



# 2008 Minerals Yearbook

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## KENYA

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# THE MINERAL INDUSTRY OF KENYA

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In 2008, Kenya played a significant role in the world's production of fluorspar and natural soda ash. The country's share of the world's mine production of soda ash amounted to 3%, and that of fluorspar, to nearly 2%. Other domestically significant mineral processing operations included cement and petroleum refining. Kenya was not a globally significant consumer of minerals (Kostick, 2009; Miller, 2009).

## Minerals in the National Economy

In 2008, the manufacturing sector accounted for 10% of the gross domestic product, and mining and quarrying, 0.5%. The mining and quarrying sector grew by 3.2% in 2008 compared with 12.9% in 2007 and 4.1% in 2006. Formal employment in the mining and quarrying sector was reported to be 6,300 in 2007 (the latest year for which data were available); total mining and quarrying employment was estimated to be more than 50,000 (Poggiolini, 2007; Central Bank of Kenya, 2009b, p. 14).

## Production

In 2008, the production of salt by Magadi Soda Ash Ltd. increased by 110%; natural carbon dioxide gas, by 100%; soda ash, by 33%; cement, by 23%; and fluorspar, by 19%. From 2003 to 2008, soda ash production increased by 46%. In 2008, Kenya's gold production decreased by 89%, and diatomite, by 64%. The production of most gemstones was estimated to have decreased by between 20% and 25%.

## Structure of the Mineral Industry

Most of Kenya's mining and mineral processing operations were privately owned, including the diatomite, fluorspar, gemstone, salt, and soda ash mines, the lime plants, and the steel mills. Athi River Mining Ltd. (ARM) and Bamburi Cement Ltd. were privately owned. The Government held a 52% share in East Africa Portland Cement Co. Ltd. (EAPC) and a 50% share in Kenya Petroleum Refineries Ltd. (KPRL). Artisanal miners produced gemstones and gold in areas that included Nyanza, Rift Valley, and Western Provinces.

## Commodity Review

### Metals

**Gold.**—Artisanal miners accounted for Kenya's gold production. Goldplat plc of South Africa and International Gold Exploration AB (IGE) of Sweden were engaged in a joint venture to produce gold at Kilimapesa. The companies planned to export gold from an underground mine and from the tailings of artisanal mining operations to South Africa starting in April 2009. IGE also conducted stream sampling at Rongo and Sekerr in 2008 (International Gold Exploration AB, 2009, p. 17-18).

### Industrial Minerals

**Cement.**—Kenya had three cement producers with a combined capacity of 3.1 million metric tons per year (Mt/yr). National cement production increased to 3.13 million metric tons (Mt) in 2008 from a revised 2.55 Mt in 2007. The increased output was attributable to recent capacity expansions and increased utilization of existing capacity (Central Bank of Kenya, 2009a, p. 18).

EAPC planned to increase its capacity to about 1.4 Mt/yr from 720,000 metric tons per year (t/yr) in 2009. ARM planned to complete the expansion of its capacity to 600,000 t/yr from 300,000 t/yr in 2010. The estimated cost of ARM's expansion was \$15 million. Catic Cement (Kenya) Company Ltd., which was owned by Chinese investors, planned to build a new cement plant in Kitengela with a capacity of 440,000 t/yr. In April 2008, Catic agreed to relocate the proposed plant to a new site adjacent to EAPC's plant because of environmental concerns about dust and other pollutants. The company started negotiations with a local landowner for a long-term lease agreement (Building Bulletin, 2008; National Environmental Management Authority, 2008; Onyango, 2008).

In 2008, Kenya's cement consumption increased to nearly 2.79 Mt compared with about 2.02 Mt in 2007 because of growth in the construction sector. Bamburi held a 59% share of the domestic cement market; EAPC, 30%; and ARM, 11% (Omondi, 2008; Central Bank of Kenya, 2009a, p. 21).

**Fluorspar.**—In 2008, Kenya Fluorspar Co. (KFC) increased its production to 98,248 metric tons (t) from 82,000 t in 2007. The increase may have been attributable to recent improvements to the plant and equipment that included an upgrade of the crushing system. Most of KFC's production was exported to India (East African, 2008).

**Gemstones.**—Rockland Kenya Ltd. mined ruby and pink sapphire at the John Saul Mine in southern Kenya. In the first half of 2008, Rockland was producing at the rate of between 200 and 500 kilograms per month. Most of the mine's output, which was cabochon grade, was exported to Thailand for cutting (Laurs, 2008).

Tsavorite, which is a green grossular garnet that obtains its color from trace amounts of chromium and vanadium, was produced in southern Kenya. Local mines employed between 10 and 50 miners each; most of the mines were not mechanized. Altogether, about 2,000 Kenyans were reportedly employed in tsavorite mining and trading (Pardieu and Hughes, 2009).

**Soda Ash.**—Magadi Soda Ash Ltd. mined trona from Lake Magadi. The production of soda ash increased to 513,415 t in 2008 from 386,598 t in 2007. Recent production increases were attributable to a new processing plant that increased capacity to 715,000 t/yr from 350,000 t/yr (table 2). Most of Magadi's output was exported. Soda ash was consumed domestically by ARM in the production of sodium silicate, which was used in detergents, soaps, and chemical and metallurgical applications.

In 2008, ARM planned to produce sodium silicate at its plant's full capacity of 60,000 t/yr. Soda ash was also consumed by domestic glass producers (Makarudze and Hoffman, 2008; Central Bank of Kenya, 2009a, p. 18).

**Stone, Crushed.**—Most of Kenya's coral and limestone was produced in Coastal Province; pozzolanic materials were produced in Rift Valley Province. ARM and Bamburi were engaged in a dispute concerning mining rights to the Mutomo limestone deposits in Eastern Province. The local government divided the disputed property between ARM and Bamburi; ARM was awarded a 33-year mining license for its part of the property. Bamburi appealed the decision, and the dispute was unresolved at the end of 2008 (Choto, 2009).

### **Mineral Fuels**

**Petroleum.**—China National Offshore Oil Company Ltd. and Lundin Petroleum AB of Sweden planned to drill an exploration well on Block 9 in north-central Kenya by the third quarter of 2009. Vangold Resources Ltd. of Canada planned to drill an exploration well at Block 3A by 2010. East African Exploration Ltd. (a subsidiary of Black Marlin Energy Group of the United Arab Emirates) planned to drill exploration wells at Blocks L17 and L18 by 2010 or 2011. Dana Petroleum (E&P) Ltd. of the United Kingdom and Global Petroleum Ltd. terminated their joint venture with Woodside Energy Ltd. of Australia for Blocks L5 and L7 after Woodside decided not to drill a second exploration well (East African Exploration Ltd., 2008; Senelwa, 2008; Vangold Resources Ltd., 2009).

### **Outlook**

Cement production is likely to increase because of the increased capacity at ARM, EAPC, and the new plant to be built by Catic. Cement demand in east Africa is expected to increase to 11 Mt/yr in 2012 from 5.5 Mt/yr in 2008. The production of gypsum, limestone, and pozzolanic materials for use in the cement industry could also increase. The outlook for fluorspar, gemstones, and soda ash depends heavily on world market conditions; the world financial crisis could cause reduced production in 2009 (Building Bulletin, 2008).

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TABLE 1  
KENYA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2004	2005	2006 <sup>e</sup>	2007 <sup>e</sup>	2008 <sup>e</sup>
Aluminum, secondary <sup>e</sup>	2,400	2,400	2,400	2,400	2,400
Carbon dioxide gas, natural	5,982	8,723	9,359 <sup>3</sup>	11,028 <sup>r,3</sup>	22,030 <sup>3</sup>
Cement, hydraulic thousand metric tons	1,789	2,123	2,174 <sup>3</sup>	2,546 <sup>r,3</sup>	3,135 <sup>3</sup>
Clays: <sup>e</sup>					
Bentonite	50	50	60	70 <sup>r</sup>	70
Kaolin	760	780	810 <sup>r</sup>	910 <sup>r</sup>	940
Other	20,000	20,000	21,000 <sup>r</sup>	24,000 <sup>r</sup>	25,000
Diatomite <sup>4</sup>	330	243	185 <sup>3</sup>	201 <sup>r,3</sup>	72 <sup>3</sup>
Feldspar	40	22 <sup>3</sup>	25	30 <sup>r</sup>	30
Fluorspar, acid grade	108,000	97,261	83,428 <sup>3</sup>	82,000 <sup>3</sup>	98,248 <sup>3</sup>
Gemstones, precious and semiprecious: <sup>e</sup>					
Amethyst kilograms	82 <sup>3</sup>	73 <sup>3</sup>	75	80 <sup>r</sup>	60
Aquamarine do.	331 <sup>3</sup>	250	260	290 <sup>r</sup>	210
Cordierite, iolite do.	92 <sup>3</sup>	81 <sup>3</sup>	85	100 <sup>r</sup>	80
Green garnet do.	1,603 <sup>3</sup>	800	830	940 <sup>r</sup>	700
Ruby do.	4,758 <sup>3</sup>	5,100	5,300	6,000 <sup>r</sup>	4,500
Sapphire do.	2,000	3,500	3,600	4,100 <sup>r</sup>	3,000
Tourmaline do.	4,000	8,000	8,300	9,400 <sup>r</sup>	7,000
Gold, mine output, Au content <sup>4</sup> do.	567	616	432 <sup>3</sup>	3,023 <sup>r,3</sup>	340 <sup>3</sup>
Gypsum and anhydrite <sup>e</sup>	8,900	9,100	9,500 <sup>r</sup>	11,000 <sup>r</sup>	11,000
Iron ore <sup>e</sup>	500	300 <sup>3</sup>	310 <sup>r</sup>	350 <sup>r</sup>	360
Lead, refined secondary	1,000	1,000	1,000	1,000	1,000
Lime <sup>e</sup>	50,000	50,000	50,000	50,000	50,000
Petroleum refinery products:					
Gasoline thousand 42-gallon barrels	2,346	2,294 <sup>r</sup>	1,527 <sup>3</sup>	1,500 <sup>r,3</sup>	1,500
Kerosene <sup>5</sup> do.	734 <sup>r</sup>	711	912 <sup>3</sup>	796 <sup>r,3</sup>	800
Jet fuel <sup>5</sup> do.	1,681 <sup>r</sup>	1,626	1,792 <sup>3</sup>	1,871 <sup>r,3</sup>	1,900
Distillate fuel oil do.	2,890 <sup>r</sup>	2,793 <sup>r</sup>	2,748 <sup>r,3</sup>	2,962 <sup>r,3</sup>	3,000
Residual fuel oil do.	4,295 <sup>r</sup>	3,815 <sup>r</sup>	4,127 <sup>r,3</sup>	3,556 <sup>r,3</sup>	3,600
Liquefied petroleum gas do.	331 <sup>r</sup>	318 <sup>r</sup>	365 <sup>r,3</sup>	383 <sup>r,3</sup>	380
Other do.	758 <sup>r</sup>	959 <sup>r</sup>	935 <sup>r,3</sup>	930 <sup>r,3</sup>	920
Total do.	13,035 <sup>r</sup>	12,516 <sup>r</sup>	12,406 <sup>r,3</sup>	11,998 <sup>r,3</sup>	12,100
Salt, crude <sup>6</sup>	31,139 <sup>r</sup>	26,595 <sup>r</sup>	35,024 <sup>r,3</sup>	11,596 <sup>r,3</sup>	24,345 <sup>3</sup>
Soda ash	353,835	360,161	374,210 <sup>3</sup>	386,598 <sup>3</sup>	513,415 <sup>3</sup>
Stone, sand and gravel: <sup>e</sup>					
Granite for dimension stone	200	200	210 <sup>r</sup>	240 <sup>r</sup>	240
Limestone for cement thousand metric tons	870	1,000	1,100 <sup>r</sup>	1,200 <sup>r</sup>	1,500
Limestone for dimension stone	34,000	35,000	36,000 <sup>r</sup>	41,000 <sup>r</sup>	42,000
Marble for dimension stone	130	130	130	150 <sup>r</sup>	150
Sand, industrial; glass	13,000	14,000	14,000	16,000 <sup>r</sup>	16,000
Shale	210,000	210,000	220,000 <sup>r</sup>	250,000 <sup>r</sup>	260,000
Sulfuric acid	20,000 <sup>e</sup>	20,000 <sup>e</sup>	20,000	20,000	20,000

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto.

<sup>1</sup>Table includes data available through March 11, 2010.

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

<sup>3</sup>Reported figure.

<sup>4</sup>Exports.

<sup>5</sup>Formerly combined as jet fuel and kerosene.

<sup>6</sup>Production by Magadi Soda Ash Ltd. only.

TABLE 2  
KENYA: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Carbon dioxide gas, natural		Carbacid Ltd.	Mine at Kereita	22,000 <sup>e</sup>
Cement		Bamburi Cement Ltd. (Lafarge Group, 58.6%)	Plants at Mombasa and Nairobi	2,100,000
Do.		East African Portland Cement Co. Ltd. (EAPC) (Lafarge Group, 41.7%; National Social Security Fund, 27%; Government, 25%)	Plant at Athi River	720,000
Do.		Athi River Mining Ltd. (ARM)	Plant at Kaloleni	300,000
Diatomite		African Diatomite Industries Ltd.	Kariandusi and Soysambu	4,000
Fluorspar		Kenya Fluorspar Ltd.	Mine at Kerio Valley	120,000
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
Lead, refined secondary		Associated Battery Manufacturers Co. Ltd.	Plant at Athi River	3,000
Lime		Homa Lime Company Ltd.	Plant at Koru	30,000
Do.		Athi River Mining Ltd. (ARM)	Plant at Kaloleni	25,000
Petroleum, refined	thousand 42-gallon barrels	Kenya Petroleum Refineries Ltd. (KPRL) (Government, 50%; Royal Dutch/Shell Group, 17.1%; BP p.l.c., 17.1%; and Chevron Corp., 15.8%)	Refinery at Mombasa	31,500
Ruby and sapphire	kilograms	Rockland Kenya Ltd.	Mine at Kasigau	6,000 <sup>e</sup>
Salt		Magadi Soda Ash Ltd. (Brunner Mond Group Ltd., 100%)	Mine at Magadi	45,000
Do.		Krystalline Salt Ltd.	Mine at Nairobi	NA
Do.		Mombasa Salt Works Ltd.	Mine at Mombasa	NA
Soda ash		Magadi Soda Ash Ltd.	Mine at Magadi	715,000
Sodium silicate		Athi River Mining Ltd. (ARM)	Plants at Athi River and Kaloleni	60,000
Steel: <sup>1</sup>				
Crude		Devki Steel Mills Ltd.	Plant at Nairobi	45,000
Do.		Kenya United Steel Co. Ltd. (subsidiary of Alam Group of Companies)	Plant at Mombasa	20,000
Billet		Devki Steel Mills Ltd.	Plant at Nairobi	50,000
Do.		Kenya United Steel Co. Ltd.	Plant at Mombasa	20,000 <sup>e</sup>
Rolled		Mabati Rolling Mills Ltd.	do.	100,000
Do.		Standard Rolling Mills Ltd.	do.	80,000
Do.		Devki Steel Mills Ltd.	Plant at Nairobi	36,000
Do.		Kenya United Steel Co. Ltd.	Plant at Mombasa	30,000
Sulfuric acid		Kel Chemicals Ltd.	Plant at Thika	32,000
Do.		East African Heavy Chemicals	Plant at Webuye	NA

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>In addition to its billet and rolled-steel facilities, Kenya has three galvanized steel plants with a combined capacity of 175,000 metric tons per year.