



2011 Minerals Yearbook

KENYA

THE MINERAL INDUSTRY OF KENYA

By Thomas R. Yager

In 2011, 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 4%, and fluor spar, 2%. Other domestically significant mining and mineral processing operations included cement and petroleum refining. Kenya was not a globally significant consumer of minerals (Kostick, 2012; Miller, 2012).

Minerals in the National Economy

In 2011, the manufacturing sector accounted for 9.4% of the gross domestic product, and mining and quarrying, 0.5%. The mining and quarrying sector grew by 7.1% in 2011 compared with a revised 9.7% in 2010. Formal employment in the mining and quarrying sector was reported to be about 8,800 (Kenya National Bureau of Statistics, 2012a, p. 12, 14, 32).

Production

Fluor spar production increased by 164% in 2011, and galvanized steel sheets, by 34%. The production of several gemstones was estimated to have increased by between 10% and 20%. Cement production increased by 56% from 2007 to 2011, and galvanized steel sheets, by 44%. 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 Africa 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.

Commodity Review

Metals

Copper, Gold, Silver, and Zinc.—The Government awarded a mining license to Goldplat plc of South Africa for the Kilimapesa gold project in November 2011. Goldplat planned initial production of about 160 kilograms per year of gold at Kilimapesa (Mining Journal, 2011b).

In September 2011, Aviva Corporation Ltd. of Australia estimated that resources at the Bumbo deposit were 1.68 million metric tons (Mt) at a grade of 5.4% zinc, 1.8% copper, 36.8 grams per metric ton (g/t) silver, and 0.7 g/t gold. Aviva planned to start a scoping study in the first quarter of 2012. In December, Red Rock Resources plc of the United Kingdom estimated that resources at the KKM prospect, which was part of the Mikei Gold project, were 17.8 Mt at a grade of 1.01 g/t gold. Red Rock

planned to start resource estimates on four other prospects in the first quarter of 2012 (Aviva Corporation Ltd., 2011; Red Rock Resources plc, 2011).

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 Co. mined iron ore at Kishushe; the company had a contract to supply 10,000 t/yr for domestic consumption (Parliament of the Republic of Kenya, 2011, p. 14; Kenya Engineer, 2012b).

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 (Odihambo, 2011; Kenya Engineer, 2012b).

Steel was consumed in the production of galvanized steel sheets. In 2011, the production of galvanized steel sheets increased to 268,096 metric tons (t) from 201,410 t in 2010 and 182,151 t in 2009 (Kenya National Bureau of Statistics, 2012b, p. 33).

Niobium (Columbium) and Rare Earths.—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 also identified rare-earth element (REE) mineralization at Mrima Hill, which was a carbonatite deposit. By the end of the second quarter of 2012, the company hoped to identify a rare-earth resource of between 10 and 20 Mt at grades of between 3% and 5% REE (Pacific Wildcat Resources Corp., 2011).

Titanium and Zirconium.—In May 2011, Base Resources Ltd. of Australia completed a feasibility study on a new mine at the Kwale mineral sands deposit. The company subsequently started construction on the mine, which it planned to complete by 2013 at an estimated cost of \$256 million. 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 (Mining Journal, 2011a; Sizer, 2011).

Industrial Minerals

Cement.—Kenya had five cement producers with a combined capacity of nearly 5.7 Mt/yr. National cement production increased to 3.97 Mt in 2011 from 3.71 Mt in 2010. The increased output was attributable to the construction of new

plants and the recent capacity expansions at existing plants. Cement consumption increased to 3.43 Mt in 2011 from 3.1 Mt in 2010 (International Cement Review, 2010, 2011; Kenya National Bureau of Statistics, 2012b, p. 34).

National Cement Company Ltd. (a subsidiary of Devki Group of Companies) opened a new plant with a capacity of 400,000 t/yr in November 2010. The company planned to increase its capacity to 2.5 Mt/yr in 2012. Athi River Mining Ltd. (ARM) opened a new plant with a capacity of 730,000 t/yr in December 2010. Mombasa Cement Ltd. increased its capacity to 700,000 t/yr in 2011 and planned a further increase to 1.4 Mt/yr in 2012 from 500,000 t/yr in 2010. Savannah Cement Ltd. (Savannah Heights, 40%; Wan-Ho of China, 40%; and Acme Cement of China, 20%) planned to complete a new plant in Athi River with a capacity of 1.5 Mt/yr in March 2012 (International Cement Review, 2010; Kenya Engineer, 2011; 2012a).

Fluorspar.—In August 2010, Kenya Fluorspar Co. (KFC) reopened the Kimwarer Mine, which was shut down because of the worldwide economic crisis. Acid-grade fluorspar prices increased sufficiently for the mine to reopen by the end of the second quarter of 2010; KFC had indicated that prices of at least \$270 per metric ton were necessary. In 2011, output was 117,420 t compared with 44,500 t in 2010 as the mine had a full year of production (Industrial Minerals, 2010; Roberts, 2010, 2011).

Soda Ash.—Tata Chemicals Magadi Ltd. (formerly Magadi Soda Ash Ltd.) mined trona from Lake Magadi. The company was exporting soda ash from Lake Magadi at the rate of about 650,000 t/yr in November 2011. 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).

Mineral Fuels

Petroleum.—Tullow Oil plc of the United Kingdom and joint-venture partner Africa Oil Corp. of Canada planned to drill the Ngamia exploration well in Block 10BB in January 2012. Africa Oil also held interests in Blocks 9, 10A, 10BA, 12A, and 13T (Africa Oil Corp., 2011).

KPRL operated a refinery at Mombasa with a capacity of 40,000 barrels per day that supplied petroleum products to Burundi, Congo (Kinshasa), Kenya, Rwanda, and Uganda. By 2016, KPRL planned to double its capacity at a cost of \$900 million (Muchira, 2011).

Outlook

Cement production is likely to increase because of the increased capacity at existing plants and the construction of

new plants. Cement demand in Kenya is expected to increase because of the Government's plans to build new housing and to industrialize Kenya by 2030. The production of gypsum, limestone, and pozzolanic materials for use in the cement industry could also increase. Iron ore, soda ash, and steel production is likely to increase by 2015. The outlook for fluorspar and gemstones depends heavily on world market conditions (International Cement Review, 2011).

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TABLE 1
KENYA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2007	2008	2009	2010	2011 ^e
Aluminum, secondary ^e	6,000 ^r	6,000	5,500	6,000	6,000
Carbon dioxide gas, natural	11,028	22,030	15,711	16,345 ^r	17,000
Cement, hydraulic thousand metric tons	2,546	2,829	3,320	3,710	3,969 ³
Clays: ^e					
Bentonite	70	70	65	70	70
Kaolin	910	940	850	900	950
Other	24,000	25,000	23,000	24,000	25,000
Diatomite ⁴	201	72	231	224 ^{r,3}	230
Feldspar	30	30	30	30	30
Fluorspar, acid grade	82,000	98,248	15,667	44,500	117,420 ³
Gemstones, precious and semiprecious: ^e					
Amethyst kilograms	80	60	45	50	60
Aquamarine do.	290	210	170	190	210
Cordierite, iolite do.	100	80	60	70	80
Green garnet do.	815 ^{r,3}	821 ^{r,3}	965 ^{r,3}	1,075 ^{r,3}	1,100
Ruby do.	4,800 ^{r,3}	4,950 ^{r,3}	5,575 ^{r,3}	5,450 ^{r,3}	5,500
Sapphire do.	2,500 ^r	2,600 ^r	2,900 ^r	2,800 ^r	2,800
Tourmaline do.	9,400	7,000	5,600	6,300	7,000
Gold, mine output, Au content ⁴ do.	3,023	340	1,135 ^r	2,035 ^r	2,100
Gypsum and anhydrite	5,000 ^r	5,000 ^r	5,345 ^r	5,500 ^r	5,500
Iron ore ^e					
Gross weight	350	360	330	11,000 ^r	11,000
Fe content	220	220	200	6,800	6,800
Lead, refined secondary ^e	1,000	1,000	500	250	250
Lime ^e	50,000	50,000	45,000	47,000	50,000
Petroleum refinery products:					
Gasoline thousand 42-gallon barrels	1,763	1,549	1,340	1,547 ^r	1,600
Kerosene do.	796	742	835 ^r	810 ^r	850
Jet fuel do.	1,871	1,753	1,990 ^r	1,930 ^r	2,000
Distillate fuel oil do.	2,958	2,790	2,907	2,933 ^r	3,000
Residual fuel oil do.	3,558	3,431	3,316 ^r	2,994 ^r	3,100
Liquefied petroleum gas do.	385	379	341	339 ^r	350
Bitumen do.	101	75	2	96	100
Total do.	11,432 ^r	10,719 ^r	10,731 ^r	10,649 ^r	11,000
Salt, crude ⁵	11,596	24,345	24,125	6,194 ^r	6,200
Soda ash	386,598	513,415	404,904	473,689	499,100 ³
Steel:					
Crude	250,000	250,000	250,000	250,000	250,000
Semimanufactured	500,000	500,000	500,000	500,000	500,000
Galvanized	188,260	189,321	182,151	201,410	270,540 ³
Stone, sand and gravel: ^e					
Granite for dimension stone	NA ^r	NA ^r	NA ^r	NA ^r	NA
Limestone for cement thousand metric tons	NA ^r	NA ^r	NA ^r	NA ^r	NA
Limestone for dimension stone	NA ^r	NA ^r	NA ^r	NA ^r	NA
Marble for dimension stone	NA ^r	NA ^r	NA ^r	NA ^r	NA
Sand, industrial; glass	16,000 ^r	16,000	15,000	16,000	16,000
Shale	NA ^r	NA ^r	NA ^r	NA ^r	NA
Sulfuric acid ^e	20,000	20,000	19,000	20,000	20,000
Vermiculite	300	320	315	395	400

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

¹Table includes data available through January 10, 2013.

²In addition to the commodities listed, a variety of minerals (including sodium silicate) 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.

⁵Production by Magadi Soda Ash Ltd. only.

TABLE 2
KENYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(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.	Mine at Kereita	23,000
Cement		Bamburi Cement Ltd. (Lafarge Group, 58.6%)	Plant at Mombasa	1,200,000
Do.		do.	Plant at Nairobi	1,000,000
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	1,350,000
Do.		Athi River Mining Ltd. (ARM)	Plant at Nairobi	730,000
Do.		do.	Plant at Kaloleni	300,000
Do.		Mombasa Cement Ltd.	Plant at Athi River	700,000
Do.		National Cement Company Ltd. (a subsidiary of Devki Group of Companies)	do.	400,000
Diatomite		African Diatomite Industries Ltd.	Kariandusi and Soysambu	4,000
Fluorspar		Kenya Fluorspar Ltd.	Mine at Kerio Valley	100,000
Garnet	kilograms	Bridges Exploration Ltd	Scorpion Mine in Taita Taveta	40
Glass		Central Glass Industries Ltd.	Plant at Nairobi	47,500
Do.		Bawazir Glass Works Ltd.	Plant at Mombasa	NA
Gold	kilograms	Artisanal miners	Mines in Nyanza, Rift Valley, and Western Provinces	NA
Iron ore		Wanjala Mining Co.	Mine at Wanjala	10,000
Lead, refined secondary		Associated Battery Manufacturers Company Ltd.	Plant at Athi River	3,000
Lime		Homa Lime Company Ltd.	Plant at Koru	30,000
Do.		Athi River Mining 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 ^e
Salt		Kensalt Ltd.	Plant at Mombasa	120,000
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		Athi River Mining Ltd. (ARM)	Plants at Athi River and Kaloleni	60,000
Steel: ¹				
Crude		Devki Steel Mills Ltd.	Three plants in Kenya	250,000
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 ^e
Rolled		Mabati Rolling Mills Ltd.	do.	100,000
Do.		Tarmal Wire Products Ltd.	do.	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	14,500
Do.		Pan Africa Chemicals Ltd.	Plant at Webuye	NA

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

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