

# **2008 Minerals Yearbook**

# ZIMBABWE

# THE MINERAL INDUSTRY OF ZIMBABWE

#### By Philip M. Mobbs

Zimbabwe's diverse mineral output included about 3% of the world's chromite (much of which is used as a feed material for the ferroalloy plants in Zimbabwe) and platinum production, and about 2% of the world's asbestos, lithium, palladium, and vermiculite production. Rampant inflation continued to adversely affect Zimbabwe's mineral production operations in 2008. Companies that produced minerals or manufactured mineral-based commodities in Zimbabwe struggled to maintain operations (table 1; Mpofu, 2008; Cordier, 2010; Jaskula, 2010; Loferski, 2010; Papp, 2010; Virta, 2010).

#### Minerals in the National Economy

Of the approximately 30 minerals or mineral-based commodities produced in Zimbabwe, the platinum-group metals (PGM) remained the most economically significant. The mining sector accounted for about 4% of the gross domestic product (GDP). Minerals and mineral-based commodities were a significant segment of national exports. Despite the general increase in world mineral prices in early 2008, output of most mineral commodities in Zimbabwe continued to decline, restrained by frequent electrical power outages (which often resulted in damaged equipment or flooded mines); the lack of foreign currency to purchase imported equipment, spare parts, and supplies; political uncertainty; and chronic shortages of food, fuel, and skilled manpower (Banya, 2008; Makoshori, 2008c; Zimbabwean, The, 2008).

#### **Government Policies and Programs**

The Ministry of Mines and Mining Development manages the mineral sector in accordance with the Mines and Minerals Act (chapter 21:05) and the Mining (General) Regulations, 1977. The Gold Trade Act of 2006 mandates penalties for unlawful possession or trading of gold. The 2007 amendment of the Environmental Management Act of 2002 also affected mines.

The Empowerment and Indigenization Bill, which requires that 51% ownership of businesses in Zimbabwe be acquired by eligible Zimbabweans, was enacted in 2008. Regulations associated with the indigenization law were expected to be promulgated in 2009 or 2010.

The Government instituted price controls in 2007 that continued to adversely affect mineral-based commodity companies, such as brick, cement, coal, and fertilizer companies, that sold their production domestically. The Government's foreign exchange policy and chronically delayed payments from the Reserve Bank of Zimbabwe often adversely affected mining and mineral-based commodity companies that exported their mineral production. In May, the official Zimbabwe dollar (Z\$) to United States dollar (\$) exchange rate was revised to a floating rate of about Z\$165,000,000=\$1 from a fixed rate of Z\$30,000=\$1. After the official inflation rate reached 231,000,000% in July, the Government ceased to release consumer price index data. This action was taken owing to a lack of goods for purchase in stores. In August, the newly-issued Z\$10,000,000,000 dollar bill was revalued to Z\$1. Hyperinflation, which was estimated to have reached about 500,000,000,000% in September and 89,700,000,000,000,000,000% in November (compared with an average of 10,453% in 2007 and 1,017% in 2006) was finally dampened in late 2008 by the migration from the Zimbabwe dollar to foreign currencies (Financial Gazette, The, 2008; Hanke, 2008; Herald, The, 2008; International Monetary Fund, 2008, 2009; Mpofu, 2008; Ndlela, 2008; Pretoria Portland Cement Company Ltd., 2009, p. 14).

#### Production

Despite the shutdown of blast furnace no. 4 that was operated by Zimbabwe Iron and Steel Company (Private) Ltd. (Zisco), steel production was estimated to have increased owing to increased production from Steelmakers Zimbabwe (Private) Ltd. According to statistics released by the Kimberley Process (2008, 2009), diamond production in Zimbabwe significantly increased in 2008. Production of asbestos, coal, copper, gold, graphite, iron ore, lithium minerals, mica, nickel, nitrogen (ammonia), and silver were estimated to have decreased significantly in 2008.

#### **Structure of the Mineral Industry**

Ownership of mineral operations in Zimbabwe was dominated by domestic investment, domestic and international mining, and international cement companies. State-owned operating companies in the minerals sector included Zimbabwe Mining Development Corp. (ZMDC), which maintained equity interest in inactive copper mining and processing facilities, and in gold mines, many of which were inactive. ZMDC also nominally was assigned the Marange diamond mining operation in eastern Zimbabwe. Subsidiaries of state-owned Industrial Development Corp. of Zimbabwe Ltd. produced industrial minerals and mineral-based commodities, such as clay, fertilizers, glass, phosphate rock, and stone. Zisco, in which the Government held majority interest, operated a crude steel plant, and a Zisco subsidiary operated iron ore and limestone mines. Foreign investment was concentrated in the cement, chromium, coal, diamond, gold, nickel, PGM, and steel sectors.

Before the March 2008 parliamentary and presidential elections, numerous international mineral companies expressed interest in investing in the rehabilitation of Zimbabwe's mines, essentially speculating on Zimbabwe's expected economic rebound, especially if there was a change in Government policies (Magnowski, 2008; Makunike, 2008).

In 2008, because of the economic conditions and the decline in the market price of nickel, Bindura Nickel Corp. Ltd. suspended operations at the Shangani and the Trojan nickel mines and at the Bindura nickel smelter and refinery.

Because of the economic conditions, Falcon Gold Zimbabwe Ltd. (Falgold) and Olympus Gold Mines Ltd., which were subsidiaries of Central African Gold Plc of the United Kingdom, placed the Camperdown, the Dalny, the Golden Quarry, and the Old Nic Mines on care-and-maintenance status. Mining operations at Falgold's Venice gold mine remained suspended in 2008. In November, Metallon Gold, which was a subsidiary of Metallon Corp. of South Africa, placed the Acturus, the How, the Mazowe, the Red Wing, and the Shamva Mines on care-and-maintenance status. New Dawn Mining Corp. of Canada suspended mining at the Turk Mine in October. Also in October, the Golden Valley Mine was closed when electrical power was cut off after the company was unable to pay for electrical power from ZESA Holdings (Pvt) Ltd., which was the Government's electricity company. The company was waiting for the Government to pay for gold delivered to Fidelity Printers & Refineries (Private) Ltd. (Fidelity), which was a subsidiary of the Government's Reserve Bank of Zimbabwe. RioZim Ltd. suspended operations at the Renco gold mine in March because of the lack of payment from Fidelity. Operations were resumed in May after the Government threatened to seize the property (Central African Gold PLC, 2008; Karombo, 2008a, b; Makoshori, 2008a; New Dawn Mining Corp., 2008).

#### **Mineral Trade**

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 marketed almost all mineral production in Zimbabwe. Gold and silver were required to be sold to Fidelity. PGM concentrates and smelter matte were shipped to processing facilities in South Africa that were operated by Impala Platinum Ltd.

#### **Commodity Review**

#### Metals

**Gold.**—Fidelity's accreditation with the London Bullion Market Association was suspended in 2008 because the refinery's annual production fell to less than 10 metric tons of gold. The suspension negatively affected the Government's international sales of gold by decreasing the number of available gold buyers for Fidelity's products. Gold mines in Zimbabwe remained adversely affected by the lack of payment for gold delivered to Fidelity, which, by yearend, owed more than \$30 million to the mining companies (London Bullion Market Association, The, 2008, p. 3; Mpofu, 2008).

#### **Industrial Minerals**

**Diamond.**—In 2008, the military removed illegal miners who had overrun the Marange diamond deposit in the Chiadzwa area and the military reportedly retained control of the mining operations. African Consolidated Resources plc of the United Kingdom continued its appeal of the 2006 revocation of diamond exploration and mining rights for the Marange license by the Ministry of Mines and Mining Development (African Consolidated Resources plc, 2009; Human Rights Watch, 2009, p. 4).

#### Outlook

According to the International Monetary Fund (2009), Zimbabwe's rampant inflation began to decline at yearend with the conversion to foreign currency from the Zimbabwe dollar. The real GDP, which has declined by about 40% since 1999, is not expected to recover quickly.

Zimbabwe has abundant mineral resources and a well-developed (but deteriorated) highway and railroad network. The short-term outlook for the mining sector, however, is not favorable. Shortages of electrical power, food, fuel, and skilled employees are expected to continue to affect mineral sector operations adversely in the near term. The chronic lack of foreign exchange, which could abate with the widespread adoption of the use of foreign currency instead of the Zimbabwe dollar, is expected to continue to adversely affect plans for equipment and mine maintenance, mine operations, and proposed mine and plant expansions in the near future. The massive debt load of the state-owned mineral-sector companies casts a significant shadow on their future viability.

The political uncertainty and the future divestment of 51% equity interest in companies under the Indigenization and Economic Empowerment Act are expected to be a negative influence on new investment in the Zimbabwe mining industry; however, optimistic mining companies, especially those from Asia, could pursue mineral-sector investments, especially if the Zimbabwean properties were considered to be inexpensive assets to acquire (Makoshori, 2008b).

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### TABLE 1 ZIMBABWE: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

#### (Metric tons unless otherwise specified)

Commodity <sup>2</sup> 2004         2005         2006           METALS         668,391         614,720         700,001           Cobalt, metal content <sup>3</sup> 59         281         26           Copper:         2383         2,570         2,581           Metal, refinery output, concentrate, Cu content         2,383         2,570         2,581           Metal, refinery output, refined/cathode, primary         7,000 <sup>4</sup> 7,000 <sup>4</sup> 7,000           Gold         kilograms         21,330         14,024         11,354           Iron and steel:	· · · · · ·	650,000
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	· · · · · ·	650,000
Copper:         2,383         2,570         2,581           Metal, refinery output, concentrate, Cu content         2,383         2,570         2,581           Metal, refinery output, refined/cathode, primary         7,000 <sup>4</sup> 7,000 <sup>4</sup> 7,000           Gold         kilograms         21,330         14,024         11,354           Iron and steel:         21,330         14,024         11,354           Mine output, iron ore:         283         377         104           Fe content <sup>e</sup> do.         140         185         52           Metal:         21,330         14,024         11,354           Pig iron         do.         140         185         52           Metal:         21,330         140         185         52           Pig iron         do.         125         129         24           Steel, crude         do.         135         107         24           Ferroalloys:         193,077         218,143         200,673           Ferrosilicon chromium         1,000         5,000         2,000	50	
Mine output, concentrate, Cu content         2,383         2,570         2,581           Metal, refinery output, refined/cathode, primary         7,000         4         7,000 <td></td> <td>50</td>		50
Metal, refinery output, refined/cathode, primary         7,000         4<		
Gold         kilograms         21,330         14,024         11,354           Iron and steel:	3,000	2,000
Iron and steel:         Number of the steel           Mine output, iron ore:         377           Gross weight         thousand metric tons           Fe content <sup>e</sup> do.           Metal:         140           Pig iron         do.           Steel, crude         do.           Ferroalloys:         193,077           Ferrosilicon chromium         1,000           S,000         2,000	<sup>4</sup> 6,798 <sup>r</sup>	<sup>,4</sup> 3,072 <sup>4</sup>
Mine output, iron ore:           Gross weight         thousand metric tons         283         377         104           Fe content <sup>e</sup> do.         140         185         52           Metal:           140         185         52           Pig iron         do.         125         129         24           Steel, crude         do.         135         107         24           Ferroalloys:          193,077         218,143         200,673           Ferrosilicon chromium         1,000         5,000         2,000	6,750 <sup>4</sup>	4 3,600
Gross weight         thousand metric tons         283         377         104           Fe content <sup>e</sup> do.         140         185         52           Metal:		
Fe content <sup>e</sup> do.         140         185         52           Metal:		
Metal:         Metal           Pig iron         do.         125         129         24           Steel, crude         do.         135         107         24           Ferroalloys:	110	50
Pig iron         do.         125         129         24           Steel, crude         do.         135         107         24           Ferroalloys:	55	25
Steel, crude         do.         135         107         24           Ferroalloys:		
Ferroalloys:         193,077         218,143         200,673           Ferrosilicon chromium         1,000         5,000         2,000	r r	
Ferrochromium         193,077         218,143         200,673           Ferrosilicon chromium         1,000         5,000         2,000	50 <sup>r</sup>	60
Ferrosilicon chromium         1,000         5,000         2,000		
	150,000 r	150,000
Nickel:	e 2,000	2,000
Mine output, concentrate, Ni content         9,776         8,556         8,825	7,100	6,354 <sup>4</sup>
Refinery output, refined metal: <sup>e</sup>		
Refined from domestic materials9,7007,5005,510	<sup>r</sup> 4,500 <sup>r</sup>	3,400
Toll refined from imported materials <sup>5</sup> $6,000$ $5,700$ $9,000$	9,500 <sup>r</sup>	10,300
Total refined nickel metal         15,700         13,200         14,500	14,000	13,700

43.3

#### TABLE 1—Continued ZIMBABWE: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

#### (Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2004	2005	2006	2007 <sup>e</sup>	2008 <sup>e</sup>
METALS—Continued					
Platinum-group metals:					
Palladium kilogra	ams 3,564	3,879	4,022	4,180 <sup>r,4</sup>	4,386 4
Platinum	do. 4,438	4,834	4,998	5,306 <sup>r, 4</sup>	5,642 4
Rhodium	do. 374	404	410	810 <sup>r</sup>	860
Ruthenium	do. 300	317	317	600 <sup>r</sup>	630
Iridium	do. 135	141	147	290 <sup>r</sup>	310
Total	do. 8,811	9,575	9,894	11,200 <sup>r</sup>	11,800
Silver	do. 3,216	187	500 <sup>e</sup>	250	150
Tantalum, mine output, Ta content	14		NA		
INDUSTRIAL MINERALS					
Asbestos thousand metric t	ons 104	122	97	80	50
Cement, hydraulic <sup>e</sup>	do. 500	600	700	400	400
Clays <sup>6</sup>	700 <sup>e</sup>	600 <sup>e</sup>	300 <sup>e</sup>	600	600
	rats 44,454	251,152	1,046,000	695,015 <sup>4</sup>	797,198 4
Feldspar	1				
Graphite	10,267	4,298	6,588	5,000	2,000
Kyanite	210				
Lithium minerals, gross weight	13,710	37,499	30,000 °	30,000	25,000
Magnesite	749	893	939	2,000	2,000
Mica <sup>e</sup>	120,000	160,000	130,000	200,000	150,000
Nitrogen, N content of ammonia	47,500	45,000 e	10,000 <sup>e</sup>	35,000	25,000
Perlite <sup>e</sup>	4,000	4,000	3,000	3,000	3,000
Phosphate rock, marketable concentrate	83,391	45,705	65,838	30,000	30,000
Stone, sand and gravel:		- ,		)	,
Granite, black	8,825		1,000 <sup>e</sup>	1,000 <sup>r</sup>	1,000
Limestone thousand metric t		84	50 °	50	50
Silica <sup>7</sup>	do. 70 °	20 <sup>e</sup>	12 <sup>e</sup>		
Sulfur:					
Pyrite:					
Gross weight	81,795	59,683	39,777	20,000	18,000
S content (32.6%)	26,670	19,500	13,000	6,500	6,000
Byproduct acid, metallurgical and coal process gas, S content <sup>e</sup>	1,900	1,500	1,000	1,000	1,000
Total <sup>e</sup>	28,600	21,000	14,000	7,500	7,000
Talc			140	200	200
Vermiculite	27,150	23,045	13,421	10,000	10,000
MINERAL FUELS AND RELATED MATERIALS		20,010	12,121	10,000	10,000
Coal. bituminous thousand metric t	ons 2,476	2,891	2,107	2,400	2,000
Coke, including metallurgical <sup>e</sup>	$\frac{180}{100}$	2,891	2,107	400	400
Coke, menualing metanungical	40. 180	200	100	700	-00

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero. <sup>1</sup>Table includes data available through February 24, 2010.

<sup>2</sup>In addition to the commodities listed, secondary aluminum; corundum; such gemstones as amethyst, aquamarine, emerald, iolite, and tourmaline; kaolin; secondary lead; and ores of tin and tungsten may be produced, but information is inadequate to estimate output.

<sup>3</sup>Metal includes metal content of compounds and salts and may include cobalt recovered from nickel-copper matte imported for toll refining.

<sup>4</sup>Reported figure.

<sup>5</sup>Toll-refined data include part of the output from the Bindura Refinery and all the production from the Empress Refinery, which processes imported nickel matte from Botswana.

<sup>6</sup>Includes fire clay.

<sup>7</sup>Includes rough and ground quartz and silica sand.

# TABLE 2 ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

#### (Metric tons unless otherwise specified)

Commodity	Major operating companies and major adulty overcra	Location of main facilities	Annual capacity	
Commodity Asbestos	Major operating companies and major equity owners African Associated Mines (Private) Ltd.	Shabanie Mine, Zvishavane	2,400,000	
Do.	do.	Gaths Mine, Mashava	1,400,000	
Cement:	u0.	Gaus Wille, Washava	1,400,000	
Clinker	Portland Holdings Ltd. (Pretoria Portland Cement Ltd.)	Colleen Bawn, about 115 kilometers southeast of Bulawayo	1,000,000	
Portland cement	do.	Bulawayo	800,000	
Do.	Lafarge Cement Zimbabwe Ltd. (Lafarge, S.A., 76.4%)	Harare	450,000	
Do.	Sino-Zimbabwe Cement Company Ltd. (China Building Material Industrial Corporation for Foreign Econo-Technical Cooperation and Zimbabwe Industrual Development Corp.)	Gweru	300,000	
Chromite	Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) [Zimasco Consolidated Enterprises Ltd. (ZCE)]	Peak Mine, Railway Block Mine, and Iron Ton Mine near Shurugwi; Rhodesdale Mine at Lalapanzi	120,000	
Do.	Local cooperatives	Mines on the southern Great Dyke	340,000	
Do.	do.	Mines on the northern Great Dyke	230,000	
Do.	Zimbabwe Alloys Ltd. [Benscore Investments (Private) Ltd.]	Inyala Mine	60,000	
Coal	Hwange Colliery Co. Ltd. [Government, 38%; Edwards Nominees (Private) Ltd., 15.46%; Messina Investments Ltd., 12.6%]	3 Main Mine and Chaba Mine, Hwange	5,000,000	
Do.	RioZim Ltd.	Sengwa Colliery, about 200 kilometers northeast of Kadoma	5,000,000	
Do.	Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Chiredzi, about 130 kilometers southeast of Masvingo	1,200,000	
Cobalt: Ore, cobalt content	Bindura Nickel Corp. Ltd. (Mwana Africa PLC, 53%)	Trojan Mine at Bindura and Shangani Mine, about 100 kilometers northeast of Bulawayo	800 1	
Hydroxide Copper:	BSR Ltd. (Bindura Nickel Corp. Ltd., 100%)	Bindura	700	
Ore, copper content	Bindura Nickel Corp. Ltd. (Mwana Africa PLC, 53%)	Trojan Mine at Bindura and Shangani Mine, about 100 kilometers northeast of Bulawayo	1,600 1	
Refined	Empress Nickel Refinery (RioZim Ltd.)	Eiffle Flats, near Kadoma	6,000	
Diamond carats	Murowa Diamond (Private) Ltd. (Rio Tinto plc, 78%, and RioZim Ltd., 22%)	Murowa Mine, near Zvishavane	252,000	
Do. do.	River Ranch Ltd. <sup>2</sup>	River Ranch Mine, near Beitbridge	NA	
Do. do.	Zimbabwe Mining Development Corp. <sup>2</sup> (ZMDC)	Marange area	100,000 <sup>e, 3,</sup>	
Gold kilograms	Mwana Africa PLC	Freda Rebecca Mine, Bindura	2,000 1	
Do. do.	RioZim Ltd.	Renco Mine, 75 kilometers south-southeast of Masvingo	1,000	
Iron and steel:				
Crude steel	Zimbabwe Iron and Steel Co. (Private) Ltd. (Zisco)	Blast furnace at Redcliff, near Gweru	72,000 <sup>1, 5</sup>	
Do.	Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Electric-arc furnace at Redcliff	60,000	
Ferroalloys, ferrochromium	Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) [Zimasco Consolidated Enterprises Ltd. (ZCE)]	Smelter at Kwekwe	180,000	
	Zimbabwe Alloys Ltd. [Benscore Investments (Private) Ltd.]	Smelter at Gweru	45,000	
Do.	Lancashire Steel (Pvt.) Ltd. [Zimbabwe Iron and Steel Co.	Wire rod mill at Kwekwe	120,000	
Do. Rolled steel	(Private) Ltd. (Zisco)]			
		Rolling mill at Redcliff	100,000	
Rolled steel	(Private) Ltd. (Zisco)]	Rolling mill at Redcliff Ripple Creek Mine, near Redcliff	100,000	

## TABLE 2—Continued ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

#### (Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
ithium	Bikita Minerals (Private) Ltd.	Bikita Mine, 60 kilometers east of Masvingo	33,000
Vickel:			
Ore	Bindura Nickel Corp. Ltd. (Mwana Africa PLC, 53%)	Trojan Mine at Bindura and Shangani Mine, about 100 kilometers northeast of Bulawayo	80,000 1
Refined metal	BSR Ltd. (Bindura Nickel Corp. Ltd., 100%)	Bindura	15,600 1
Do.	Empress Nickel Refinery (RioZim Ltd.)	Eiffle Flats, near Kadoma	9,000
hosphate	Dorowa Minerals (Private) Ltd. (Chemplex Corp. Ltd., 100%)	Dorowa Mine, 90 kilometers west of Mutare	155,000
latinum-group metals:			
Ore	Zimbabwe Holdings Ltd. (Impala Platinum Holdings Ltd., 86.9%)	Ngezi Mines	2,200,000
Do.	Mimosa Investments Ltd. (Aquarius Platinum Ltd., 50%, and Impala Platinum Holdings Ltd., 50%)	Mimosa Mine, east of Zvishavane	1,800,000
Do.	Anglo American Platinum Corp. Ltd.	Unki project	1,440,000 3
Concentrate	Zimbabwe Holdings Ltd. (Impala Platinum Holdings Ltd., 86.9%)	Selous concentrator	2,180,000
Do.	Mimosa Investments Ltd. (Aquarius Platinum Ltd., 50%, and Impala Platinum Holdings Ltd., 50%)	Mimosa concentrator, east of Zvishavane	1,900,000
Smelter matte	Zimbabwe Holdings Ltd. (Impala Platinum Holdings Ltd., 86.9%)	Selous smelter	72,000
yrite	Iron Duke Pyrites (Chemplex Corp. Ltd.)	Iron Duke Mine	NA
/ermiculite	Shawa Vermiculite (Private) Ltd.	Shawa Mine, near Dorowa	39,000
Do.	Dinidza Vermiculite Mining Co, (Private) Ltd.	Dinidza Mine, near Dorowa	10,000

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

<sup>1</sup>Operations suspended.

<sup>2</sup>Ownership disputed.

<sup>3</sup>Under development or redevelopment.

<sup>4</sup>Significantly more diamond was produced from the area in 2006 during the uncontrolled diamond rush.

<sup>5</sup>Nominal capacity 1,000,000 t/yr. Blast furnaces need refurbishment.