



# 2013 Minerals Yearbook

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## ETHIOPIA

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# THE MINERAL INDUSTRY OF ETHIOPIA

By Thomas R. Yager

In 2013, Ethiopia played an important role in the world's production of tantalum; the country's share of global tantalum mine production amounted to about 1%. Other domestically important mining and mineral processing operations included cement, crushed stone, gemstones, and gold. Ethiopia was not a globally important consumer of minerals (Papp, 2015).

## Minerals in the National Economy

In 2013, the construction sector accounted for 4.6% of the gross domestic product; manufacturing, 3.6%; and mining and quarrying, 1.2%. The value of output by the construction sector increased by 30.9% in 2013; manufacturing, by 10.8%; and mining and quarrying, by 6.8%. In fiscal year 2013 (July 8, 2012, to July 7, 2013), Ethiopia's mineral exports were valued at \$593 million, of which \$584 million was gold. Minerals accounted for 19% of the value of total exports. Between 300,000 and 350,000 artisanal miners were employed in gold mining and about 50,000 were employed in gemstone mining (Araya, 2013; Beyene, 2013; African Development Bank Group, 2014; Ministry of Finance and Economic Development, 2014, p. 22, 24, 43–44).

## Production

In fiscal year 2013, the production of silica sand increased by an estimated 371% compared with that of fiscal year 2012; lime, by an estimated 120%; most gemstones, by between 50% and 57%; cement, by an estimated 43%; and most construction materials, by between 25% and 31%. The production of tantalum decreased by an estimated 89% in fiscal year 2013, and niobium, by an estimated 87% (table 1).

## Structure of the Mineral Industry

At the end of 2013, Ethiopia had 19 cement plants, of which 17 were privately owned; Mughar Cement Enterprise and Messebo Building Materials Production plc were state owned. Companies that mined gold, marble, silica sand, and soda ash were privately owned. State-owned Ethiopian Mineral Development Share Co. (EMDSC) produced dolomite, feldspar, columbite-tantalite, and quartz. Artisanal miners produced columbite-tantalite, gemstones, gold, and salt (table 2).

## Commodity Review

### Metals

**Gold.**—In fiscal year 2013, artisanal miners produced 8,387 kilograms (kg) of gold compared with the Government's target of 13,200 kg. Production in Oromia Regional State was 3,317 kg; Tigray Regional State, 2,299 kg; Benishangul-Gumuz

Regional State, 1,084 kg; Gambella Regional State, 1,040 kg; and Southern Nations, Nationalities, and Peoples' Regional State, 547 kg (Addis Fortune, 2013).

Midroc Gold Mine plc (a subsidiary of Midroc Group of Saudi Arabia) operated the Lega Dembi Mine. In fiscal year 2013, exports by Midroc Gold Mine were 4,194 kg compared with the Government's target of more than 5,400 kg. The Government planned to increase gold exports from large-scale mines to 8,700 kg in fiscal year 2015 (Addis Fortune, 2013; Ministry of Finance and Economic Development, 2014, p. 29).

In December 2012, Nyota Minerals Ltd. of Australia completed a feasibility study on a new mine at the Tulu Kapi project. Nyota planned to produce nearly 3,300 kilograms per year (kg/yr) of gold at Tulu Kapi during the estimated 10-year life of the mine. Reserves were estimated to be 16.9 million metric tons (Mt) at a grade of 1.82 grams per metric ton gold. In December 2013, Nyota sold a 75% interest in Tulu Kapi to Kefi Minerals plc of the United Kingdom. Kefi and Nyota were engaged in a revised mining plan that would result in production of about 2,600 kg/yr. Mining could start in 2015 (Mining Journal, 2012; Nyota Minerals Ltd., 2013).

Stratex International plc of the United Kingdom engaged in drilling at the Black Rock prospect in Afar in 2013. In October, Alecto Minerals plc of the United Kingdom formed a joint venture with Centamin plc of the United Kingdom to explore at the Aysid-Metekel and the Wayu Boda projects (Stratex International plc, 2014, p. 11).

**Niobium (Columbium) and Tantalum.**—In May 2012, EMDSC suspended production of columbite-tantalite at the Kenticha Mine because of Government plans to stop exporting unprocessed concentrates and to focus on building a new plant for downstream processing. The Government lifted the ban in 2013 (Araya, 2013).

Elenilto Minerals & Mining plc of the United Kingdom held properties near the Kenticha tantalum mine with resources of more than 17,000 metric tons (t) of contained tantalum. The company planned to produce 600 metric tons per year (t/yr) of columbite-tantalite from a new mine. Elenilto also planned to process columbite-tantalite to niobium pentoxide and tantalum pentoxide starting in the fourth quarter of 2015 and tantalum metal powder starting in 2017 (Ryan's Notes, 2013).

Cooperatives of artisanal miners produced columbite-tantalite in Oromia Regional State. The mining operations were shut down by the Government's ban on unprocessed columbite-tantalite exports in May 2012. After the ban was lifted, artisanal miners exported nearly 33 t of columbite-tantalite in fiscal year 2013 (Addis Fortune, 2013; Araya, 2013).

### Industrial Minerals

**Cement.**—Domestic cement production increased to an estimated 5 Mt in fiscal year 2013 from 3.5 Mt in fiscal year

2012 and a revised 2.08 Mt in fiscal year 2011. Increased production was attributable to the opening of new plants and the expansion of existing plants; demand increased with the rapid growth in the construction sector.

Ethiopia had 19 operating cement plants with a total capacity of about 12.1 million metric tons per year (Mt/yr) at the end of 2013 compared with 18 plants with a total capacity of 11 Mt/yr at the end of 2012 and 15 plants with a total capacity of 7.9 Mt/yr at the end of 2011. In 2012, Derba Midroc Cement plc started production at two plants at Derba with capacities of 2.5 Mt/yr and 90,000 t/yr, respectively. Operations at Ture Dire Dawa Cement Factory Share Co.'s plant at Dire Dawa, which had a capacity of 550,000 t/yr, started in November 2012. National Cement Share Co. completed its new plant near Dire Dawa with a capacity of 1.1 Mt/yr in 2013 (International Cement Review, 2012a, b; 2013b; Edwards, 2013; National Cement Share Co., 2014).

In 2013, Dangote Cement plc of Nigeria started construction on a new plant at Mugher. Dangote was likely to complete the planned 1.5-Mt/yr-capacity plant in the third quarter of 2014. Habesha Cement Share Co. also planned to complete a new plant with a capacity of 1.4 Mt/yr in 2014 (International Cement Review, 2013a).

**Gemstones.**—Artisanal miners produced gemstones, including amethyst, aquamarine, emerald, garnet, opal, peridot, sapphire, and tourmaline. In fiscal year 2013, gemstone exports were 25,078 kg compared with the Government's target of 18,000 kg. Opal accounted for 98% of gemstone exports by value. The Government's target for fiscal year 2014 was 15,000 kg of exports, which included 250 kg of cut and polished gemstones. In August, the Government reversed its decision to ban rough gemstone exports at the start of fiscal year 2014; most exporters lacked gemstone cutting and polishing machinery (Addis Fortune, 2013; Araya, 2013).

**Lime.**—In June 2013, Derba Lime and Chemicals (DLC) (a subsidiary of the Midroc Group) started production at its new lime plant near Derba, which had a capacity of 73,000 t/yr. DLC and Senkele Lime Factory produced lime for external customers, and Caustic Soda Share Co. and Wonji Shoa Sugar Factory produced mostly for their own consumption (Tiret Magazine, 2014).

**Potash.**—In April 2013, Allana Resources Inc. of Canada completed a feasibility study with favorable results on a new mine at the Dallol potash deposits. Allana planned to produce 1 Mt/yr of potash at Dallol, which is located in the Dankali Depression, during the estimated 25-year life of the mine. The company planned to start mining in early 2016. Reserves at Dallol were estimated to be 94 Mt at a grade of 28.6% potassium chloride (KCl), and total measured and indicated resources were estimated to be 327 Mt at a grade of 28.6% KCl (Northern Miner, 2013).

**Silica.**—Ethiopia Hansom International Glass plc resumed production at its glass plant in November 2012; operations had been suspended in April 2012. The company, which consumed domestically produced silica sand, planned to produce at about 50% of its capacity of 42,000 t/yr because of high fuel oil prices (Worku, 2012).

**Soda Ash.**—Abijata-Shalla Soda Ash Share Co. [National Mining Corp. plc (NMiC), 62%, and Government, 38%]

produced about 5,000 t/yr of soda ash from Lake Abijata for domestic consumption. In November 2012, the company signed an agreement with China National Complete Plant Import Export Corp. to conduct a feasibility study on a new processing plant. The plant, which would use brine from nearby Lake Shala, was likely to have an initial capacity of 200,000 t/yr. In the second phase of the project, capacity would expand to 1 Mt/yr. Depending on the results of the study, the plant could open in 2017. NMiC and the Government also planned to rehabilitate the existing plant to continue production until the new plant opened (Tiret Magazine, 2012, 2013).

### **Mineral Fuels**

**Coal.**—Delbi Coal Mining Share Co. operated a mine near Delbi that produced lignite; the company planned to produce 30,000 t in fiscal year 2014. In October 2013, Delbi Coal signed an agreement with May Flower Mining Enterprise Ltd. of India to increase the mine's output to 200,000 t/yr. May Flower planned to invest \$116 million during a 3-year period in return for a 70% interest in the mine (Ventures Africa, 2013).

**Petroleum.**—As of the end of 2013, Ethiopia was not a producer of crude or refined petroleum and relied on imported petroleum products. In December, Africa Oil Corp. of Canada and Tullow Oil plc of the United Kingdom were drilling the Tutule-1 well at the South Omo Block near the border with Kenya and the El Kuran-3 well at Block 8 in the Ogaden Basin (Oil & Gas Journal, 2013).

### **Outlook**

Cement production is likely to increase between 2014 and 2017 because of growth in the construction sector. The production of clay, gypsum, limestone, and pumice is expected to increase because of increased demand from cement plants; output of other construction materials is also likely to increase. The outlook for niobium and tantalum is for an increase in production in 2014 because of the repeal of the ban on unprocessed columbite-tantalite exports. Lime output is expected to increase in 2014 and 2015 because of the opening of DLC's new plant. Production of gold and soda ash are likely to increase starting in 2015 and 2017, respectively. Potash mining is likely to start in 2016. Coal production is also planned to increase in the next few years.

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TABLE 1  
ETHIOPIA: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2009	2010	2011 <sup>e</sup>	2012 <sup>e</sup>	2013 <sup>e</sup>	
Cement, hydraulic	1,688,014	1,638,613	2,082,366 <sup>r,4</sup>	3,500,000	5,000,000	
Clays: <sup>5</sup>						
Brick clay <sup>e</sup>	39,000	53,000	55,000 <sup>r</sup>	68,000 <sup>r</sup>	89,000	
Kaolin, china clay	3,534 <sup>4</sup>	3,600	4,000 <sup>4</sup>	4,500 <sup>r</sup>	4,800	
Other clay	cubic meters	12,398	40,958 <sup>4</sup>	46,000	49,000	
Coal, lignite	15,000	20,000	20,000	20,000	20,000	
Columbite-tantalite, ore and concentrate:						
Gross weight	kilograms	397,544	252,433	285,000	380,000	50,000
Nb content	do.	27,800	21,600	24,500	26,000	3,500
Ta content	do.	98,500	81,600	94,500	91,000	9,800
Diatomite <sup>e</sup>	4,104 <sup>4</sup>	4,000	4,000	4,500 <sup>r</sup>	4,800	
Feldspar	750	1,500	441 <sup>4</sup>	500 <sup>r</sup>	530	
Gemstones:						
Amethyst	kilograms	6	7	-- <sup>4</sup>	--	--
Aquamarine	do.	10	105	667 <sup>4</sup>	700	1,100
Citrine	do.	5	1	3 <sup>4</sup>	3	5
Emerald	do.	7	10	15	15	23
Garnet	do.	4	24	29 <sup>4</sup>	30	45
Morganite	do.	1	4	1 <sup>4</sup>	1	2
Opal	do.	651	12,821	13,839 <sup>4</sup>	14,000	21,000
Peridot	do.	4	--	7 <sup>4</sup>	10	15
Quartz	do.	7	2,853	1,492 <sup>4</sup>	1,500	2,300
Ruby	do.	19	26	56 <sup>4</sup>	55	85
Sapphire	do.	--	1	45 <sup>4</sup>	45	70
Tourmaline	do.	1	2	103 <sup>4</sup>	110	170
Gold, mine output, Au content	do.	4,005	6,773	10,891 <sup>4</sup>	12,311 <sup>4</sup>	12,581 <sup>4</sup>
Gypsum and anhydrite, crude		37,000	41,000	46,000	52,000	52,000
Lime		3,829	3,254	2,481 <sup>r,4</sup>	2,500	5,500
Platinum, mine output, Pt content	kilograms	10	8	-- <sup>4</sup>	--	--
Quartz		200	280	363 <sup>4</sup>	410 <sup>r</sup>	440
Salt, rock		350,709	330,359	388,153 <sup>4</sup>	440,000	470,000
Silver, mine output, Ag content	kilograms	771	1,100 <sup>e</sup>	1,700	1,900	2,000

See footnotes at end of table.

TABLE 1—Continued  
ETHIOPIA: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2009	2010	2011 <sup>e</sup>	2012 <sup>e</sup>	2013 <sup>e</sup>
Soda ash, natural	4,046	4,000	4,500 <sup>r</sup>	5,000 <sup>r</sup>	5,000
Steel:					
Crude <sup>e</sup>	150,000	150,000	130,000	130,000	130,000
Semimanufactured <sup>6</sup>	785,925	464,304	500,000	500,000	500,000
Stone, sand and gravel: <sup>5</sup>					
Basalt:					
Construction stone	1,300,000	1,400,000	1,600,000	2,000,000 <sup>r</sup>	2,600,000
Other <sup>e</sup>	77,000	85,000	96,000	120,000 <sup>r</sup>	160,000
Dolomite	2,600	2,900 <sup>e</sup>	3,190 <sup>4</sup>	4,000 <sup>r</sup>	5,200
Granite <sup>e</sup> square meters	5,100	5,700	6,400	8,000 <sup>r</sup>	10,000
Ignimbrite <sup>e</sup> cubic meters	390,000	430,000	490,000	610,000 <sup>r</sup>	800,000
Limestone:					
Slab and tiles square meters	2,973	3,300 <sup>e</sup>	3,700	4,600 <sup>r</sup>	6,000
Other <sup>e</sup> thousand metric tons	2,100	2,300	2,600	3,200 <sup>r</sup>	4,200
Marble:					
Slab and tiles square meters	114,374	152,421	143,820 <sup>r,4</sup>	180,000 <sup>r</sup>	240,000
Terrazzo <sup>e</sup> do.	150,000	170,000	190,000	240,000 <sup>r</sup>	310,000
Block and other	145,000	250,000	280,000	350,000 <sup>r</sup>	450,000
Pumice	250,000	128,106	254,152 <sup>4</sup>	320,000 <sup>r</sup>	420,000
Rhyolite <sup>e</sup>	29,000	32,000	36,000	45,000 <sup>r</sup>	59,000
Sand <sup>e</sup> thousand metric tons	860	950	1,100	1,400 <sup>r</sup>	1,800
Sandstone <sup>e</sup> do.	1,800	2,000	2,300	2,900 <sup>r</sup>	3,800
Scoria <sup>e</sup>	180,000	200,000	230,000	290,000 <sup>r</sup>	380,000
Silica sand	30,700	70,250	7,000	7,000	33,000

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through January 23, 2015.

<sup>2</sup>Data are for the Ethiopian fiscal year ending July 7 of the year listed, except for steel, which are for the calendar year ending December 31 of the year listed.

<sup>3</sup>In addition to the commodities listed, glass, sulfuric acid, and talc reportedly were produced, but information is inadequate to estimate output.

<sup>4</sup>Reported figure.

<sup>5</sup>When reported as volume or pieces, conversions to metric tons are estimated.

<sup>6</sup>Galvanized steel sheets only.

TABLE 2  
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Caustic soda		Caustic Soda Share Co.	Plant at Ziway	10,000.
Cement		Derba Midroc Cement plc	Plant at Derba	2,500,000.
Do.		do.	do.	90,000.
Do.		do.	Plant at Dejen	90,000.
Do.		Mugher Cement Enterprise (Government, 100%)	Plant at Mugher	2,276,000.
Do.		Messebo Building Materials Production plc (Government, 100%)	Plant at Mekele	2,240,000.
Do.		National Cement Share Co.	Plant at Dire Dawa	1,100,000.
Do.		do.	do.	150,000.
Do.		East Cement Share Co.	Plant at Dukem	750,000.
Do.		Ture Dire Dawa Cement Factory Share Co.	Plant at Dire Dawa	550,000.
Do.		Capital Clinker and Packaging plc	NA	450,000.
Do.		Pioneer Cement plc	NA	450,000.
Do.		Huang Shan Cement plc	Plant near Modijo	435,000.
Do.		Encheni Medrock Cement plc	NA	300,000.
Do.		Jiangsu Zhongshun Import and Export Trade Company Ltd.	Plant at Dukem	250,000.
Do.		Hua Yu Cement	NA	150,000.
Do.		Red Fox International Investment plc	Plant at Adama	100,000.
Do.		Abyssinia Cement plc	Plant at Chancho	90,000.
Do.		Derbasina Business Industries plc	Plant at Holeta	90,000.
Do.		Jema Cement plc	Plant in North Shoa zone	45,000
Clay:				
Kaolin		Ethiopian Mineral Development Share Co. (EMDSC) (Government, 100%)	Mine at Bamba Wuha	7,500.
Other		Pioneer Cement plc	Mine near Melka Jebdu	67,000. <sup>e</sup>
Coal, lignite		Delbi Coal Mining Share Co.	Mine at Delbi	30,000. <sup>e</sup>
Dolomite		Ethiopian Mineral Development Share Co. (EMDSC) (Government, 100%)	Mine at Soloka	8,000. <sup>1</sup>
Feldspar		do.	Kenticha Mine near Borena	8,000. <sup>1</sup>
Gemstones, opal	kilograms	Artisanal miners	Mine at Wegel Tena	NA.
Do.		do.	Mine near Gashena	NA.
Glass		Ethiopia Hansom International Glass plc [CGC Overseas Construction Ltd. (CGCOC) and China-Africa Development Fund]	Plant at Addis Ababa	42,000
Do.		Addis Ababa Bottle and Glass Share Co.	do.	8,000.
Gold	kilograms	Midroc Gold Mine plc (subsidiary of Midroc Group)	Mine at Lega Dembi	4,200.
Do.	do.	Artisanal miners	Mines in Oromia Regional State	3,300. <sup>e</sup>
Do.	do.	do.	Mines in Tigray Regional State	2,300. <sup>e</sup>
Do.	do.	do.	Mines in Benishangul-Gumuz Regional State	1,200. <sup>e</sup>
Do.	do.	do.	Mines in Gambella Regional State	1,100. <sup>e</sup>
Do.	do.	do.	Mines in Southern Nations, Nationalities, and Peoples' Regional State	800. <sup>e</sup>
Do.	do.	do.	Mines in Amhara Regional State	300. <sup>e</sup>
Gypsum		Pioneer Cement plc	Mine near Dewelle	30,000. <sup>e</sup>
Lime		Derba Lime and Chemicals (DLC) (Midroc Group, 100%)	Plant near Derba	73,000.
Do.		Senkele Lime Factory	Plant at Ambo	6,000. <sup>e</sup>
Do.		Caustic Soda Share Co. (Government, 100%)	Plant at Ziway	NA.
Do.		Wonji Shoa Sugar Factory	Plant near Wonji	NA.
Niobium (columbium) and tantalum, ore and concentrate		Ethiopian Mineral Development Share Co. (EMDSC) (Government, 100%)	Kenticha Mine near Borena <sup>2</sup>	90 tantalum; 20 niobium.
Do.		Artisanal miners	Mines in Oromia Regional State	25 tantalum; 14 niobium.
Platinum	kilograms	Nyota Minerals Ltd.	Mine at Yubdo <sup>2</sup>	10. <sup>e</sup>

See footnotes at end of table.

TABLE 2—Continued  
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Quartz		Ethiopian Mineral Development Share Co. (EMDSC) (Government, 100%)	Kenticha Mine near Borena <sup>2</sup>	8,000. <sup>1</sup>
Salt		Artisanal miners	Mines at Afdera Lake	NA.
Silica sand		CGC Overseas Construction Ltd. (CGCOC)	Mine near Lemi	180,000. <sup>e</sup>
Soda ash		Abijata-Shalla Soda Ash Share Co. [National Mining Corp. plc (NMiC), 62%, and Government, 38%]	Mine at Lake Abijata	20,000.
Steel:				
Crude		Abyssinia Integrated Steel plc	Plant at Debre Zeit	150,000. <sup>e</sup>
Do.		Sheba Steel Mills plc	do.	20,000. <sup>e</sup>
Semimanufactured		Abyssinia Integrated Steel plc	do.	150,000.
Do.		Zuquala Steel Rolling Mill Enterprise (Government, 100%)	do.	36,000.
Do.		Wallia Steel Factory	Plant at Alemgena	36,000.
Do.		Sheba Steel Mills plc	Plant at Debre Zeit	20,000.
Stone, crushed		CGC Overseas Construction Ltd. (CGCOC)	Plant at Addis Ababa	930,000. <sup>e</sup>
Stone, dimension	cubic meters	Ethiopian Marble Processing Enterprise (Government, 100%)	Mines at Eckonti, Harar, and Mankush	5,000. <sup>e</sup>
Do.	square meters	do.	Plants at Addis Ababa, Bole, and Nifas Silk	65,000.
Do.	cubic meters	National Mining Corp. plc (subsidiary of Midroc Ethiopia Group)	Mines at Beninshangul and Harar	4,500.
Do.	square meters	do.	Plant at Awash	60,000.
Do.	cubic meters	Saba Stones	Mines in Tigray Region	4,500 marble; 2,200 limestone; 1,500 granite.
Sulfuric acid		Melkasa Aluminum Sulfate and Sulfuric Acid Factory	Plant at Melkasa	14,600.

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

<sup>1</sup>The combined capacity for the dolomite, feldspar, and quartz processing plant at the Kenticha Mine is 8,000 metric tons per year.

<sup>2</sup>Not operating at the end of calendar year 2013.