



2011 Minerals Yearbook

ETHIOPIA

THE MINERAL INDUSTRY OF ETHIOPIA

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In 2011, Ethiopia played a significant role in the world's production of tantalum; the country's share of global tantalum mine production amounted to 12%. 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 (Papp, 2012).

Minerals in the National Economy

In fiscal year 2011 (which ran from July 8, 2010, to July 7, 2011, and was concurrent with the Ethiopian calendar year), the manufacturing sector accounted for 4.6% of the gross domestic product, and mining and quarrying, 0.6%. The value of output in the mining sector increased by 57.7% in fiscal year 2011. Ethiopia's gold exports were valued at \$461.7 million in fiscal year 2011, which was 17% of the value of total exports (National Bank of Ethiopia, 2012, p. 69, 137).

Production

In fiscal year 2011, the estimated production of most gemstones increased by between 300% and 400%; gold, by 80%; tantalum, by 16%; and niobium (columbium), by 13%. Crude steel production decreased by an estimated 13%. Platinum mining shut down (table 1).

Structure of the Mineral Industry

Mugher Cement Enterprise and Messebo Building Materials Production plc were state owned; other cement plants were privately owned. Gold, marble, and silica sand mining companies were privately owned. State-owned Ethiopian Mineral Development S.C. produced dolomite, feldspar, kaolin, niobium, quartz, and tantalum. Artisanal miners produced clay, crushed stone, diatomite, gemstones, gold, gypsum, salt, sand, and silica sand (table 2).

Commodity Review

Metals

Gold.—In the first 11 months of fiscal year 2011, artisanal miners produced 6,615 kilograms (kg) of gold compared with 2,534 kg in the same period in fiscal year 2010. Production in Oromia State was 2,230 kg; Tigray State, 1,750 kg; Benishangul-Gumuz State, 1,314 kg; and Amhara, Gambella, and Southern States, a total of 1,321 kg (Mesfin, 2011b).

Midroc Gold Mine Pvt. Ltd. Co. exported about 3,500 kg of gold from the Lega Dembi Mine in fiscal year 2011. In July, Midroc announced the discovery of 33,000 kg of contained gold resources at Jillaye. The remaining life of the Lega Dembi Mine was estimated to be between 12 and 13 years. Midroc was building the new Sakaro Mine; the development of Jillaye could

allow the company to continue gold mining until at least 2030 (Haileyesus, 2011; Mesfin, 2012).

In late December 2011, National Mining Corporation plc (NMC) announced the discovery of 550,000 kg of contained gold resources near Shakiso. NMC planned to mine 6,000 kilograms per year (kg/yr) of gold from its deposits for at least 20 years; the new mine was expected to be completed by the end of 2014 (Mesfin, 2012).

In June 2011, Nyota Minerals Ltd. of Australia revised its resource estimate at the Tulu Kapi project to 16 million metric tons (Mt) at a grade of 2.84 grams per metric ton gold. Nyota planned to complete a feasibility study on a new mine at Tulu Kapi by the end of the first half of 2012. Depending on the results of the study, Nyota could produce between 3,100 and 3,600 kg/yr of gold at Tulu Kapi (Nyota Minerals Ltd., 2011, p. 3, 7).

Stratex International plc of the United Kingdom and Centamin Egypt Ltd. of the United Kingdom engaged in drilling at Shehagne in 2011. Syrah Resources Ltd. of Australia purchased the Dawa, the Moyale, and the Nejo exploration projects (Stratex International plc, 2012, p. 5).

Iron and Steel.—Tossa Steel Factory planned to build a new steel plant near Kombolcha with a capacity of 1.3 million metric tons per year (Mt/yr) within 3 years. Power requirements were likely to be about 300 megawatts of capacity. Ethiopia's steel demand was about 1.2 Mt/yr in late 2011; demand was expected to increase to 3.1 Mt/yr in fiscal year 2015 (Teklehaimanot, 2011).

Niobium (Columbium) and Tantalum.—The state-owned Ethiopian Mineral Development Share Co. produced about 220 metric tons (t) of columbite-tantalite at the Kenticha Mine in fiscal year 2011, of which about 80% was exported to China. Between 45% and 60% of the mine's production was tantalum pentoxide (Ta_2O_5) and between 10% and 20% was niobium pentoxide (Nb_2O_5). By fiscal year 2014, the Government planned to increase the capacity of the Kenticha Mine to 300 metric tons per year (t/yr). The life of the mine was estimated to be at least 15 years (Ministry of Finance and Economic Development, 2010, p. 12; Mining Journal, 2011; Addis Fortune, 2012).

Artisanal miners produced 65 t of columbite-tantalite in fiscal year 2010 (the latest period for which data were available), of which about 15% was Ta_2O_5 and 10% was Nb_2O_5 . The Government planned to increase artisanal columbite-tantalite production to 100 t/yr by fiscal year 2013 (Ministry of Finance and Economic Development, 2010, p. 12; G.E. Mekonen, Head, Mineral Licensing and Administration Core Process, Ministry of Mines, written commun., September 29, 2011).

Cement.—Ethiopia had 15 operating cement plants with a total capacity of about 7.9 Mt/yr in late 2011. National cement demand was about 8 Mt/yr. Recent increases in demand were attributable to new dams, housing, and road construction (International Cement Review, 2010, 2012; Mesfin, 2011a).

Ethiopia had 11 cement plants at the end of fiscal year 2011; in addition, 4 new plants opened by late November. 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 were producing at the rate of 657,000 t/yr and 630,000 t/yr, respectively, in fiscal year 2011. By late 2011, the companies completed expansions of their plants' capacities to between 2.2 and 2.3 Mt/yr each from 900,000 t/yr each. National Cement S.C. produced at the rate of nearly 113,000 t/yr in fiscal year 2011 (International Cement Review, 2010, 2012; Gebreselassie, 2011; Mesfin, 2011a; Ministry of Foreign Affairs, 2012).

By the end of May 2012, five new cement plants were expected to be opened. Derba Midroc Cement plc's new plant at Derba was likely to have a capacity of 2.3 Mt/yr; National Cement's plant at Holeta, 1.2 Mt/yr; CH Clinker Manufacturing plc's plant in Oromia State, 450,000 t/yr; Ethio Cement's plant at Chanco, about 360,000 t/yr; and Ture Dire Dawa Cement Factory S.C.'s plant at Dire Dawa, 300,000 t/yr. Lalibela Cement Share Factory planned to start production at its new plant in Dejen in June 2012 and reach the full capacity of 1.2 Mt/yr in 2014. Habesha Cement S.C. planned to complete its new plant by the end of 2012. Dangote Cement plc of Nigeria planned to complete a new plant with a capacity of 2.5 Mt/yr in the second half of 2014 (Ahmed, 2011; International Cement Review, 2012).

Clays, Crushed Stone, Gypsum, and Pozzolanic Materials.—Lalibela's cement plant was expected to consume 928,000 t/yr of limestone, 252,000 t/yr of pozzolanic materials, 164,000 t/yr of clay, and 84,000 t/yr of gypsum. The company planned to quarry raw materials locally (Ahmed, 2011).

Gemstones.—Artisanal miners produced gemstones including amethyst, aquamarine, emerald, garnet, opal, peridot, sapphire, and tourmaline. In the first 11 months of fiscal year 2011, artisanal gemstone production was 14,008 kg compared with 3,113 kg during the same period in fiscal year 2010 (Mesfin, 2011b).

Potash.—In June 2011, Allana Resources Inc. of Canada estimated that the Dallol potash deposits in the Danakil Depression had measured and indicated resources of 673 Mt at a grade of 18.65% potassium chloride (KCl). Allana planned to complete a feasibility study on a new mine at Dallol by late 2012. Depending on the results of the study, Allana could produce 1 Mt/yr of potash at Dallol (Smith, 2011; Allana Potash Corp., 2012).

Soda Ash.—NMC produced soda ash from Lake Abiyata, which was used in the company's caustic soda plant. NMC planned to complete new caustic soda and soda ash plants with capacities of 50,000 t/yr and 35,000 t/yr, respectively,

by fiscal year 2015 (Ministry of Finance and Economic Development, 2010, p. 10).

Outlook

Niobium and tantalum production is expected to increase starting in fiscal year 2014, and gold and soda ash, in fiscal year 2015. Cement production is likely to continue to increase substantially to meet demand. By fiscal year 2015, cement production is expected to increase to 27 Mt from 2.3 Mt in fiscal year 2011. 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. Potash mining could also start in the near future (Ministry of Finance and Economic Development, 2010, p. 12).

References Cited

- Addis Fortune, 2012, Ethiopia courts Chinese, German investors for stake in tantalum mine: Addis Fortune [Addis Ababa, Ethiopia], February 26, p. 26.
- Ahmed, Hadra, 2011, Lalibela strives to meet cement demand: Addis Fortune [Addis Ababa, Ethiopia], July 17, p. 16.
- Allana Potash Corp., 2012, Potash in Africa: Toronto, Ontario, Canada, Allana Potash Corp., 2 p.
- Gebreselassie, Elias, 2011, Messebo aims to reach full new capacity this month: Addis Fortune June 5. (Accessed July 9, 2012, at http://www.addisfortune.com/Vol_10_No_579_Archive/Messebo Aims to Reach Full New Capacity This Month.htm.)
- Haileyesus, Samson, 2011, MIDROC, three mines lucky with 33tn in gold find: Addis Fortune [Addis Ababa, Ethiopia], July 10, p. 10.
- International Cement Review, 2010, Potential—Off the beaten track: International Cement Review, October, p. 20–30.
- International Cement Review, 2012, Ethiopia—Future cement strategy: International Cement Review, May, p. 138–142.
- Mesfin, Mahlet, 2011a, Cement takes a rollercoaster ride: Addis Fortune [Addis Ababa, Ethiopia], November 27, p. 2–3.
- Mesfin, Mahlet, 2011b, Traditional miners exceed GTP targets: Addis Fortune [Addis Ababa, Ethiopia], July 10, p. 25.
- Mesfin, Mahlet, 2012, National Mining Corporation hits jackpot: Addis Fortune [Addis Ababa, Ethiopia], January 1, p. 1, 4.
- Mining Journal, 2011, EMDSC's mission control, *in* Ethiopia—A Mining Journal special publication: Mining Journal, January 21, p. 8.
- Ministry of Finance and Economic Development, 2010, Growth and transformation plan 2010/11–2014/15—Volume II—Policy matrix: Addis Ababa, Ethiopia, Ministry of Finance and Economic Development, 38 p.
- 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>.)
- National Bank of Ethiopia, 2012, 2010/11 annual report: Addis Ababa, Ethiopia, National Bank of Ethiopia, 160 p.
- Nyota Minerals Ltd., 2011, Annual report 30 June 2011: West Perth, Western Australia, Australia, Nyota Minerals Ltd., 88 p.
- Papp, J.F., 2012, Tantalum: U.S. Geological Survey Mineral Commodity Summaries 2012, p. 162–163.
- Smith, Lisa, 2011, A product in demand: Mining Journal, November 11, p. 17–25.
- Stratex International plc, 2012, Annual report 2011: London, United Kingdom, Stratex International plc, 56 p.
- Teklehaimanot, Hailu, 2011, Bidding for 1.3m tones [sic] steel factory sees nine interest: Addis Fortune [Addis Ababa, Ethiopia], October 30, p. 1, 4.

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

(Metric tons unless otherwise specified)

Commodity ³		2007	2008	2009 ^e	2010 ^e	2011 ^e
Cement, hydraulic		1,625,560	1,834,000	2,100,000	2,200,000 ^r	2,300,000
Clays: ⁴						
Brick ^e		130,000	130,000	140,000	140,000	140,000
Kaolin, China clay		1,400 ^e	1,275	3,534 ⁵	3,600	4,000
Other clay ^e	cubic meters	50,000 ⁵	289,584 ⁵	300,000	550,000	550,000
Coal, lignite		--	--	15,000	20,000	20,000
Columbite-tantalite, ore and concentrate:						
Gross weight	kilograms	171,000 ^r	223,900 ^r	397,544 ^{r,5}	252,433 ^{r,5}	285,000
Nb content	do.	12,000 ^r	15,700 ^r	27,800 ^{r,5}	21,600 ^{r,5}	24,500
Ta content	do.	63,000 ^r	78,100 ^r	98,500 ^{r,5}	81,600 ^{r,5}	94,500
Diatomite ^e		--	--	4,104 ⁵	4,100	4,100
Feldspar		459	424	750 ⁵	1,500 ⁵	1,500
Gemstones: ⁶						
Amethyst	kilograms	20 ^e	11	6 ⁵	3 ⁵	12
Aquamarine	do.	6 ^e	11	10 ⁵	74 ⁵	330
Emerald	do.	1 ^e	3	7 ⁵	10 ⁵	45
Garnet	do.	10 ^e	1	4 ⁵	26 ⁵	120
Opal	do.	522	1,217	651 ⁵	3,147 ⁵	14,000
Peridot	do.	8 ^e	11	4 ⁵	1 ⁵	5
Quartz	do.	33 ^e	19	7 ⁵	290 ⁵	1,300
Sapphire	do.	-- ^e	1	-- ⁵	1 ⁵	5
Tourmaline	do.	2 ^e	3	1 ⁵	2 ⁵	10
Gold, mine output, Au content ⁶	do.	4,368	3,465	6,251 ⁵	5,936 ⁵	10,700
Gypsum and anhydrite, crude		29,886	32,989	36,000	36,000	36,000
Lime ^e		5,000	6,000	6,000	6,000	6,000
Platinum, mine output, Pt content	kilograms	5	10	10	8 ⁵	--
Quartz		72	119	210	210	210
Salt, rock ^e		240,000	260,000	350,709 ⁵	550,486 ⁵	560,000
Silver, mine output, Ag content	kilograms	707	1,026	1,400	1,400	1,400
Soda ash, natural		286	1,597	1,600	1,600	1,600
Steel: ^e						
Crude		110,000	150,000 ^r	150,000 ^r	150,000 ^r	130,000
Semimanufactured		200,000	240,000 ^r	240,000 ^r	240,000 ^r	220,000
Stone, sand and gravel: ⁴						
Basalt:						
Construction stone		1,205,000	1,146,000	1,200,000	1,200,000	1,200,000
Other ^e		61,000 ⁵	61,000	66,000	66,000	66,000
Dolomite		5,653	81,889	89,000	89,000	89,000
Granite	square meters	8,411	4,591	5,000	5,000	5,000
Ignimbrite	cubic meters	250,938	350,000	380,000	380,000	380,000
Limestone:						
Slab/tiles	square meters	338	358	390	390	390
Other	thousand metric tons	1,900	1,900	2,000	2,000	2,000
Marble: ^e						
Slab/tiles	square meters	32,700 ⁵	33,657 ⁵	36,000	36,000	36,000
Terrazzo	do.	130,000	130,000	140,000	140,000	140,000
Block and other		23,000	23,000	25,000	25,000	25,000
Pumice		22,000	35,000	250,000	350,000	350,000
Rhyolite ^e		23,000	23,000	25,000	25,000	25,000
Sand	thousand metric tons	842	774	840	840	840
Sandstone ^e	do.	1,400	1,400	1,500	1,500	1,500
Scoria ^e		140,000	140,000	150,000	150,000	150,000
Silica sand		6,302	6,546	30,700 ⁵	70,250 ⁵	71,000

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through January 10, 2013.

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.

⁶Does not include smuggled artisanal production.

TABLE 2
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(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 (NMC), 54%]	Plant at Ziway	10,000.
Cement		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.		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.		Derba Midroc Cement plc	Plant at Dejen	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.	Mine at Bamba Wuha	7,500.
Other		Pioneer Cement plc	Mine near Melka Jebdu	67,000. ^c
Coal, lignite		Ethio-Pak Coal Mining plc	Mine at Dilby	20,000. ^c
Dolomite		Ethiopian Mineral Development S.C. (Government owned)	Mine at Soloka	8,000. ¹
Feldspar		do.	Kenticha Mine near Borena	8,000. ¹
Gemstones, opal	kilograms	Artisanal miners	Mine at Wegel Tena	750. ^c
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 S.C.	do.	8,000.
Gold	do.	Midroc Gold Mine Pvt. Ltd. Co. (subsidiary of Midroc Ethiopia Technology Group)	Mine at Lega Dembi	4,200.
Do.	do.	Artisanal miners	Mines in Oromia State	2,300. ^c
Do.	do.	do.	Mines in Tigray State	1,800. ^c
Do.	do.	do.	Mines in Benishangul-Gumuz State	1,400. ^c
Gypsum		Pioneer Cement plc	Mine near Dewelle	30,000. ^c
Lime		Senkele Lime Factory	Plant at Ambo	6,000. ^c
Niobium (columbium) and tantalum, ore and concentrate		Ethiopian Mineral Development S.C.	Kenticha Mine near Borena	90 tantalum; 20 niobium.
Do.		Artisanal miners	NA	25 tantalum; 14 niobium.
Platinum	kilograms	Nyota Minerals Ltd.	Mine at Yubdo ²	10. ^c
Quartz		Ethiopian Mineral Development S.C.	Kenticha Mine near Borena	8,000. ¹
Salt		Artisanal miners	Mines at Afdera Lake	NA.
Silica sand		CGC Overseas Construction Ltd. (CGCOC)	Mine near Lemi	180,000. ^c
Soda ash		Abiyata Soda Ash SC	Mine at Lake Abiyata	20,000. ^c
Steel:				
Crude		Abyssinia Integrated Steel plc	Plant at Debre Zeit	150,000. ^c
Do.		Sheba Steel Mills plc	do.	20,000. ^c
Semimanufactured		Abyssinia Integrated Steel plc	do.	150,000.
Do.		Zuqala 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.

See footnotes at end of table.

TABLE 2—Continued
ETHIOPIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Stone, crushed		CGC Overseas Construction Ltd. (CGCOC)	Plant at Addis Ababa	930,000. ^c
Stone, dimension	cubic meters	Ethiopian Marble Processing Enterprise (Government owned)	Mines at Eckonti, Harar, and Mankush	5,000. ^c
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.

^cEstimated. 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 2011.