



2012 Minerals Yearbook

ETHIOPIA

THE MINERAL INDUSTRY OF ETHIOPIA

By Thomas R. Yager

In 2012, Ethiopia played a significant role in the world's production of tantalum; the country's share of global tantalum mine production amounted to more than 10%. Ethiopia accounted for 26% of U.S. imports of tantalum ores and concentrates in 2012 (Papp, 2013, 2014). Other domestically significant mining and mineral processing operations included cement, crushed stone, dimension stone, and gold. Ethiopia was not a globally significant consumer of minerals.

Minerals in the National Economy

In 2012, the construction sector accounted for 4% of the gross domestic product; manufacturing, 3.3%; and mining and quarrying, 1.3%. The value of output in the manufacturing sector increased by 13.7% in 2012; mining, by 12.7%; and construction, by 12.5%. Ethiopia's gold exports were valued at \$602 million in fiscal year 2012 (which ran from July 8, 2011, to July 7, 2012, and is concurrent with the Ethiopian calendar year), or 19% of the value of total exports (African Development Bank Group, 2013, p. 181; Ministry of Finance and Economic Development, 2013, p. 19).

Production

In fiscal year 2012, cement production increased by an estimated 52% and gold, by 13%. The production of numerous construction materials was estimated to have increased by between 11% and 15%. The production of dolomite, feldspar, quartz, and soda ash decreased in fiscal year 2012 (table 1).

Structure of the Mineral Industry

At the end of 2012, Ethiopia had 18 cement plants, of which 16 were privately owned; Mughjer Cement Enterprise and Messebo Building Materials Production plc were state owned. Gold, marble, silica sand, and soda ash mining companies were privately owned. State-owned Ethiopian Mineral Development S.C. (EMDSC) produced dolomite, feldspar, niobium (columbium), quartz, and tantalum. Artisanal miners produced gemstones, gold, niobium, and tantalum (table 2).

Commodity Review

Metals

Gold.—In fiscal year 2012, artisanal miners produced 8,327 kilograms (kg) of gold compared with 6,515 kg in fiscal year 2011. Production in Oromia State was 2,902 kg; Tigray State, 2,061 kg; Gambella State, 1,190 kg; Benishangul-Gumuz State, 1,119 kg; Southern Nations State, 784 kg; and Amhara State, 271 kg (Mesfin, 2012).

MIDROC Gold Mine plc [a subsidiary of MIDROC Ethiopia Investment Group of Saudi Arabia (MIDROC Ethiopia)] operated the Lega Dembi and the Sakaro Mines. National gold exports from large-scale mines in fiscal year 2012 were 3,984 kg

compared with 4,376 kg in fiscal year 2011. The Government planned to increase gold exports from large-scale mines to 8,700 kg in fiscal year 2015 (Ministry of Finance and Economic Development, 2013, p. 23).

National Mining Corp. plc (NMiC) (a subsidiary of MIDROC Ethiopia) held the Okote deposits, which had combined resources of about 300 million metric tons (Mt) at a grade of 1.54 grams per metric ton (g/t) gold. By October 2012, NMiC had completed a preliminary economic assessment on a new mine at Okote. The company planned to start mining by 2015; production was likely to be more than 5,700 kilograms per year (kg/yr) during an estimated 20-year mine life (Tiret Magazine, 2012a).

In December 2012, Nyota Minerals Ltd. of Australia completed its feasibility study on a new mine at the Tulu Kapi project. Nyota planned to produce nearly 3,300 kg/yr of gold at Tulu Kapi during the estimated 10-year life of the mine. Depending on the issuance of a mining license, Nyota could start production in 2015. Reserves were estimated to be 16.9 Mt at a grade of 1.82 g/t gold (Mining Journal, 2012a).

Stratex International plc of the United Kingdom engaged in drilling at the Black Rock prospect in Afar in 2012. Alecto Minerals plc of the United Kingdom planned to start drilling at the Wayu Boda project in the first quarter of 2013 (Mining Journal, 2012b).

Iron and Steel.—In October 2012, MIDROC Ethiopia signed an agreement to build the Toussa Steel Factory in Kombolcha in Amhara State. The planned capacity of the plant was 800,000 metric tons per year (t/yr) of rebar, 400,000 t/yr of light sections, and 150,000 t/yr of wire rods. The plant would use imported scrap as raw material. MIDROC Ethiopia hoped to complete the \$570 million plant within 3 years (Tiret Magazine, 2012c).

Niobium (Columbium) and Tantalum.—EMDSC produced about 207 metric tons (t) of columbite-tantalite at the Kenticha Mine in fiscal year 2011; the company planned to increase output to 215 t in fiscal year 2012. By the fourth quarter of 2013, EMDSC planned to increase the capacity of the Kenticha Mine to 300 t/yr from 210 t/yr. In May 2012, EMDSC suspended production because of Government plans to stop exporting unprocessed concentrates and to focus on building a new plant for downstream processing. The new processing plant would produce niobium pentoxide (Nb_2O_5) and tantalum powder and wire and reduce the relatively high uranium content of 0.5% that was unacceptable for import in several European countries (African Mining, 2012; Araya, 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 (Araya, 2013).

Industrial Minerals

Cement.—Domestic cement production increased to an estimated 3.5 Mt in fiscal year 2012 from 2.3 Mt in fiscal year

2011 and 1.64 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 18 operating cement plants with a total capacity of about 11 million metric tons per year (Mt/yr) at the end of 2012 compared with 15 plants with a total capacity of 7.9 Mt/yr at the end of 2011 and 11 plants with a total capacity of 3.15 Mt/yr in mid-2011. In late 2011, four new plants opened. East Cement S.C., which was the largest of the new plants, had a capacity of 750,000 t/yr; Capital Clinker and Packaging plc and Pioneer Cement plc, 450,000 t/yr each; and Encheni Medrock Cement plc, 300,000 t/yr. Mugher and Messebo completed expansions of their plants' capacities to between 2.2 and 2.3 Mt/yr each from less than 900,000 t/yr each in late 2011 (Mesfin, 2011; International Cement Review, 2012b, 2013; Ministry of Foreign Affairs, 2012).

By the end of 2012, seven new cement plants were expected to be completed, of which three actually were completed at yearend. Derba MIDROC Cement plc started production at two plants at Derba with capacities of 2.5 Mt/yr and 90,000 t/yr, respectively. Ture Dire Dawa Cement Factory S.C.'s plant at Dire Dawa, which had a capacity of 550,000 t/yr, started in November. National Cement S.C. and Habesha Cement S.C. postponed the opening of their plants with capacities of 1.2 Mt/yr each to 2013 and 2014, respectively. Little progress appeared to have been made on CH Clinker Manufacturing plc's and Ethio Cement's plants at yearend (International Cement Review, 2012a, b; 2013; Edwards, 2013).

Dangote Cement plc of Nigeria planned to complete a new plant at Mugher with a capacity of 2.5 Mt/yr in 2014. Lalibela Cement S.C. also planned to start production at its new plant in Dejen with a capacity of 1.2 Mt/yr in 2014. Sino-Saudi Cement plc planned to complete a new plant with a capacity of 1.5 Mt/yr by 2015 (International Cement Review, 2012a, b).

Gemstones.—Artisanal miners produced gemstones including amethyst, aquamarine, emerald, garnet, opal, peridot, sapphire, and tourmaline. In fiscal year 2012, gemstone exports were 16,523 kg compared with the Government's target of 18,000 kg. Between late 2010 and early 2012, nearly 1,000 kg of aquamarine was produced about 30 kilometers from Shakiso (Laurs and others, 2012; Mesfin, 2012).

Potash.—In April 2012, Allana Resources Inc. of Canada estimated that the Dallol potash deposits in the Danakil Depression had measured and indicated resources of 1.89 billion metric tons at a grade of 18.9% potassium chloride (KCl). Allana was engaged in a feasibility study on a new mine at Dallol in late 2012. Depending on the results of the study, Allana could produce 1 Mt/yr of potash at Dallol starting in late 2014 (Allana Potash Corp., 2012, p. 3, 25, 31, 34).

Soda Ash.—In 2012, NMiC purchased a 62% share in Abiyata Soda Ash S.C., which produced soda ash from Lake Abiyata for domestic consumption. NMiC and the Government planned to build a new processing plant that was likely to increase soda ash production to between 200,000 t/yr and 1 Mt/yr. The new plant would use brine from nearby Lake Shala. NMiC and the Government also planned to

rehabilitate the existing plant to continue production until the new plant opened in 2017 (Tiret Magazine, 2012b).

Outlook

Cement production is likely to increase from 2013 through 2017. By fiscal year 2015, cement production capacity is planned to increase to 27 Mt/yr 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. Gold and soda ash production are likely to increase starting in 2015 and 2017, respectively. Niobium and tantalum downstream processing could start after mining resumes at Kenticha. Potash mining could also start in the near future (Ministry of Finance and Economic Development, 2013, p. 34).

References Cited

- African Development Bank Group, 2013, Ethiopia, *in* African statistical yearbook 2013: Tunis-Belvedere, Tunisia, African Development Bank Group, p. 180–184.
- African Mining, 2012, Ethiopia in tantalum expansion: African Mining, v. 17, no. 2, March–April, p. 34–38.
- Allana Potash Corp., 2012, Corporate presentation—November 2012: Toronto, Ontario, Canada, Allana Potash Corp., 2 p. (Accessed August 20, 2014, at <http://www.allanapotash.com/i/pdf/CorporatePresentation.pdf>.)
- Araya, Elleni, 2013, Rough cut ban U-turn in bid to boost mining revenue: Addis Fortune [Addis Ababa, Ethiopia], August 4, p. 7.
- Edwards, Peter, 2013, Ethiopian cement focus: Global Cement Magazine, January, p. 49–51.
- International Cement Review, 2012a, Breaking ground on new plants: International Cement Review, July, p. 18–29.
- International Cement Review, 2012b, Ethiopia—Future cement strategy: International Cement Review, May, p. 138–142.
- International Cement Review, 2013, Welcome to the new builds: International Cement Review, May, p. 22–31.
- Laurs, B.M., Simmons, W.B., and Falster, A.U., 2012, New gem discoveries in Ethiopia: Gems & Gemology, v. 48, no. 1, Spring, p. 66–67.
- Mesfin, Mahlet, 2011, Cement takes a rollercoaster ride: Addis Fortune [Addis Ababa, Ethiopia], November 27, p. 2–3.
- Mesfin, Mahlet, 2012, Artisan gold miners outshine last year's efforts: Addis Fortune [Addis Ababa, Ethiopia], July 22. (Accessed August 7, 2013, at http://www.addisfortune.com/Vol_13_No_638_Archive/Artisan Gold Miners Outshine Last Year's Efforts.htm.)
- Mining Journal, 2012a, Study finds 105,000 oz/y of gold at Tulu Kapi: Mining Journal, December 14, p. 9.
- Mining Journal, 2012b, Transition period: Mining Journal, September 14, p. 14, 16, 18–19.
- Ministry of Finance and Economic Development, 2013, Annual progress report for F.Y. 2011/12—Growth and transformation plan: Addis Ababa, Ethiopia, Ministry of Finance and Economic Development, 111 p. (Accessed August 9, 2013, at <http://www.mofed.gov.et/English/Resources/Documents/GTP 2004 English.pdf>.)
- Ministry of Foreign Affairs, 2012, Ethiopia bans importation of cement: Ministry of Foreign Affairs, March 26. (Accessed July 16, 2012, at <http://www.mfa.gov.et/news/more.php?newsid=195>.)
- Papp, J.F., 2013, Tantalum: U.S. Geological Survey Mineral Commodity Summaries 2013, p. 162–163.
- Papp, J.F., 2014, Niobium and tantalum, *in* Metals and minerals: U.S. Geological Survey Minerals Yearbook 2012, v. I, p. 52.1–52.14. (Accessed July 18, 2014, at <http://minerals.usgs.gov/minerals/pubs/commodity/niobium/myb1-2012-niobi.pdf>.)
- Tiret Magazine, 2012a, Ascending heights of success: Tiret Magazine, October, p. 56–59.
- Tiret Magazine, 2012b, MIC Ventures with Government on Abijata-Shalla Soda Ash S.C.: Tiret Magazine, October, p. 32.
- Tiret Magazine, 2012c, Toussa Steel Factory plc on the move: Tiret Magazine, October, p. 13.

TABLE 1
ETHIOPIA: PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity ³		2008	2009	2010	2011 ^e	2012 ^e
Cement, hydraulic		1,659,127 ^r	1,688,014 ^r	1,638,613 ^r	2,300,000	3,500,000
Clays: ⁴						
Brick clay ^e		42,000 ^r	39,000 ^r	53,000 ^r	59,000 ^r	66,000
Kaolin, china clay		1,275	3,534 ⁵	3,600	4,000 ⁵	3,300
Other clay	cubic meters	289,584	300,000	12,398 ^r	40,958 ^{r,5}	46,000
Coal, lignite		--	15,000	20,000	20,000	20,000
Diatomite ^e		--	4,104 ⁵	4,000	4,000	4,000
Feldspar		520 ^r	750	1,500	441 ^{r,5}	370
Gemstones:						
Amethyst	kilograms	6 ^r	6	7 ^r	-- ^{r,5}	--
Aquamarine	do.	11	10	105 ^r	667 ^{r,5}	700
Citrine	do.	7	5	1	3 ⁵	3
Emerald	do.	3	7	10	15 ^r	15
Garnet	do.	1	4	24 ^r	29 ^{r,5}	30
Morganite	do.	NA	1	4	1 ⁵	1
Opal	do.	1,217	651	12,821 ^r	13,839 ^{r,5}	14,000
Peridot	do.	4 ^r	4	-- ^r	7 ^{r,5}	10
Quartz	do.	19	7	2,853 ^r	1,492 ^{r,5}	1,500
Ruby	do.	1	19	26	56 ⁵	55
Sapphire	do.	1	--	1	45 ^{r,5}	45
Tourmaline	do.	3	1	2	103 ^{r,5}	110
Gold, mine output, Au content	do.	3,135	4,005 ^r	6,773 ^r	10,891 ^{r,5}	12,311 ⁵
Gypsum and anhydrite, crude		32,989	37,000 ^r	41,000 ^r	46,000 ^r	52,000
Lime		4,068 ^r	3,829 ^r	3,254 ^r	3,300 ^r	3,300
Niobium (columbium) and tantalum, ore and concentrate:						
Gross weight	kilograms	223,900	397,544	252,433	285,000	380,000
Nb content	do.	15,700	27,800	21,600	24,500	26,000
Ta content	do.	78,100	98,500	81,600	94,500	91,000
Platinum, mine output, Pt content	kilograms	10	10	8	-- ⁵	--
Quartz		119	200 ^r	280 ^r	363 ^{r,5}	300
Salt, rock		300,000 ^{r,e}	350,709	330,359 ^r	388,153 ^{r,5}	440,000
Silver, mine output, Ag content	kilograms	2,714 ^r	771 ^r	1,100 ^{r,e}	1,700 ^r	1,900
Soda ash, natural		3,707 ^r	4,046 ^r	4,000 ^r	3,500 ^r	3,000
Steel:						
Crude ^e		150,000	150,000	150,000	130,000	130,000
Semimanufactured ⁶		643,903 ^r	785,925 ^r	464,304 ^r	500,000 ^r	500,000
Stone, sand and gravel: ⁴						
Basalt:						
Construction stone		1,146,000	1,300,000 ^r	1,400,000 ^r	1,600,000 ^r	1,800,000
Other ^e		69,000 ^r	77,000 ^r	85,000 ^r	96,000 ^r	110,000
Dolomite		22,478 ^r	2,600 ^r	2,900 ^{r,e}	3,190 ^{r,5}	2,700
Granite ^e	square meters	4,591 ⁵	5,100 ^r	5,700 ^r	6,400 ^r	7,200
Ignimbrite ^e	cubic meters	350,000	390,000 ^r	430,000 ^r	490,000 ^r	550,000
Limestone:						
Slab/tiles	square meters	8,380 ^r	2,973 ^r	3,300 ^{r,e}	3,700 ^r	4,200
Other ^e	thousand metric tons	1,900	2,100 ^r	2,300 ^r	2,600 ^r	2,900
Marble:						
Slab/tiles	square meters	264,529 ^r	114,374 ^r	152,421 ^r	170,000 ^r	190,000
Terrazzo ^e	do.	130,000	150,000 ^r	170,000 ^r	190,000 ^r	210,000
Block and other		25,000	145,000 ^r	250,000 ^r	280,000	310,000

See footnotes at end of table.

TABLE 1—Continued
ETHIOPIA: PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity ³	2008	2009	2010	2011 ^e	2012 ^e
Stone, sand and gravel: ⁴ —Continued					
Pumice	350,000	250,000 ^e	128,106 ^r	254,152 ^{r,5}	290,000
Rhyolite ^e	26,000 ^r	29,000 ^r	32,000 ^r	36,000 ^r	41,000
Sand ^e	thousand metric tons	774 ⁵	860 ^r	950 ^r	1,200
Sandstone ^e	do.	1,600 ^r	1,800 ^r	2,000 ^r	2,600
Scoria ^e		160,000 ^r	180,000 ^r	200,000 ^r	260,000
Silica sand		6,546	30,700	70,250	7,000 ^r

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Includes data available through February 21, 2014.

²Data are for the Ethiopian calendar year ending July 7 of the year listed, except for steel.

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

⁴When reported as volume or pieces, conversions to metric tons are estimated.

⁵Reported figure.

⁶Galvanized steel sheets only.

TABLE 2
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Caustic soda	Abiyata Soda Ash SC [National Mining Corp. plc (NMiC) (a subsidiary of MIDROC Ethiopia Investment Group), 62%]	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 owned)	Plant at Mugher	2,276,000.
Do.	Messebo Building Materials Production plc (Government owned)	Plant at Mekele	2,240,000.
Do.	East Cement S.C.	Plant at Dukem	750,000.
Do.	Ture Dire Dawa Cement Factory S.C.	Plant at Dire Dawa	550,000.
Do.	Capital Clinker and Packaging plc	NA	450,000.
Do.	Pioneer Cement plc	NA	450,000.
Do.	Hunng 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.	National Cement S.C.	Plant at Dire Dawa	150,000.
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 S.C. (EMDSC)	Mine at Bamba Wuha	7,500.
Other	Pioneer Cement plc	Mine near Melka Jebdu	67,000. ^e
Coal, lignite	Ethio-Pak Coal Mining plc	Mine at Dilby	20,000. ^e
Dolomite	Ethiopian Mineral Development S.C. (EMDSC) (Government owned)	Mine at Soloka	8,000. ¹
Feldspar	do.	Kenticha Mine near Borena	8,000. ¹

See footnotes at end of table.

TABLE 2—Continued
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gemstones, opal	kilograms	Artisanal miners	Mine at Wegel Tena	750. ^e
Glass		Ethiopia Hansom International Glass plc [CGC Overseas Construction Ltd. (CGCOC) and China-Africa Development Fund]	Plant at Addis Ababa	41,000.
Do.		Addis Ababa Bottle and Glass S.C.	do.	8,000.
Gold	kilograms	MIDROC Gold Mine plc (a subsidiary of MIDROC Ethiopia Investment Group)	Mine at Lega Dembi	4,200.
Do.	do.	do.	Sakaro Mine	NA.
Do.	do.	Artisanal miners	Mines in Oromia State	3,000. ^e
Do.	do.	do.	Mines in Tigray State	2,100. ^e
Do.	do.	do.	Mines in Benishangul-Gumuz State	1,200. ^e
Do.	do.	do.	Mines in Southern Nations State	800. ^e
Do.	do.	do.	Mines in Amhara State	300. ^e
Gypsum		Pioneer Cement plc	Mine near Dewelle	30,000. ^e
Lime		Senkele Lime Factory	Plant at Ambo	6,000. ^e
Niobium (columbium) and tantalum, ore and concentrate		Ethiopian Mineral Development S.C. (EMDSC)	Kenticha Mine near Borena ²	90 tantalum; 20 niobium.
Do.		Artisanal miners	Mines in Oromia Regional State ²	25 tantalum; 14 niobium.
Platinum	kilograms	Nyota Minerals Ltd.	Mine at Yubdo ²	10. ^e
Quartz		Ethiopian Mineral Development S.C. (EMDSC)	Kenticha Mine near Borena ²	8,000. ¹
Salt		Artisanal miners	Mines at Afdera Lake	NA.
Silica sand		CGC Overseas Construction Ltd. (CGCOC)	Mine near Lemi	180,000. ^e
Soda ash		Abiyata Soda Ash SC	Mine at Lake Abiyata	20,000. ^e
Steel:				
Crude		Abyssinia Integrated Steel plc	Plant at Debre Zeit	150,000. ^e
Do.		Sheba Steel Mills plc	do.	20,000. ^e
Semimanufactured		Abyssinia Integrated Steel plc	do.	150,000.
Do.		Zuquala Steel Rolling Mill Enterprise (Government owned)	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. ^e
Stone, dimension	cubic meters	Ethiopian Marble Processing Enterprise (Government owned)	Mines at Eckonti, Harar, and Mankush	5,000. ^e
Do.	square meters	do.	Plants at Addis Ababa, Bole, and Nifas Silk	65,000.
Do.	cubic meters	National Mining Corp. plc (NMiC) (a subsidiary of MIDROC Ethiopia Investment 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.

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

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

²Not operating at the end of 2012.