THE MINERAL INDUSTRY OF

KENYA

By Phillip M. Mobbs

Kenya, with its cement plants, petroleum refinery, and steel mills, was the most industrialized country in eastern Africa. Cement, petroleum products, semiprecious gemstones, and soda ash were the most economically significant mineral commodities produced. Other mineral and mineral-based commodities produced in Kenya included fluorspar, gold, gypsum, lime, salt, and steel products. Mining and quarrying accounted for less than 1% of the country's gross domestic product (GDP) which was \$8.8 billion in 1997.

The country's economic performance was depressed in 1997. Real GDP growth was 2.3% compared with 4.6% in 1996 (Central Bank of Kenya, July 1, 1998, July 1998 economic review, accessed November 17, 1998, at URL http://www.centralbank.go.ke/cbk/19980701/2.html). Reasons cited by the Central Bank for the downturn included low domestic and foreign investor confidence, the poor condition of Kenya's infrastructure, and the negative effects of recent violence on the tourist industry (Central Bank of Kenya, July 1, 1998, Economic growth update, accessed November 17, 1998, at URL http://home.centralbank.go.ke/MonthlyReviews/ShowReview.asp?DocumentID=657).

The intrigue surrounding Goldenberg International again adversely affected Kenya's economy. For alleged exports made between 1991 and 1993, Goldenberg International, a former gold and precious stone exporter, received an estimated \$100 million from a state agency through a Government export incentive program. The export scheme was blamed for severely straining Kenya's economic and political framework and for fueling inflation that reached 100% in 1993. During 1997, legal proceedings against Goldenberg and former Government officials were dismissed on technical grounds. Subsequently, because of the perception that the Government was not adequately confronting the alleged corruption issues, the International Monetary Fund suspended disbursement of \$37 million to Kenya, part of a \$216 million enhanced structural adjustment facility (loan program) initiated in 1996 (Financial Times, 1997a, b; Kelly, 1998; Daily Nation, October 23, 1998, Gem exports had shortcomings—Court, accessed on October 23, 1998, at URL http://www.nationaudio.com/News/DailyNation/Today/News /News15.html).

Kenya's major trading partners in Africa and the European Union received about 80% of the nation's exports. Agricultural products dominated the export market, but fluorspar, gemstones, petroleum products, soda ash, and steel products were notable sources of foreign exchange earnings. Petroleum products, refined primarily from crude oil imported from the United Arab Emirates, were re-exported to neighboring African countries, particularly Uganda. In 1997, Kenya joined a regional trade group, the Indian Ocean Rim Association for Regional

Cooperation.

Mining was covered by the Mining Act, Chapter 306, of the Laws of Kenya. The Act will be replaced by the Mining and Minerals Bill that is under Parliamentary review. Additionally, the mineral industry was covered by the Customs and Excise Act, the Foreign Investment Protection Act, the Income Tax Act, and the Value Added Tax Act. The corporate income tax rate in Kenya was 35%. The Government encouraged the diversification of the mineral industry, indicating that known barite, chromite, copper, graphite, nickel, niobium, pyrite, rare-earth elements, silver, dimension stone, talc, wollastonite, and zinc deposits needed additional investigation (Ministry of Environment and Natural Resources, 1997).

The Mombasa-based Kaluworks and other aluminum rolling mills in Kenya processed about 6,000 metric tons per year (t/yr) of rolled aluminum. About 2,400 metric tons (t) were derived from locally sourced scrap; much of the remainder was imported as ingot primarily from South Africa.

Gold production was mainly artisanal. (See table 1.) Depressed gold prices dampened international gold exploration interest in Kenya. Anglo American Prospecting Services Ltd., a subsidiary of Anglo American Corp. of South Africa, continued exploration on the Lolgorien and the Akala concessions in a joint venture with International Gold Exploration AB of Sweden (IGE). IGE was treating tailings from a gold mine dump on the Lolgorien property and also held the Karasuk, the Sekerr, and the Wakorr gold concessions. Auvista Minerals NL, a subsidiary of Panorama Resources NL of Australia, explored the Migori gold prospect. Auvista was earning 100% interest in the prospect from Mio Migori Mining Co. Ltd. of Kenya; Panorama's fiscal problems, however, adversely affected Auvista's operations in Kenya. In December, Panorama announced a plan to merge with Tanganyika Gold NL of Australia. Pan African Resources Corp. of Canada (PARC), a subsidiary of Golden Star Resources Ltd., held a 75% interest in the Ndori gold prospect in southwestern Kenya in a joint venture with San Martin Mining Research and Investment Co. Ltd. of Switzerland. In 1997, PARC completed a reconnaissance exploration program on the property. San Martin continued to reprocess tailings from old gold mine dumps near Lake Victoria.

Clustered primarily near the port of Mombasa were a number of cold rolling steel mills, including the 120,000-t/yr Mabati Rolling Mills Ltd., the 36,000-t/yr Standard Rolling Mills, the 30,000-t/yr Steelmakers Ltd., and the 30,000-t/yr Kenya United Steel Co. Ltd. Premium Rolling Mills was located near Nairobi. Most of the mills rerolled imported steel. Steel also was produced at the 24,000-t/yr-capacity Kenya United Steel and the 600-t/yr Steelmakers plants. Electrical brownouts and power rationing

adversely affected steel production and milling.

Tiomin Resources Inc. of Canada continued work on its special prospecting licenses covering, from north to south, the Sabaki, the Mambrui, the Sokoke, the Mombasa, and the Kwale titaniumbearing, heavy mineral sand concessions. Prefeasibility studies were done on the Kwale and the Mambrui permits, which were being used as farmland. Results of drilling during 1997 allowed Tiomin to increase the heavy mineral resources attributed to the properties. The resource of mineralized sands at Kwale was increased from 130 million metric tons (Mt) to 200 Mt, containing an estimated 4.2 Mt of ilmenite, 1.1 Mt of rutile, and 600,000 t of zircon at a 1% heavy-mineral cut-off grade (Canada NewsWire, November 12, 1997, Significant ore reserves increase at Tiomin's Kwale titanium sands deposit in Kenya, accessed November 21, 1997, at URL http://www.newswire.ca/releases/ November1997/12/c2489.html). Resources at Mambrui were increased from 650 to 700 Mt of sand, grading 3% heavy minerals and those at Sokoke from 1,200 to 1,700 Mt of sand, grading about 3% heavy minerals. Tiomin proceeded to secure government permits and to lease property for the proposed \$96 million Kwale project (Industrial Minerals, 1997; Mining Journal, 1997). Pangea Goldfields Inc. of Canada held a 20% interest in the venture.

Athi River Mining Ltd., the nation's smallest cement producer, became a publicly owned company in 1997. Athi River began construction of a 35,000-t/yr-capacity cement kiln and a 75-metric-ton-per-day lime plant to supplement output from the current 75,000-t/yr-capacity Mombasa cement plant. El Niño rains reduced production in 1997; the limestone quarries were flooded for most of October and November, and local access roads and electric power lines were washed away. Bamburi Cement Ltd. of Mombasa initiated construction of a \$40 million cement-clinker-grinding plant near Nairobi in May.

Magadi Soda Co. Ltd., a subsidiary of Brunner Mond plc of the United Kingdom, was forced to find new markets for soda ash exports as the economic crisis in Asia deepened. At the beginning of the year, nearly 75% of Kenyan soda ash was exported to Southeast Asia compared with about 60% at yearend. Exports were shifted to the Indian and the South African markets. Magadi Soda commissioned a new grinding and screening plant during the year. The company's shipping bottleneck was being addressed. An \$8.9 million rehabilitation of the rail line from Magadi to Konza was completed; the company had assumed maintenance responsibility of the line as part of the privatization of Kenya Railways Corp. General Electric Co. (GE) of the United States was overhauling five locomotives leased from Kenya Railway for use by the newly formed Magadi Railway Co. on the rail line from Magadi to Mombasa via Konza. GE also secured the contract for continued maintenance of the locomotives. Magadi Soda anticipated that its operation of the railways would increase utilization of railcars (Brunner Mond plc, March 12, 1998, Magadi company inaugurates locomotive engines, accessed November 20, 1998, at URL http://www.brunnermond.com.prmsrail.htm). A quicker railcar return from the docks would allow up to a 50% increase in soda ash shipments.

Petroleum exploration resumed in July when Tornado Resources Ltd. of Canada acquired Block L-1 in the Mandera Basin and Block L-10 in the offshore Lamu Basin under

production-sharing agreements. Transportation of petroleum products from the Mombasa refinery to the interior was primarily via the pipeline of the Government-owned Kenya Pipelines Co. Ltd. The extension of the pipeline into Uganda was being studied.

The Kenya Railways Corp. single-track line runs from the west near Tororo, Uganda, passes through Nairobi, and terminates at the port of Mombasa, connecting key mining districts along the route. CPCS Transcom Ltd. of Canada began a study of Kenya Railways privatization options at yearend. Kenya's 68,000kilometer road system was in poor condition; maintenance problems were exacerbated by the heavy rains in October and November that washed away bridges and roadbeds. Electricity demand continued to outpace supply (Indian Ocean Newsletter, 1997). Primarily derived from hydroelectric sources, Kenya had an electric generating capacity of about 872 megawatts (MW) after a 45-MW diesel-fueled plant in Nairobi and a 43-MW bargemounted plant in Mombasa came online in 1997. About 30 MW was imported from Uganda. Construction of a 75-MW powerplant at Kipevu in Mombasa was begun in December; the plant is expected to be online in late 1999. Two 64-MW geothermal plants were under study for Olkaria. Also during 1997, the Electric Power Bill ended the monopoly on power generation held by Kenya Power and Light Co.

The outlook for the mineral industry of Kenya is good, with the Government continuing policies directed toward increasing domestic employment and foreign earnings through mineral production projects. Political instability should be reduced in the wake of the general elections held in December 1997. Heavy El Niño rains forecast to continue into 1998 would persist in degrading Kenya's rail and road infrastructure.

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Major Sources of Information

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TABLE 1 KENYA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/		1993	1994	1995	1996	1997 e/
Aluminum, secondary e/		2,400	2,400	2,400	2,400	2,400
Barite		14	20	20 e/	20 e/	20
Carbon dioxide gas, natural		5,910	5,605	7,982	9,119	9,100
Cement, hydraulic	thousand tons	1,417	1,182	1,122	1,102	1,000
Clays, kaolin		7	69	300	595	500
Diatomite		829	592	457	415 r/	400
Feldspar e/		1,200	1,200	500	100	100
Fluorspar (acid grade)		78,725	53,400	80,230	83,000	69,000
Gemstones, precious and semiprecious:						
Amethyst e/	kilograms	303 3/	303	310	300	300
Aquamarine	do.	43	14	50 e/	50 e/	50
Cordierite (Iolite) e/	do.	14 3/	15	15	15	15
Garnet	do.	31	42	119	120 e/	120
Ruby	do.	120 e/	200	1,200	1,200 e/	1,200
Sapphire e/	do.	2,314 3/	2,310	2,300	2,300	2,300
Tourmaline	do.	229	43	224	250 e/	250
Gold, mine output, Au content e/	do.	154 3/	155	170	300	300
Gypsum and anhydrite e/		36,000	30,000	28,000	28,000	25,000
Lead, mine output, Pb content		396 e/	350	4	5 e/	5
Lime e/		12,000	12,000	12,000	15,000	15,000
Petroleum refinery products e/	thousand 42-gallon barrels	17,000	16,200	16,000	16,000	16,000
Salt, crude		74,669	70,500	71,400	41,000	50,000
Soda ash		144,850	226,150	218,450	223,000	230,000
Steel, crude e/	thousand tons	20	20	20	20	20
Stone, sand and gravel:						
Coral e/	thousand tons	1,600	1,600	1,600	1,000	1,000
Limestone for cement	do.	400	300	300	600	700
Limestone for dimension stone	do.	25	30	31	32	32
Sand, industrial (glass) e/		12,300	12,300	12,300	13,000	13,000
Shale e/		200,000 r/	150,000 r/	120,000 r/	120,000 r/	200,000
Vermiculite		1,961	1,113 e/	457	734	800
Wollastonite		100 e/				
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e/ Estimated. r/ Revised.

^{1/} Includes data available through November 23, 1998.

^{2/} In addition to the commodities listed, a variety of industrial minerals and construction materials (brick clays, gravel, iron ore, kyanite, marble, crushed rock, and construction sand) are produced, but quantities are not reported, and information is inadequate to make reliable estimates of output.

 $^{3/\,}Reported$ figure.