

2007 Minerals Yearbook

ETHIOPIA

THE MINERAL INDUSTRY OF ETHIOPIA

By Thomas R. Yager

In 2007, Ethiopia played a significant role in the world's production of tantalum; the country's share of global tantalum mine production amounted to 5%. Other domestically significant mining and mineral processing operations included cement, crushed stone, dimension stone, and gold (Magyar, 2008). Ethiopia was not a globally significant consumer of minerals.

Minerals in the National Economy

In fiscal year 2006-07, the manufacturing sector accounted for 5.1% of the gross domestic product, and mining and quarrying, 0.4%. The value of output in the mining sector increased by 6% in fiscal year 2006-07. An estimated 500,000 Ethiopians were employed in artisanal mining activities (D'Souza, 2006; International Monetary Fund, 2008, p. 5).

Production

In fiscal year 2006-07, the production of tantalum increased by an estimated 10%, and niobium (columbium), 9%. Silver production declined by an estimated 40%; gold, by 16%; and opal, by 15%. All soda ash mining operations were shut down. Cement output increased by an estimated 50% from fiscal year 2002-03 to fiscal year 2005-06 (Ethiopia Ministry of Mines and Energy, 2007, p. 33).

Structure of the Mineral Industry

Mugher Cement Enterprise and Messebo Building Materials Production Share Co. were state owned; the Dire Dawa cement plant was privately owned. Gold, marble, and platinum mining companies and most salt mining companies were privately owned; niobium (columbium), soda ash, and tantalum mining companies were state-owned. Artisanal miners produced clay, crushed stone, diatomite, gemstones, gold, gypsum, salt, sand, and silica sand (table 2; D'Souza, 2006).

Commodity Review

Metals

Gold.—Midroc Gold Mine plc (a subsidiary of Midroc Ethiopia Group) produced more than 3,000 kilograms per year of gold at the Lega Dembi Mine in southern Ethiopia. The mine had an estimated life of 14 years in late 2006; Midroc planned to start underground mining in late 2007 or early 2008. Sheba Exploration plc of the United Kingdom explored for gold and copper in northern Ethiopia. Golden Prospect Mining Company Ltd. of the United Kingdom explored at Tulu Kapi; the company was purchased by Minerva Resources plc of the United Kingdom in July (Mining Review Africa, 2006; Ethiopia Ministry of Mines and Energy, 2007, p. 21-22).

Iron and Steel.—Abyssinia Integrated Steel plc was the leading domestic producer of rebar. The company was producing at a rate of 150,000 metric tons per year (t/yr) in October 2007; an expansion was expected to increase output to 300,000 t/yr by April 2008. Sheba Steel Mills plc increased its capacity to 20,000 t/yr from 10,000 t/yr in 2007; the company planned a further expansion to 50,000 t/yr by mid-2008 (Ethiopian Reporter, 2006; Alemayehu, 2007b).

Niobium (Columbium) and Tantalum.—In 2007, the Kenticha Mine was producing columbite-tantalite at the rate of more than 120 t/yr. The mine was expected to produce 210 t/yr after the completion of a plant expansion at the end of 2008 (Ethiopia Ministry of Mines and Energy, 2007, p. 32).

Industrial Minerals

Cement.—Ethiopia's cement demand was estimated to be 4.4 million metric tons per year (Mt/yr) in 2006. In late 2007, domestic cement production was estimated to be at most 2 Mt/yr in spite of the opening of new plants. Projects that contributed to shortages of cement included dams for irrigation and hydroelectric power, irrigation canals, residential housing construction, and new roads (Feleke, 2007).

Mugher Cement Enterprise started an expansion of the capacity of its Mugher plant to 2.3 Mt/yr from 900,000 t/yr in September 2006; the project was expected to be completed in September 2009 at a cost of nearly \$160 million. National Cement SC increased its capacity at the Dire Dawa plant to 150,000 t/yr from 72,000 t/yr in August 2007. Jema Cement plc, which had a capacity of 120,000 t/yr, started production in August. Abyssinia Cement plc opened its new cement plant in Chantcho in October. Abyssinia was producing at a rate of 55,000 t/yr in October; the company planned to increase its output to 110,000 t/yr by December and to 730,000 t/yr before October 2009 (Alemayehu, 2007a, b; Ethiopian Reporter, 2007).

North Holding Investment Inc. of the United States planned to complete a new cement plant with a capacity of 7.8 Mt/yr in the Dejen Zone of Amhara Regional State. The plant was expected to be completed in 2009 at a cost of about \$550 million. Derba-Midroc Cement plc planned to build a new plant with a capacity of 2.56 Mt/yr near Chantcho at a cost of nearly \$270 million. Falath Petroleum Co. of Saudi Arabia planned to complete a new plant at Melka Jedu with a capacity of about 1.2 Mt/yr in late 2009 or early 2010; the cost was estimated to be about \$180 million (Beshah, 2007; Mekuria, 2007).

Clay and Shale.—In December 2007, Abyssinia Cement plc was awarded a mining license for clay in Sululata in Oromia State. The company planned to produce 224,000 t/yr of clay for use in its new cement plant. Mugher planned to build a new clay roof tile and brick plant at Alemgena in Oromia State (Alemayehu, 2007a; Ethiopian News Agency, 2007).

Soda Ash.—National Mining Corp. plc planned to spend nearly \$170 million to restart soda ash production at Lake

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Abiyata and to start a new soda ash operation at Lake Shalla. Receding waters in Lake Abiyata forced mining operations to shut down in July 2006. Water levels declined because of the mining and the diversion of the Bulbulla River (which was a tributary of Lake Abiyata) for irrigation projects. The soda ash and caustic soda plants formerly provided raw materials to 65 companies, including a glass bottle factory (Zenebe, 2006, 2007).

Mineral Fuels

Natural Gas.—In June 2007, the Government signed a production-sharing agreement with Petronas Carigali Overseas Sdn Bhd of Malaysia for the development of the Calub and the Hilala gasfields. Petronas planned to build a gas-processing plant at Calub and a pipeline to Djibouti at an estimated cost of \$1.9 billion. Construction of the plant and pipeline could take more than 3 years to complete (Bekele, 2007).

Petroleum.—Petronas was awarded Blocks 11 and 15 near the Calub and the Hilala gasfields in 2007. The company also explored for crude petroleum in the Gambella and the Ogaden Basins. In July, the Government awarded Blocks 7 and 8 in the Ogaden Basin to Lundin Petroleum AB of Sweden. Lundin also held Blocks 2 and 6 in the Ogaden Basin and the Agidala Area in northern Ethiopia (Bekele, 2007; Lundin Petroleum AB, 2008).

Outlook

The low level of mineral exploration in Ethiopia was likely to constrain production of gemstones, gold, platinum, and silver. In the next few years, cement demand was expected to increase to between 5.9 and 7 Mt/yr because of Government plans to build new houses, hydroelectric dams, and roads. Cement production was unlikely to increase until 2009 because of capacity constraints. After 2010, cement production capacity

could increase to as much as 20 Mt/yr. The production of other construction materials was also likely to increase (Feleke, 2007).

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$\label{eq:table 1} \textbf{TABLE 1}$ ETHIOPIA: PRODUCTION OF MINERAL COMMODITIES $^{1,\,2}$

(Metric tons unless otherwise specified)

Commodity	3	2003	2004	2005	2006 ^e	2007 ^e
Cement, hydraulic		1,130,066	1,315,934	1,568,624	1,700,000	1,700,000
Clays: ⁴			_			
Brick ^e		100,000	106,609 5	120,000	120,000	130,000
Kaolin, China clay		3,088	4,251	3,726	1,641 5	1,700
Other clay ^e	cubic meters	28,000	30,000	33,000	33,000	35,000
Columbite-tantalite, ore and conce					_	
Gross weight	kilograms	58,350	70,730	92,500	108,900 5	120,000
Nb content ^e	do.	5,800	7,100	9,300	11,000	12,000
Ta content	do.	35,000 e	45,000	59,000	70,000 5	77,000
Diatomite		700	2,000	400	400	420
Feldspar		208	361	445	478 5	510
Gemstones: ⁶						
Amethyst	kilograms	NA	1	1	43 5	45
Aquamarine	do.	NA	2	2	2	2
Emerald	do.		1			
Garnet	do.	6	11	20	20	20
Opal	do.	187	370	496	516 ⁵	440
Peridot	do.	1			4 5	4
Quartz	do.	31	469	31	31	35
Sapphire	do.	8	1			
Tourmaline	do.	5	5 ^e	1	1	1
Gold, mine output, Au content ⁶	do.	3,875	3,443	4,376	4,028 5	3,400
Gypsum and anhydrite, crude		48,058	51,200	34,729	35,000	37,000
Lime		3,400	3,800	3,800 ^e	3,800	4,000
Platinum, mine output, Pt content ⁷	kilograms				5 5	5
Quartz		115	170	99	40 5	40
Salt, rock		145,070	200,000	87,354	218,000 5	230,000
Silver, mine output, Ag content	kilograms	999	1,133	886	550 ^r	330
Soda ash, natural		4,377	6,444	8,207	4,100 ^r	5
Steel: ^e						
Crude		6,000	30,000	60,000	60,000	110,000
Semimanufactured		40,000	70,000	110,000	110,000	200,000
Stone, sand and gravel: ⁴						
Basalt:						
Construction stone		506,100	477,100	651,700	1,029,000 5	1,100,000
Other		620,000	18,700	52,900	57,700 5	61,000
Dolomite		1,600	2,250	2,148	12,812 5	14,000
Granite	square meters	4,087	19,499	21,000 e	21,000	22,000
Ignimbrite	cubic meters	229,013	229,277	258,829	204,516 5	220,000
Limestone:						
Slab/tiles	square meters	6,420	3,078	3,300 e	3,300	3,500
Other	thousand metric tons	2,290	2,380	1,635	1,750	1,900
Marble:						
Slab/tiles	square meters	106,241	122,008	130,000 ^e	130,000	140,000
Terrazzo	do.	144,045	114,446	120,000 ^e	120,000	130,000
Block and other		16,200	14,600	22,000 ^e	22,000	23,000
Pumice ⁴		218,676	270,994	255,334	255,622 5	270,000
Rhyolite		33,700	20,700	22,000 e	22,000	23,000
Sand ^e	thousand metric tons	660	490	312 5	810 5	860
Sandstone	do.	318	1,221	1,300 e	1,300	1,400
Scoria ^e		100,000	85,000	68,351 5	133,706 5	140,000
Silica sand		5,400	4,550	4,900 ^e	4,900	5,200
Δ			r		_	

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

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¹Table includes data available through April 13, 2009.

²Data are for the Ethiopian Calendar Year ending July 7 of the year listed, except for platinum and steel.

³In addition to the commodities listed, some lignite, 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.

⁷Yubdo Mine only. Platinum was also reportedly contained in gold ingots from the Lega Dembi Mine, but information is inadequate to estimate output.

${\it TABLE~2} \\ {\it ETHIOPIA: STRUCTURE~OF~THE~MINERAL~INDUSTRY~IN~2007}$

(Metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Caustic soda		National Mining Corp. plc (Government- owned) ¹	Plant at Ziway	10,000.
Cement		Mugher Cement Enterprise (Government- owned)	Plant at Mugher	900,000.
Do.		do.	Plant at Addis Ababa ¹	120,000.
Do.		Messebo Building Materials Production Share Co. (Government-owned)	Plant at Mekele	700,000.
Do.		National Cement SC	Plant at Dire Dawa	150,000.
Do.		Jema Cement plc	Plant in North Shoa Zone	120,000.
Do.		Abyssinia Cement plc	Plant at Chantcho	110,000.
Glass		Addis Ababa Bottle and Glass Share Co.	do.	8.000.
Gold		Midroc Gold Mine plc (subsidiary of Midroc	Mine at Lega Dembi	1,500,000 ore
Ъ.	1 '1	Ethiopia Group)	1	processing.
Do.	kilograms	do.	do.	4,300 gold.
Kaolin		Ethiopian Mineral Resources Development Enterprise (Government-owned)	Mine at Bamba Wuha	15,000.
Marble		Ethiopian Marble Industries	Mines at Harar and various sites in western Ethiopia	NA.
Do.		National Mining Corp. (subsidiary of Midroc Ethiopia Ltd.)	Mine at Boka	NA.
Do. squ	are meters	do.	Plant at Awash	500,000.
Do.		Saba Stones	Mine in Tigre Province	NA.
Niobium (columbium) and tantalum	kilograms	Ethiopian Mineral Development Share Co. (Government-owned)	Kenticha Mine near Borena	112,000 tantalum; ^e 17,000 niobium. ^e
Platinum	do.	Golden Prospect plc	Mine at Yubdo	5. ^e
Salt	40.	Afar Salt Production Share Co. (Government-owned)	Mine at Afdera Lake	50,000.
Do.		Afdera Production Share Co., Bashanafer Trading plc, Eretale Production Share Co., and Lucy Production Share Co.	Mines at Afdera Lake	NA.
Soda ash		National Mining Corp. plc ¹	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
Do.		Ethiopia Steel Smelting Enterprise (Government-owned)	NA	7,000.
Semimanufactured		Abyssinia Integrated Steel plc	Plant at Debre Zeit	150,000.
Do.		Zuquala Steel Rolling Mill Enterprise (Government-owned)	do.	36,000.
Do.		Wallia Steel Factory	NA	36,000.
Do.		Sheba Steel Mills plc	Plant at Debre Zeit	20,000.
Do.		Ethiopia Steel Smelting Enterprise	NA	7,000.
Galvanized		Akaki Metal Products Factory	Plant at Akaki	NA.
Stone, crushed		CGC Overseas Construction Ethiopia	Plant at Addis Ababa	930,000. ^e
Sulfuric acid		Melkasa Aluminum Sulfate and Sulfuric Acid Factory	Plant at Melkasa	NA.

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

¹Not operating in 2007.