



# 2014 Minerals Yearbook

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## ZIMBABWE

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# THE MINERAL INDUSTRY OF ZIMBABWE

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Zimbabwe's real gross domestic product (GDP) increased by an estimated 3.8% in 2014 compared with that of 2013. The real GDP at market prices was about \$12.2 billion in 2014, of which mining and quarrying accounted for 9.1%. More robust GDP growth was limited by a 3.4% decrease in growth in the mining industry. Zimbabwe's diverse mineral output included about 3.8% of the world's diamond production (by quantity), 8.5% of the world's platinum production, and 5.2% of the world's palladium output. Zimbabwe was the world's third-ranked producer of platinum, fifth-ranked producer of palladium, and eighth-ranked producer of diamond (Kimberley Process Certification Scheme, 2015; Reserve Bank of Zimbabwe, 2015, p. 6; Zimbabwe National Statistics Agency, 2015, p. 6; Loferski, 2016).

The Ministry of Mines and Mining Development manages the mineral sector in accordance with the Mines and Minerals Act (chapter 21:05), the Mining (General) Regulations, 1977, and their amendments. Mining operations are regulated by numerous other acts, amendments, regulations, statutory instruments, and general notices (Chamber of Mines of Zimbabwe, 2015).

## Minerals in the National Economy

Of the approximately 30 minerals and mineral-based commodities produced in Zimbabwe, diamond, gold, and platinum-group metals (PGMs) were the most economically significant. In accordance with the Minerals Marketing Corp. of Zimbabwe Act [as modified by the Minerals Marketing Corp. (Exemption) Regulations, 1983, and the Precious Stones Trade Act, 1978], state-owned Minerals Marketing Corp. of Zimbabwe (MMCZ) officially marketed much of the mineral production of Zimbabwe. A notable official exception was PGMs. Mining companies that produced PGM concentrates and smelter matte in Zimbabwe directly shipped the PGM concentrates and matte to processing facilities in South Africa. Mining royalties, which were based on the value of minerals or mineral-bearing products that were shipped from the mine site, were payable to the Zimbabwe Revenue Authority (Ministry of Mines and Mining Development, 2004).

The United States had imposed economic sanctions on certain entities and individuals in Zimbabwe in 2003 (which were updated in 2005 and 2008) owing to human rights abuses, political violence, and the undermining of democratic institutions or processes. The provision of funds, goods, or services was prohibited to several state-owned entities, such as the Industrial Development Corporation of Zimbabwe Ltd., the MMCZ, the Zimbabwe Iron and Steel Co., the Zimbabwe Mining Development Corp. (ZMDC), and their subsidiaries, including Marange Resources (Private) Ltd., Mbada Diamonds (Private) Ltd., and Sino-Zim Development (Private) Ltd. (U.S. Department of the Treasury, 2015).

## Production

In 2014, production increased for nitrogen (256%), coal (86%), phosphate rock (48%), ferrochromium (43%), mined nickel (28%), chromite (15%), cobalt (12%), and gold (10%) compared with that of 2013. Production decreased significantly for refined nickel (64%) and diamond (54%) (table 1).

## Structure of the Mineral Industry

Domestic and international investment companies, domestic and international mining companies, Government-owned companies, mining cooperatives, multinational cement companies, and small-scale miners managed mineral operations in Zimbabwe in 2014. With some negotiated exceptions, ownership of mineral operations in Zimbabwe by domestic or international nonindigenous corporations or people was limited by statute. State-owned companies involved in the mineral sector included MMCZ, ZMDC and its subsidiaries, and subsidiaries of the state-owned Industrial Development Corporation of Zimbabwe, which produced industrial minerals and mineral-based commodities (table 2).

## Commodity Review

### Metals

**Chromium and Ferroalloys.**—In 2011, the Government reinstated its ban on the export of chromite ore, including briquet and concentrate. The ban was instituted to encourage the construction of new smelters, which would allow Zimbabwe to export value-added ferrochrome instead of chromite ore; however, owing to low demand internationally for ferrochrome, operations at most of the smelters in Zimbabwe were suspended in 2012. The ban, which was lifted in 2013, effectively resulted in lower domestic prices for chromite, which adversely affected small-scale chromite miners, many of whom suspended mining operations. Owing to continuing low prices in 2014, Zimbabwe Alloy Smelting Co. (Zimasco) scaled back production. The chromium smelter MonaChrome, which was a wholly owned subsidiary of NK Trading Africa One GMBH KG of Germany, had not operated since idling its operations in 2012. Zimbabwe Alloys Chrome Ltd. (ZimAlloys) was insolvent, although it had 40% of the country's chromite reserves. At yearend, ZimAlloys was awaiting an offer from an unnamed investor in India. The expected result of the sale was to repair old furnaces and increase production. In 2014, only three of Zimbabwe's eight smelters were operational; Zimasco, Afrochine, and Xin Yu (Herald, The, 2012; 2013, 2014b; Metal Bulletin, 2012; Njini, 2014; Musoko, 2014; Zimbabwe Broadcasting Co., 2014).

**Cobalt.**—Cobalt was contained in the copper-gold-nickel-PGM ore that was produced at the Mimosa, the Ngezi, and the

Unki Mines, which were owned by Mimosa Holdings (Private) Ltd., Zimbabwe Platinum Mines (Private) Ltd., and Unki Mines (Private) Ltd., respectively. Cobalt was also contained in nickel concentrate from the Trojan Mine, which was owned by Bindura Nickel Corporation Ltd., which was a subsidiary of Asa Resource Group Plc. (formerly Mwana Africa PLC) of the United Kingdom. Concentrated ore and smelter matte were exported to South Africa, where 90 metric tons (t) of cobalt hydroxide was recovered from the concentrate from Mimosa, 58 t of cobalt compounds was recovered from smelter matte from the Ngezi Mine, and cobalt sulfate may have been recovered from concentrate from the Unki Mine. Cobalt may have been recovered from nickel concentrate at the Trojan Mine, and cobalt hydroxide was recovered in Zimbabwe at the Empress Nickel Refinery from smelter matte that was imported from Botswana (Aquarius Platinum Ltd., 2014b, p. 13; 2015, p. 13; Shedd, 2015, p. 19.8; Zimplats Holdings Ltd., 2015a, p. 4).

**Copper and Nickel.**—In 2014, Bindura refurbished or replaced machinery at its Trojan Mine, slowing the rate of production. In 2014, 595,656 t of copper-nickel ore was milled and processed to recover 7,026 t of nickel in concentrate. The nickel concentrate production was sold to Glencore plc of the United Kingdom, formerly Glencore Xstrata plc (Mwana Africa PLC, 2015, p. 7, 18–19, 59).

In March 2013, a Joint Ore Reserves Committee (JORC)-compliant competent persons report adjusted the ore reserves of Bindura's Trojan Mine to 3.23 million metric tons (Mt) at an average grade of 0.89% nickel (about 29,000 t of contained nickel) compared with the previous estimate of 3.168 Mt of ore at an average grade of 1.04% nickel (about 33,000 t of contained nickel). Bindura's nickel smelter and refinery remained on care-and-maintenance status in 2014, however resumption of smelter operations was underway, and the smelter was expected to be operational in 2015. The 160,000-metric-ton-per-year (t/yr.) capacity smelter would be able to accommodate Bindura's nickel concentrate as well as additional concentrate from third parties (Mwana Africa PLC, 2014, p. 13; 2015, p. 2, 18).

In addition to mined copper-nickel ore, copper and nickel were also produced as a joint product of PGM production by three companies. The Mimosa Mine, which was operated by Mimosa Holdings (Private) Ltd. of Mauritius, a joint-venture between Aquarius Platinum, Ltd. of Bermuda (50%), and Impala Platinum Holdings, Ltd. of South Africa (50%), produced about 2.5 Mt of PGM ore in 2014. Exported concentrated ore contained about 2,700 t of copper and 3,500 t of nickel. The Ngezi Mine, which was operated by Zimbabwe Platinum Mines (Private) Ltd.—a subsidiary of Zimplats Holdings Ltd. (Zimplats) of Guernsey [United Kingdom]—mined 5.4 Mt of PGM ore and produced about 3,300 t of copper and 4,600 t of nickel, which was exported in smelter matte. In 2014, Unki Mines (Private) Ltd., which was a subsidiary of Anglo American Platinum Ltd. of South Africa, milled 1.6 Mt of PGM ore from the Unki Mine compared with 1.57 Mt of ore in 2013. Exported concentrate was smelted in South Africa, and was estimated to contain about 2,500 t of copper and 1,700 t of nickel (Aquarius Platinum Ltd., 2014b, p. 13; 2015, p. 13; Zimplats Holdings Ltd., 2014b; 2015b; Anglo American Platinum Ltd., 2015a, p. 36).

In 2014, base-metal production at RioZim Ltd.'s Empress Nickel Refinery decreased by 52% to 2,915 t compared with 6,114 t in 2013. The decrease in production was a result of erratic supply from BCL Ltd. of Botswana, its sole supplier of copper-nickel smelter matte, which underwent a series of shutdowns in 2014. In response to this shortage, RioZim was working to secure new domestic sources of matte for the refinery (RioZim Ltd., 2015a, p. 6–7, 9; 2015b).

**Iron and Steel and Iron Ore.**—NewZim Steel Private Ltd., which was established as a joint venture of a consortium of domestic and international companies (60% interest) and the Government (40% interest), was led by Essar Africa Holdings Ltd. of Mauritius, which was a subsidiary of Essar Group of India. In 2010, Essar Africa Holdings had agreed to invest \$750 million which would include refurbishing Zimbabwe Iron and Steel Company's (Zisco) steel plant to an initial production capacity of 0.5 million metric tons per year (Mt/yr). Also included in the agreement was a guarantee to repay all Zisco's foreign debt and 60% of its domestic debt. The deal had yet to be finalized. Zisco's domestic debt had increased to \$200 million in 2014, a \$120 million dollar liability for Essar Africa Holdings, compared with an initial domestic debt of \$72 million in 2010, which was a \$43.2 million liability. Essar Africa Holdings proposed to restore the steel plant's production capacity to 1.2 Mt/yr within 3 years after the agreement was made final (Essar Group, 2011; New Zimbabwe, 2014).

In May, Essar Africa Holdings announced plans to build a new 500,000-t/yr steel plant in Redcliff. A Chinese company had also been awarded a contract to rehabilitate the existing plant at Redcliff. Future steel production was expected to be 1 Mt/yr. Tsingshan Steel of China planned to spend \$1 billion to construct a stainless steel plant and power station. Tsingshan was working with the Government to ensure that the mineral resources for the plant would be available (Mhlanga, 2014a; New Zimbabwe, 2014).

**Platinum-Group Metals.**—The Government announced that it expected that the three domestic PGM mining companies would establish a PGM refinery in Zimbabwe by the end of 2014, which would conform with the Government's desire to produce value-added mineral commodities in Zimbabwe instead of exporting ores and smelter matte for beneficiation. To encourage the construction of processing facilities for PGMs in Zimbabwe, the Government proposed to tax exports of several unprocessed minerals (including PGM) or to ban the export of unprocessed minerals. The Chamber of Mines of Zimbabwe estimated that domestic platinum production would have to exceed about 15.55 t/yr to justify the cost to build and operate a PGM refinery. In 2014, platinum production was 12.5 t, which was a 4% decrease from 13.1 t in 2013, and palladium production was 10.1 t, a slight decrease from 10.2 t in 2013 (table 1; Chinamasa, 2013, p. 172; Makichi, 2013; Thomson Reuters, 2014).

In 2014, the Mimosa Mine exported concentrated ore that contained about 3.6 t of platinum, 3.0 t of palladium, 483 kilograms (kg) of gold, 300 kg of rhodium, and about 433 kg of other PGMs. Mimosa Holdings finished a prefeasibility scoping study to expand capacity at the Mimosa Mine by up to 30% and expected a feasibility study to be

completed in 2015. Ongoing discussions with the Government concerning changes to its proposed indigenization plan continue, but no solution has been agreed upon yet (Aquarius Platinum Ltd., 2014a, p. 10–11, 18; 2014b, p. 13; 2015, p. 13).

In 2014, production from Zimplats' Ngezi Mine included ore from the Bimha Mine (Portal 4), the Mupfuti Mine (Portal 3), the Ngwarati Mine (Portal 1), and the Rukodzi Mine (Portal 2). Combined, these four mines produced about 7 t of platinum and 5.9 t of palladium. Production in 2014 was hampered by a precautionary closure of the Bimha Mine after a collapse in the mine in June. Mining operations at Mupfuti continued to ramp up and helped to offset some of the losses from Bimha. The two Ngezi concentrators processed about 65% of the ore, the remainder was trucked to a concentrator at the Selous Metallurgical Complex (SMC), which was located about 77 kilometers (km) north of the Ngezi Mine. Output from all three concentrators was smelted at the SMC, and the smelter matte was exported to Impala's refinery in South Africa (Impala Platinum Holdings Ltd., 2014, p. 15, 44; Zimplats Holdings Ltd., 2014a, p. 8; 2015a, p. 4).

In 2014, Zimplats began refurbishment of its Selous-based base metals refinery to handle beneficiation of Zimplats platinum concentrates domestically. Zimplats was also working with other PGM producers in Zimbabwe to develop additional smelters in the country. The projects were an effort to avoid paying the 15% export tax on raw PGMs leaving the country. In early 2013, Zimplats signed a proposed indigenization implementation plan, but the plan was not accepted by the Government. Subsequently, Zimplats resumed discussions with the Government in an effort to come to a resolution on the matter (Impala Platinum Holdings Ltd., 2014, p. 6, 15; Zimplats Holdings Ltd., 2014a, p. 12).

In 2014, Unki Mines exported PGM concentrates that contained an estimated 1.9 t of platinum, 1.4 t of palladium, 215 kg of gold, 174 kg of rhodium, and 233 kg of other PGM. Ore reserves of the underground Unki Mine were expected to allow mining operations to continue until at least 2046 (Anglo American Platinum Ltd., 2015a, p. 36; 2015b, p. 67).

**Tungsten.**—In 2014, Premier African Minerals Ltd. of the British Virgin Islands completed the open pit mine design of its RHA Tungsten Project, which was located about 270 km northwest of Bulawayo. A processing plant, ordered in December, was expected to be commissioned in mid-2015. The plant would be able to process 8,000 metric tons per month (t/mo) of ore (London Stock Exchange, 2014a, 2014b; Premier African Minerals Ltd., 2015).

### **Industrial Minerals**

**Diamond.**—Several companies produced industrial diamond from unconsolidated surface sediments in the Marange diamondfield in the Chiadzwa area of eastern Zimbabwe, including Anjin Investments (Private) Ltd., Diamond Mining Corporation (Private) Ltd., Gye Nyame Resources, Jinan (Private) Ltd., Kusena Diamonds, Marange Resources (Private) Ltd., and Mbada Diamonds (Private) Ltd. Over the past 5 years, the alluvial diamond in the surface and near-surface was rapidly extracted from the Marange diamondfield. Diamond remained in

the underlying conglomerate rock; however, extraction of most of the diamond was not economically feasible. The Government approved the consolidation of the seven mining companies in Chiadzwa into two companies. The mergers of these companies were expected to increase the economies of scale and to enable the continued and more efficient production of diamond. The mergers were planned to take place in two stages. In the first stage, Gye Nyame Resources, Kusena Diamonds, and Marange Resources would merge, and in the second stage, Anjin Investments, Diamond Mining Corp., Jinan, and Mbada Diamonds would merge (ZimEye, 2014; Zimmisky, 2014; Zimbabwe Mining Development Corp., 2015).

DTZ-OZGEO (Private) Ltd., which was a joint venture between Econendra of Russia (60%) and the Development Trust of Zimbabwe (40%), expected its diamond operations to be operational by the end of 2014, and to produce 50,000 carats per month at full capacity. Murowa Diamonds (Private) Ltd., which was a subsidiary of the joint venture of Rio Tinto plc of the United Kingdom (77.8%) and RioZim Ltd. (22.2%), recovered 442,000 carats of diamond from the Murowa Mine in 2014 (Source, The, 2014c; Rio Tinto plc, 2015, p. 32, 197).

**Nitrogen.**—Sable Chemical Industries Ltd. (a subsidiary of Masawara Holdings Mauritius Ltd.) accumulated a \$123 million debt to the Zimbabwe Electricity Transmission and Distribution Co. for power generation at its energy-intensive electrolysis plant. Sable was the only producer of ammonium nitrate in Zimbabwe, and as such, the Government prevented a shutdown of power to the electrolysis plant. In 2014, Sable was operating on reduced power and was only able to operate at 40% of capacity (Sibanda, 2014).

**Phosphate Rock.**—In 2014, a \$10 million deal between the Industrial Development Corp. of Zimbabwe and IDC of South Africa failed to materialize. The deal was intended to provide a boost to phosphate production by fertilizer producers Zimbabwe Phosphate Industries Ltd. and Dorowa Minerals (Private) Ltd. Both companies were subsidiaries of state-owned Chemplex Corporation Limited Group. Owing to a loss of business from the Government, Zimbabwe Phosphate was only operating at 20% of capacity. The plant at Msasa had an annual capacity of 45,000 t of P<sub>2</sub>O<sub>5</sub> (AfricaFertilizer.org, 2012; Mhlanga, 2014b, Source, The, 2014d).

### **Mineral Fuels, Related Materials, and Other Sources of Energy**

Zimbabwe Power Co. (ZPC) was the electrical-power-generation subsidiary of state-owned ZESA Holdings. Other ZESA subsidiaries were responsible for the distribution and transmission of electrical power. Since 2007, despite imports of electricity that accounted for about 20% to 35% of the daily national demand, Zimbabwe had established countrywide load shedding owing to the inability of electrical-power generating facilities to meet demand. Load shedding adversely affected underground mining operations and surface processing plants that did not have dedicated sources of electrical power. The country's main power-generating facilities included the 920-megawatt (MW)-capacity Hwange coal-fired power station and the 750-MW-capacity Kariba South hydroelectric plant (ZESA Holdings Private Ltd., 2013a; 2013b; Zimbabwe Power Co., 2015a, b).

**Coal.**—During the past several years, coal production has increased to meet growing global demand. Hwange Colliery Company Ltd. was once the sole coal producer in Zimbabwe. Hwange Colliery reported sales of about 1.68 Mt of coal in 2014, which was a 10% increase compared with about 1.52 Mt in 2013. The increase in sales was attributed to international demand, namely from the Democratic Republic of the Congo [Congo (Kinshasa)], South Africa, and Zambia. Mota-Engil, a Portuguese mining company, took over mining operations midyear. Since that time, monthly output increased by 60%. Annual output was expected to be about 3.6 Mt in 2015, with 75% expected to come in the second half of the year. Makomo Resources (Private) Ltd. commissioned a \$14 million coal washing plant in July. Through September, Makomo Resources produced 91,000 t/mo of coal. Coal Brick exported more than 120,000 t of coal in 2014, and South Mining produced about 96,000 t in 2014. Chilota Colliery, an indigenous-owned company, produced about 540,000 t of coal in 2014; it supplied both domestic and international markets and was expected to gain 10% of the domestic market by the end of 2015 (Chronicle, The, 2014; Herald, The, 2014a; Makoshori, 2014; Source, The, 2014a, b; Hwange Colliery Company Ltd., 2015).

## Outlook

Zimbabwe has abundant mineral resources and a well-developed transportation system. The rehabilitation of the mining industry and the expansion of production could be a basis for the growth of Zimbabwe's GDP; however, mineral sector activities are expected to continue to be constrained by ongoing political issues, especially the implementation of the Indigenization and Economic Empowerment Act, export taxes, bans on exports of raw mineral resources, and decreases in global mineral commodity prices. Shortages of electrical power, fuel, and skilled employees also are expected to continue to adversely affect mineral sector operations in the near term.

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

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2010	2011	2012	2013	2014
<b>METALS</b>					
Chromite, gross weight <sup>4</sup>	516,776 <sup>r</sup>	599,079	408,475	355,142	408,425
Cobalt, metal content <sup>4,5</sup>	79 <sup>e</sup>	174 <sup>r</sup>	195 <sup>r</sup>	319	358
Copper:					
Mine output, concentrate, Cu content	4,700	6,000	6,300	8,285 <sup>r,4</sup>	8,261 <sup>4</sup>
Metal, refinery output, refined/cathode, primary <sup>4</sup>	4,545	4,355	2,869	3,360	3,300 <sup>e</sup>
Gold <sup>4</sup> kilograms	9,619 <sup>r</sup>	12,949 <sup>r</sup>	14,745 <sup>r</sup>	14,001 <sup>r</sup>	15,385
Iron and steel:					
Steel, crude thousand metric tons	14	15	15	15	15
Ferroalloys, ferrochromium:	146,000	140,000	137,534 <sup>4</sup>	150,060 <sup>r,4</sup>	214,110 <sup>4</sup>
Nickel: <sup>4</sup>					
Mine output, concentrate, Ni content	6,200 <sup>e</sup>	7,992	7,899	12,962 <sup>r</sup>	16,633
Refinery output, refined metal:					
Refined from imported materials	4,039	3,715	1,754 <sup>r</sup>	2,845	1,021
Platinum-group metals: <sup>4</sup>					
Iridium kilograms	254 <sup>r</sup>	398 <sup>r</sup>	412 <sup>r</sup>	520 <sup>r</sup>	544
Palladium do.	6,916 <sup>r</sup>	8,422 <sup>r</sup>	8,136 <sup>r</sup>	10,153	10,138
Platinum do.	8,639 <sup>r</sup>	10,827 <sup>r</sup>	10,524 <sup>r</sup>	13,066	12,483
Rhodium do.	727 <sup>r</sup>	940 <sup>r</sup>	891 <sup>r</sup>	1,146	1,140
Ruthenium do.	555 <sup>r</sup>	823 <sup>r</sup>	787 <sup>r</sup>	1,012	983
Total do.	17,091 <sup>r</sup>	21,410 <sup>r</sup>	20,750 <sup>r</sup>	25,897 <sup>r</sup>	25,288
Silver do.	400	550	600	590	590
<b>INDUSTRIAL MINERALS</b>					
Asbestos	2,031 <sup>r</sup>	--	30 <sup>r</sup>	377 <sup>r</sup>	--
Cement, hydraulic thousand metric tons	800	1,000	1,100	1,200	1,300
Clays, common	600	700	700	700	700
Diamond carats	8,435,244	8,502,648	12,060,163	10,411,818	4,771,637
Graphite	4,000	7,252 <sup>r,4</sup>	7,022 <sup>r,4</sup>	6,934 <sup>4</sup>	6,853 <sup>4</sup>
Lithium minerals, gross weight	47,000	48,000	53,000	50,000	50,000
Mica	1,000	1,000	1,000	1,000	1,000
Nitrogen, N content of ammonia	29,000	26,000	25,000	27,000	96,000
Perlite	1,000	1,000	1,000	1,000	1,000
Phosphate rock, marketable concentrate	63,000	60,000	20,000	6,100	9,000
Stone, sand and gravel:					
Granite, black	700	500	--	--	--
Limestone thousand metric tons	50	50	50	55	60
Sulfur, byproduct acid, metallurgical and coal process gas, S content	1,000	1,000	1,000	1,100	1,100
Vermiculite	--	--	21,625 <sup>r,4</sup>	28,808 <sup>r,4</sup>	29,500
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal, bituminous thousand metric tons	2,500 <sup>r,4</sup>	2,562 <sup>4</sup>	3,500	3,114 <sup>r,4</sup>	5,783 <sup>4</sup>
Coke, including metallurgical do.	180	240	370	200	200

<sup>e</sup>Estimated. <sup>r</sup>Revised do. Ditto. -- Zero.

<sup>1</sup>Estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Table includes data available through February 27, 2015.

<sup>3</sup>In addition to the commodities listed, secondary aluminum; corundum; feldspar; such gemstones as amethyst, aquamarine, emerald, iolite, and tourmaline; kaolin; kyanite; secondary lead; and ores of antimony, tantalum, tin, and tungsten may have been produced, but information was inadequate to make reliable estimates of output.

<sup>4</sup>Reported figure.

<sup>5</sup>Includes metal content of cobalt compounds recovered from exported ore and smelter matte. Does not include cobalt compounds recovered from the Ngezi Mine or cobalt sulfate recovered from the Unki Mine. Data for 2011–13 reported by the Zimbabwe National Statistics Agency and may include cobalt recovered in Zimbabwe from imported materials.

TABLE 2  
ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Asbestos	African Associated Mines (Private) Ltd.	Shabanie Mine, Zvishavane	2,400,000 <sup>1</sup>
Do.	do.	Gaths Mine, Mashava	1,400,000 <sup>1</sup>
<b>Cement:</b>			
Clinker	Portland Holdings Ltd. [Pretoria Portland Cement Company Ltd. (PPC)]	Colleen Bawn, about 115 kilometers southeast of Bulawayo	1,000,000
Portland	Lafarge Cement Zimbabwe Ltd. (Lafarge, S.A.)	Harare	450,000
Do.	Portland Holdings Ltd. [Pretoria Portland Cement Company Ltd. (PPC)]	Bulawayo	800,000
Do.	Sino-Zimbabwe Cement Company Ltd. (China Building Material Industrial Corporation for Foreign Econo-Technical Cooperation and Industrial Development Corp.)	Gweru	300,000
Chromite	Local cooperatives and small-scale miners	Mines on the southern Great Dyke	340,000 <sup>1</sup>
Do.	do.	Mines on the northern Great Dyke	230,000 <sup>1</sup>
Do.	Zimbabwe Alloys Ltd. (Zim Alloys)	Inyala Mine	60,000 <sup>1</sup>
Do.	Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) [Zimasco Consolidated Enterprises Ltd. (ZCE)]	Mining operations near Darwendale, Lalapanzi, Mutorashanga, Ngezi, and south of Shurugwi	300,000
Coal	Chilota Colliery	Hwange	1,800,000
Do.	Coal Brick (Private) Ltd.	Coal Brick mine, Hwange	500,000
Do.	Coal Zimbabwe (Private) Ltd. (Steelmakers Zimbabwe (Private) Ltd.)	Chiredzi, about 130 kilometers southeast of Masvingo	1,200,000
Do.	Hwange Colliery Company Ltd. (Government, 37.07%; Messina Investments Ltd., 15.08%; Mittal Steel African Investments, 9.76%; London Register, 6.87%; National Social Security Authority, 6.16%)	3 main underground mines, plus the Chaba open pit mine, and the JKL open pit mine, Hwange	5,000,000
Do.	Makomo Resources (Private) Ltd.	Entuba coalfields, near Hwange	2,400,000
Do.	Sengwa Colliery (Private) Ltd. (RioZim Ltd.)	Sengwa Colliery, about 200 kilometers northeast of Kadoma	5,000,000 <sup>1</sup>
Do.	South Mining	Hwange	144,000
Do.	Tulicoal (Private) Ltd. [Senzile Mining (Private) Ltd.]	Sengwa Colliery, about 200 kilometers northeast of Kadoma	1,200,000 <sup>1</sup>
<b>Cobalt:</b>			
Ore, cobalt content	Bindura Nickel Corporation Ltd. (Asa Resource Group Plc.)	Trojan Mine at Bindura and Shangani Mine, <sup>1</sup> about 100 kilometers northeast of Bulawayo	800
Do.	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd., Impala Platinum Holdings Ltd., and Zvishavane Community Share Ownership Trust)	Mimosa Mine, east of Zvishavane	88
Do.	Unki Mines (Private) Ltd. (Anglo Platinum Ltd.)	Unki Mine, southeast of Shurugwi	NA
Do.	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Ngezi Mine, which includes the Ngwarati Mine (also known as Portal 1), the Rukodzi Mine (Portal 2), the Mupfuti Mine (Portal 3), <sup>2</sup> and the Bimha Mine (Portal 4)	NA
Hydroxide	BSR Ltd. [Bindura Nickel Corporation Ltd. (Asa Resource Group Plc.)]	Bindura	700 <sup>1</sup>
Do.	Empress Nickel Refinery (RioZim Ltd.)	Eiffle Flats, near Kadoma	NA
Coke	Hwange Coal Gasification Company (Private) Ltd. [Taiyuan Sanxing Coal Gasification Co., Hwange Colliery Company Ltd., and Stoat Mining (Private) Ltd.]	Hwange	144,000
Do.	Hwange Colliery Company Ltd. [Government, 37.07%; Messina Investments Ltd., 15.08%; Mittal Steel African Investments, 9.76%; London Register, 6.87%; National Social Security Authority, 6.16%]	do.	230,000

See footnotes at end of table.



TABLE 2—Continued  
ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
<b>Copper:</b>				
Ore, copper content	Bindura Nickel Corporation Ltd. (Asa Resource Group Plc.)		Trojan Mine at Bindura and Shangani Mine, <sup>1</sup> about 100 kilometers northeast of Bulawayo	NA
Do.	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd., Impala Platinum Holdings Ltd., and Zvishavane Community Share Ownership Trust)		Mimosa Mine, east of Zvishavane	3,000
Do.	Unki Mines (Private) Ltd. (Anglo Platinum Ltd.)		Unki Mine, southeast of Shurugwi	1,000
Do.	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)		Ngezi Mine, which includes the Ngwarati Mine (also known as Portal 1), the Rukodzi Mine (Portal 2), the Mupfuti Mine (Portal 3), <sup>2</sup> and the Bimha Mine (Portal 4)	3,000
Refined	Empress Nickel Refinery (RioZim Ltd.)		Eiffle Flats, near Kadoma	6,000
Diamond	Anjin Investments (Private) Ltd. [joint venture of Anhui Foreign Economic Construction Group and Matt Bronze (Private) Ltd.]		Marange deposit in the Chiadzwe area	NA <sup>3</sup>
Do.	Diamond Mining Corporation (Private) Ltd. [joint venture of Pure Diam and Zimbabwe Mining Development Corp. (ZMDC)]		do.	NA <sup>3</sup>
Do.	DTZ-OZGEO (Private) Ltd. (Joint venture of Development Trust of Zimbabwe and JSC Zarubezhgeologia)		Chimanimani	NA
Do.	Gye Nyame Resources [joint venture of Zimbabwe Mining Development Corp. (ZMDC) and Bill Minerals]		Marange deposit in the Chiadzwe area	NA <sup>3</sup>
Do.	Kusena Diamonds [Zimbabwe Mining Development Corp. (ZMDC)]		do.	NA <sup>2,3</sup>
Do.	Marange Resources (Private) Ltd. [Zimbabwe Mining Development Corp. (ZMDC)]		do.	NA <sup>3</sup>
Do.	Mbada Diamonds (Private) Ltd. [Grandwell Holdings Ltd., Marange Resources (Private) Ltd., and Transfrontier Mining Company Ltd.]		do.	NA <sup>3</sup>
Do.	carats	Murowa Diamonds (Private) Ltd. (Rio Tinto plc and RioZim Ltd.)	Murowa Mine, near Zvishavane	403,000
Do.	Limpopo Minerals Resources Ltd (Rani Investment LLC, 80%, and Khupukile Resources Ltd., 20%)		River Ranch Mine, near Beitbridge	NA <sup>1,3</sup>
Do.	Sino Zimbabwe Development (Private) Ltd. [Zimbabwe Mining Development Corp. (ZMDC)]		Marange deposit in the Chiadzwe area	NA <sup>3</sup>
Gold	kilograms	Artisanal miners, including small-scale miners and syndicates	Various locations	3,000 <sup>c</sup>
Do.	do.	Bilboes Holding (Private) Ltd.	The Bubi, the Isabella, the McCays, and the When Mines	10 <sup>c</sup>
Do.	do.	Blanket Mine (1983) (Private) Ltd. [Caledonia Mining Corp., 49%; National Indigenisation and Economic Empowerment Fund, 16%; Fremiro, 15%; Blanket Employee Trust Services (Private) Ltd., 10%; Gwanda Community Share Ownership Trust, 10%]	Blanket Mine, about 140 kilometers south of Bulawayo	1,300 <sup>c</sup>
Do.	do.	Casmyn Mining Zimbabwe (Private) Ltd. (New Dawn Mining Corp.)	Turk-Angelus Mine, 56 kilometers northeast of Bulawayo	550 <sup>c</sup>
Do.	do.	DTZ-OZGEO (Private) Ltd. (joint venture of Development Trust of Zimbabwe and JSC Zarubezhgeologia)	Placer mining operations at Penhalonga, about 15 kilometers northwest of Mutare	400 <sup>c</sup>
Do.	do.	Duration Gold Ltd. (Clarity Capital Group)	Vubachikwe Mine, near Gwanda	200 <sup>c</sup>
Do.	do.	do.	Athens Mine, Mvuma	100 <sup>c</sup>
Do.	do.	do.	Gaika Mine, Kwe Kwe	30 <sup>c</sup>
Do.	do.	do.	Sunace Mine, about 31 kilometers north of Bulawayo	5 <sup>c</sup>
Do.	do.	Falcon Gold Zimbabwe Ltd. (New Dawn Mining Corp.)	Golden Quarry Mine, about 7 kilometers north of Shurugwi	300 <sup>c</sup>
Do.	do.	do.	Dalny Complex, about 33 kilometers northwest of Chegutu	250 <sup>c,1</sup>

See footnotes at end of table.

TABLE 2—Continued  
ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold—Continued:	kilograms	F.A. Stewart (Private) Ltd.	Jessie Mine, east of Gwanda	150 <sup>c</sup>
Do.	do.	Jena Mine (Private) Ltd. [Zimbabwe Mining Development Corp. (ZMDC)]	Jena Mine	400 <sup>c</sup>
Do.	do.	John Mack and Co.	Golden Valley Mine	500 <sup>c</sup>
Do.	do.	Matebeland Minerals (Private) Ltd.	Turk Mine	600 <sup>c</sup>
Do.	do.	Metallon Gold Zimbabwe (Private) Ltd. (Metallion Corp.)	Arcturus Mine, 32 km east of Harare	500 <sup>c</sup>
Do.	do.	do.	How Mine, about 24 kilometers southeast of Bulawayo	1,300 <sup>c</sup>
Do.	do.	do.	Mazowe Mine, Mazowe	400 <sup>c</sup>
Do.	do.	do.	Redwing Mine, Penhalonga	200 <sup>c</sup>
Do.	do.	do.	Shamva Mine, Shamva	700 <sup>c</sup>
Do.	do.	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd., Impala Platinum Holdings Ltd., and Zvishavane Community Share Ownership Trust)	Mimosa Mine, east of Zvishavane	NA
Do.	do.	Asa Resource Group Plc.	Freda Rebecca Mine, Bindura	3,700 <sup>c</sup>
Do.	do.	Olympus Mines Ltd. (Central African Gold Ltd.)	Camperdown Mine, north of Shurugwi	50 <sup>c</sup>
Do.	do.	do.	Old Nic Mine, Bulawayo	100 <sup>c</sup>
Do.	do.	Pan Reef Mining Company (Private) Ltd.	Indarama Mine	50 <sup>c,3</sup>
Do.	do.	RioZim Ltd.	Renco Mine, 75 kilometers south-southeast of Masvingo	1,000 <sup>c</sup>
Do.	do.	Sabi Gold Mines [Zimbabwe Mining Development Corp. (ZMDC)]	Sabi Mine	200 <sup>c</sup>
Do.		Unki Mines (Private) Ltd. (Anglo American Platinum Ltd.)	Unki Mine, southeast of Shurugwi	NA
Do.		Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Ngezi Mine, which includes the Ngwarati Mine (also known as Portal 1), the Rukodzi Mine (Portal 2), the Mupfuti Mine (Portal 3), <sup>2</sup> and the Bimha Mine (Portal 4)	NA
Graphite		Zimbabwe German Graphite Mines (Private) Ltd. [Graphite Kropfmühl division of AMG Advanced Metallurgical Group N.V. and Zimbabwe Mining Development Corp. (ZMDC)]	Lynx Graphite Mine, Karoi	NA
<b>Iron and steel:</b>				
Ferroalloys, ferrochromium		CINA	Smelter at Gweru	5,000 <sup>c</sup>
Do.		Jin An Corp. and Xin Yu Mining Corp.	do.	5,000 <sup>c</sup>
Do.		Maranatha Ferrochrome (Private) Ltd.	Smelter at Eiffel Flats	28,000 <sup>1</sup>
Do.		MonaChrome	Smelter at Chegutu	5,000 <sup>c,1</sup>
Do.		Olliken Ferro Alloys (Private) Ltd.	Smelter at Kwekwe	25,000 <sup>1</sup>
Do.		Wel Mining	Smelter at Gweru	5,000 <sup>c,1</sup>
Do.		Zimbabwe Alloys Ltd. (Zim Alloys)	do.	45,000
Do.		Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) [Zimasco Consolidated Enterprises Ltd. (ZCE)]	Smelter at Kwekwe	180,000
<b>Iron:</b>				
Iron ore, gross weight		NewZim Minerals Private Ltd. (Essar Africa Holdings Ltd., 80%, and Government, 20%)	Ripple Creek Mine, near Redcliff	600,000 <sup>1</sup>
Sponge iron		Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Masvingo	54,000
<b>Steel:</b>				
Crude steel		NewZim Steel Private Ltd. (Essar Africa Holdings Ltd., 53.4%, and Government, 35.6%)	Blast furnace at Redcliff, near Gweru	72,000 <sup>1,4</sup>
Do.		Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Electric arc furnace at Redcliff	15,000
Rolled steel		Lancashire Steel (Private) Ltd. [Zimbabwe Iron and Steel Company (Private) Ltd. (Zisco)]	Wire rod mill at Kwekwe	120,000
Do.		Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Rolling mill at Redcliff	36,000
Lithium		Bikita Minerals (Private) Ltd.	Bikita Mine, 60 kilometers east of Masvingo	55,000

See footnotes at end of table.

TABLE 2—Continued  
ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Nickel:</b>			
Ore	Bindura Nickel Corporation Ltd. (Asa Resource Group Plc.)	Trojan Mine at Bindura and Shangani Mine, <sup>1</sup> about 100 kilometers northeast of Bulawayo	500,000 <sup>c</sup>
Ore, Ni content	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd., Impala Platinum Holdings Ltd., and Zvishavane Community Share Ownership Trust)	Mimosa Mine, east of Zvishavane	3,000
Do.	Unki Mines (Private) Ltd. (Anglo American Platinum Ltd.)	Unki Mine, southeast of Shurugwi	1,000
Do.	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Ngezi Mine, which includes the Ngwarati Mine (also known as Portal 1), the Rukodzi Mine (Portal 2), the Mupfuti Mine (Portal 3), <sup>2</sup> and the Bimha Mine (Portal 4)	4,000
Refined metal	BSR Ltd. [Bindura Nickel Corporation Ltd. (Asa Resource Group Plc.), 100%]	Bindura	15,600 <sup>1</sup>
Do.	Empress Nickel Refinery (RioZim Ltd.)	Eiffle Flats, near Kadoma	9,000
Nitrogen (ammonium nitrate)	Sable Chemical Industries Ltd. [TA Holdings Ltd., 51%; Chemplex Corporation Ltd., 36%; Yara Zimbabwe (Private) Ltd., 12%]	Electrolysis plant north of Kwekwe	240,000
<b>Phosphate:</b>			
Rock	Dorowa Minerals (Private) Ltd. (Chemplex Corporation Ltd.)	Dorowa Mine, 90 kilometers west of Mutare	155,000 <sup>1</sup>
Fertilizer	Zimbabwe Phosphate Industries Ltd. (Chemplex Corporation Ltd.)	Msasa plant, Harare	45,000
<b>Platinum-group metals:</b>			
Ore	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Ngezi Mine, which includes the Ngwarati Mine (also known as Portal 1), the Rukodzi Mine (Portal 2), the Mupfuti Mine (Portal 3), <sup>2</sup> and the Bimha Mine (Portal 4)	5,100,000
Do.	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd., Impala Platinum Holdings Ltd., Zvishavane Community Share Ownership Trust)	Mimosa Mine, east of Zvishavane	2,400,000
Do.	Unki Mines (Private) Ltd. (Anglo American Platinum Ltd.)	Unki Mine, southeast of Shurugwi	1,600,000
Concentrate	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Ngezi concentrator, Ngezi Mine	3,400,000
Do.	do.	Selous concentrator, Selous Metallurgical Complex	2,180,000
Do.	Mimosa Holdings (Private) Ltd. (Aquarius Platinum Ltd. and Impala Platinum Holdings Ltd.)	Mimosa concentrator, east of Zvishavane	1,900,000
Smelter matte	Zimbabwe Platinum Mines (Private) Ltd. (Zimplats Holdings Ltd.)	Selous smelter, Selous Metallurgical Complex	72,000
Pyrite	Iron Duke Pyrites (GAT Investments (Private) Ltd.)	Iron Duke Mine	NA <sup>1</sup>
Vermiculite	Samrec Vermiculite Zimbabwe (Private) Ltd. (Imerys Group)	Shawa Mine, near Dorowa	39,000
Do.	Dinidza Vermiculite Mining Co. (Private) Ltd.	Dinidza Mine, near Dorowa	10,000

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

<sup>1</sup>Operations suspended.

<sup>2</sup>Under development or redevelopment.

<sup>3</sup>Ownership disputed.

<sup>4</sup>Nominal capacity of 1 million metric tons per year. Blast furnaces awaiting refurbishment.