata Chemicals Magadi planned to increase production capacity at Lake Magadi to 1 Mt/yr by the end of 2014. Soda ash was consumed domestically by glass producers and by ARM in the production of sodium silicate, which was used in detergents, soaps, and chemical and metallurgical applications (Tata Chemicals Ltd., 2011, 2012).

Mineral Fuels

Natural Gas and Petroleum.—Tullow Oil plc of the United Kingdom and joint-venture partner Africa Oil Corp. of Canada discovered petroleum at the Ngamia-1 well in Block 10BB in March 2012 and at the Twiga-1 well in Block 13T in October. Tullow and its joint-venture partners also drilled for natural gas in Block 8L (Kenya Engineer, 2013).

Production at KPRL's refinery decreased to about 7.9 million barrels (Mbbbl) in 2012 from 12.6 Mbbbl in 2011. The decrease was reportedly attributable to reduced purchases by companies that marketed petroleum products because of KPRL's high costs. By 2015, the company planned to increase its capacity by 150% at a cost of \$1.2 billion (Kenya Engineer, 2012b).

Outlook

Cement production is likely to increase because of the increased capacity at existing plants and the construction of new plants. Cement demand is expected to increase because of the Government's Vision 2030 plan to build new infrastructure. The production of gypsum, limestone, and pozzolanic materials for use in the cement industry could also increase. The Vision 2030 plan called for increasing Kenya's power-generating

capacity from 1,359 megawatts (MW) in 2012 to at least 7,000 MW by 2020 and 15,000 MW by 2030. Domestic coal resources could be developed to supply a new 400-MW coal-fired power station (Muchira, 2012).

Iron ore, soda ash, and steel production are likely to increase by 2015. The outlook for fluorspar and gemstones depends heavily on world market conditions. Depending on the success of exploration programs, crude petroleum production was likely to require at least 5 years to start. The development of future mineral projects could be constrained by the domestic ownership requirements passed in late 2012 (Kenya Engineer, 2013).

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TABLE 1
KENYA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012 ^c
Aluminum, secondary ^c	6,600 ^r	7,200 ^r	7,300 ^r	8,000 ^r	8,000
Carbon dioxide gas, natural	22,030	15,711	16,345	16,275 ^r	16,000
Cement, hydraulic thousand metric tons	2,829	3,320	3,710	4,478 ^r	4,640 ³
Clays: ^c					
Bentonite	70	65	70	75 ^r	75
Kaolin	940	900 ^r	980 ^r	1,100 ^r	1,100
Other	25,000	24,000 ^r	26,000 ^r	28,000 ^r	28,000
Diatomite ⁴	72	231	224	713 ^r	710
Feldspar	30	30	30	35 ^r	35
Fluorspar, acid grade	98,248	15,667	44,500	117,420	110,000 ³
Gemstones, precious and semiprecious: ^c					
Amethyst kilograms	60	45	50	60	60
Aquamarine do.	210	170	190	210	210
Cordierite, iolite do.	80	60	70	80	80
Green garnet do.	821 ³	965 ³	1,075 ³	1,205 ^{r,3}	1,200
Ruby do.	4,950 ³	5,575 ³	5,450 ³	6,240 ^{r,3}	6,200
Sapphire do.	2,600	2,900	2,800	2,800	2,800
Tourmaline do.	7,000	5,600	6,300	7,000	7,000
Gold, mine output, Au content ⁴ do.	340	1,055	2,355 ^r	1,636 ^r	1,600
Gypsum and anhydrite ⁵	5,000	5,345	5,500	6,520 ^r	6,800
Iron ore: ^c					
Gross weight	700 ^r	7,000 ^r	11,000	11,000	11,000
Fe content	300 ^r	4,200 ^r	6,600 ^r	6,600 ^r	6,600
Lead, refined secondary ^c	1,000	500	250	250	250
Lime ^c	50,000	45,000	47,000	50,000	50,000
Petroleum refinery products:					
Gasoline thousand 42-gallon barrels	1,549	1,340	1,547	1,522 ^r	940
Kerosene do.	742	835	803 ^r	870 ^r	640
Jet fuel do.	1,753	1,990	1,935 ^r	2,100 ^r	1,300
Distillate fuel oil do.	2,790	2,907	2,933	3,203 ^r	2,000
Residual fuel oil do.	3,431	3,316	2,994	3,463 ^r	2,100
Liquefied petroleum gas do.	379	341	339 ^r	320 ^r	200
Other do.	652	913	1,059	1,150	720
Total do.	11,296 ^r	11,642 ^r	11,610 ^r	12,600 ^r	7,900
Salt, crude ⁶	24,345	24,125	6,194	24,639 ^r	25,000
Soda ash	502,846 ^r	404,904	473,689	499,052 ^r	440,000
Steel: ^c					
Crude	240,000 ^r	260,000 ^r	260,000 ^r	290,000 ^r	290,000
Semimanufactured	420,000 ^r	450,000 ^r	450,000 ^r	500,000 ^r	500,000
Galvanized	189,321	182,151	201,410	268,096 ^r	255,815 ³
Sand, industrial; glass ^c	16,000	15,000	17,000 ^r	18,000 ^r	18,000
Sulfuric acid ^c	20,000	19,000	23,000 ^r	25,000 ^r	25,000
Vermiculite	320	315	395	515 ^r	520

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

¹Table includes data available through February 10, 2014.

²In addition to the commodities listed, a variety of minerals and construction materials [brick clays, gravel, murram (laterite), crushed rock, and construction sand] may be produced, but quantities are not reported, and available information is inadequate to make reliable estimates of output.

³Reported figure.

⁴Exports.

⁵Gypsum production for use in cement only.

⁶Production by Magadi Soda Ash Ltd. only.

TABLE 2
KENYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Aluminum, secondary		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
Do.		Aluminium Extruders	Plant at Nairobi	800
Carbon dioxide gas, natural		Carbacid Ltd.	do.	35,000
Cement		Bamburi Cement Ltd. (Lafarge Group, 58.6%)	Plants at Bamburi and Mombasa	2,500,000
Do.		Savannah Cement Ltd. (Savannah Heights, 40%; Wan-Ho, 40%; Acome 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.	1,400,000
Do.		ARM Cement Ltd.	Plant at Nairobi	650,000
Do.		do.	Plant at Kaloleni	360,000
Do.		Mombasa Cement Ltd.	Plant at Athi River	1,000,000
Do.		National Cement Company Ltd. (a subsidiary of Devki Group of Companies)	do.	350,000
Diatomite		African Diatomite Industries Ltd.	Kariandusi and Soysambu	4,000
Fluorspar		Kenya Fluorspar Company Ltd.	Mine at Kimwarer	120,000
Garnet	kilograms	Bridges Exploration Ltd.	Scorpion Mine in Taita Taveta	40
Glass		Central Glass Industries Ltd.	Plant at Nairobi	51,000
Do.		Milly Glass Works Ltd.	Plant at Mombasa	40,000
Gold	kilograms	Artisanal miners	Mines in Nyanza, Rift Valley, and Western Provinces	NA
Iron ore		Wanjala Mining Co.	Mine at Kishushe	10,000
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	25,000
Petroleum, refined	thousand 42 -gallon barrels	Kenya Petroleum Refineries Ltd. (KPRL) (Government, 50%, and Essar Energy Overseas Ltd., 50%)	Refinery at Mombasa	14,600
Ruby and sapphire	kilograms	Rockland Kenya Ltd.	Mine at Kasigau	6,000 ^c
Salt		Kensalt Ltd.	Plant at Mombasa	250,000
Do.		Tata Chemicals Magadi Ltd.	Plant at Magadi	45,000
Do.		Mombasa Salt Works Ltd. and others	Mines near Malindi	NA
Soda ash		Tata Chemicals Magadi Ltd.	Mine at Magadi	715,000
Sodium silicate		ARM Cement Ltd.	Plants at Athi River and Kaloleni	60,000
Steel: ¹				
Crude		Devki Steel Mills Ltd.	Three plants in Kenya	250,000
Do.		Numerical Machining Complex	Plant at Nairobi	20,000
Do.		Kenya United Steel Company Ltd. (subsidiary of Alam Group of Companies)	Plant at Mombasa	20,000
Billet		Devki Steel Mills Ltd.	Three plants in Kenya	250,000
Do.		Kenya United Steel Company Ltd.	Plant at Mombasa	20,000 ^c
Do.		Numerical Machining Complex	Plant at Nairobi	20,000 ^c
Rolled		Mabati Rolling Mills Ltd.	do.	135,000 ^c
Do.		Numerical Machining Complex	do.	100,000
Do.		Tarmal Wire Products Ltd.	Plant at Mombasa	84,000
Do.		Standard Rolling Mills Ltd.	do.	80,000
Do.		Devki Steel Mills Ltd.	Plant at Nairobi	36,000
Do.		Kenya United Steel Company Ltd.	Plant at Mombasa	30,000
Sulfuric acid		Kel Chemicals Ltd.	Plant at Thika	14,600
Do.		Pan Africa Chemicals Ltd.	Plant at Webuye	NA

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

¹In addition to its billet and rolled steel facilities, Kenya has several galvanized steel plants.