

# **2009 Minerals Yearbook**

# ZIMBABWE

## THE MINERAL INDUSTRY OF ZIMBABWE

#### By Philip M. Mobbs

Zimbabwe's diverse mineral output included about 3% of the world's platinum and vermiculite production, about 2% of the world's lithium and palladium output, and about 1% of the world's asbestos production. In 2009, several mineral production companies and mineral-based commodity manufacturers resumed operations at mines and plants that had been temporarily suspended (placed on care-and-maintenance status) in the past few years; several other companies increased mining activity but few companies were operating at full capacity owing to the ongoing domestic and international economic crises (table 1; Dzirutwe, 2009b; Cordier, 2010; Jaskula, 2010; Loferski, 2010; Papp, 2010; Virta, 2010).

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 2007 amendment of the Environmental Management Act of 2002 also affected mines. The Empowerment and Indigenization Bill of 2008 required that 51% ownership of businesses in Zimbabwe be acquired by eligible Zimbabweans. In 2009, work continued on regulations associated with the indigenization law. Early in 2009, after the implementation of new fiscal and monetary policies (which included the temporary replacement of the Zimbabwe dollar after the official adoption of a multicurrency national financial system) and the installation of the Government of National Unity, Zimbabwe's hyperinflation was reined in. In 2009, the annual inflation rate was estimated to be 6.5% compared with 1,017% in 2006, 10,453% in 2007, an estimated average of 55,600,000,000% for the first nine months of 2008, and about 89,700,000,000,000,000,000,000% in November 2008 (Hanke, 2008; International Monetary Fund, 2010, p. 4, 20).

#### **Minerals in the National Economy**

In 2009, minerals accounted for about 38% of Zimbabwe's exports. Of the approximately 30 minerals or mineral-based commodities produced in Zimbabwe, 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 officially marketed much of the mineral production of Zimbabwe. The Reserve Bank of Zimbabwe's monetary policy statement of February 2, 2009, authorized gold exports by entities holding gold export permits. Formerly, gold production was required to be sold to Fidelity Printers & Refineries (Private) Ltd., which was a subsidiary of the Reserve Bank. PGM concentrates and smelter matte were shipped to processing facilities in South Africa that were operated by Impala Platinum Ltd. (Central African Gold PLC, 2010, p. 3; Kramarenko and others, 2010, p. 39).

#### Production

In 2009, the production of copper ore, diamond, gold, and PGMs increased, and the output of cement, silver, and steel was estimated to have increased compared with that of 2008. Asbestos, chromite, ferrochromium, graphite, magnesite, and nickel production decreased and coal, coke, ferrosilicon chromium, and stone output were estimated to have decreased significantly in 2009 (table 1).

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

Domestic and international investment and mining companies, Government-owned companies, and multinational cement companies managed mineral operations in Zimbabwe. Foreign investment was concentrated in the cement, chromium, coal, diamond, gold, nickel, PGM, and steel sectors.

State-owned operating companies in the minerals sector included Zimbabwe Mining Development Corp. (ZMDC), which controlled many inactive copper and gold mines. Subsidiaries of state-owned Industrial Development Corp. of Zimbabwe Ltd. produced industrial minerals and mineral-based commodities. Zimbabwe Iron and Steel Company (Private) Ltd. (Zisco), in which the Government held majority interest, owned an idle crude steel plant, and a Zisco subsidiary managed iron ore and limestone mines.

#### **Commodity Review**

#### **Metals**

**Chromium and Ferroalloys.**—At midyear, the Government imposed a ban on the export of chromite ore, but by yearend, the Government had issued an 18-month waiver to the ban. Zimbabwe Alloys Ltd. (Zim Alloys) and Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) were the major chromite ore producing companies, but numerous small-scale mining companies and cooperatives historically had produced a notable volume of ore. After the export ban was lifted, Chromex Mining plc of the United Kingdom acquired 49% interest in Falvect Mining (Private) Ltd., which included the right to codevelop Falvect's chromite concessions (Nkala, 2009a, b; Chromex Mining plc, 2010, p. 7).

In April, Zimasco restarted ferrochrome production. Zimasco's smelter in Kwekwe had been on care-and-maintenance status since December 2008 owing to the low product prices that were attributed to the global economic crisis. A consortium, which included Metmar Ltd. of South Africa, agreed to acquire 40% equity interest in Zim Alloys, which was a ferrochrome producer, from Benscore Investments (Private) Ltd. of Zimbabwe for \$56.25 million. The Metmar consortium also agreed to acquire 40% interest in Chromecorp (Private) Ltd.,

which was a chromite mining company, from Euro Mineral Resources Ltd. for \$4.1 million (Swanepoel, 2009).

**Nickel.**—RioZim Ltd. continued operations at the Empress Nickel Refinery at about 52% of installed capacity in 2009. Reduced volumes of nickel matte that were toll refined for BCL Ltd. in Botswana affected processing operations, as did frequent power outages, which adversely affected production of liquid oxygen at the refinery. RioZim also continued exploration for nickel at Chimakasa in central Zimbabwe. Zimari Nickel (Private) Ltd. continued an evaluation of the Nickel Hill prospect near Mvuma in central Zimbabwe (RioZim Ltd., 2010, p. 13-14).

Bindura Nickel Corporation Ltd.'s nickel mines, smelter, and refinery remained on care-and-maintenance status in 2009. Plans were developed to restart mining operations at the Trojan Mine in Bindura and to export nickel concentrate production (Mwana Africa PLC, 2010, p. 8).

**Platinum-Group Metals.**—The \$340 million Phase 1 expansion project at the Ngezi Mine, which was operated by Zimbabwe Holdings Ltd. of Zimbabwe, continued in 2009. The 1-million-metric-ton-per-year (Mt/yr)-capacity Portal 1 underground mine had reached full production in December 2008. A new 2-Mt/yr-capacity concentrator was commissioned in 2009, and the ongoing development of the 2-Mt/yr-capacity Portal 4 underground mine was expected to be completed in 2012. The Wedza Phase 5.5 expansion program, which was a 300-metric-ton-per-day expansion of crushing and screening capacity at the Mimosa Mine, was completed in mid-2009 (Impala Platinum Holdings Ltd., 2009, p. 66; 2010, p. 4).

Unki Mines (Private) Ltd., which was a subsidiary of Anglo Platinum Ltd. of South Africa, completed about 64% of the development of the underground Unki Mine. A 1.4-Mt/yr-capacity concentrator was expected to be commissioned in 2010; ore recovered from the mine development work was stockpiled. Concentrate was expected to be trucked about 500 kilometers to the Polokwane smelter in South Africa (Anglo Platinum Ltd., 2010, p. 81).

In 2008, Amaplat Mauritius, which was a subsidiary of Amari Resources of Monaco, acquired interest in Zimari Platinum (Private) Ltd. In 2009, Zimari started a drilling program at the Serui prospect, which was located south of the Hartley Complex near Selous.

Todal Mining (Private) Ltd. of Zimbabwe, which was a joint venture of Lefever Finance Ltd. of the British Virgin Islands [United Kingdom] (60% equity interest) and ZMDC (40%), claimed the Bougai and the Kironde platinum prospects, which are located southwest of Gweru on the Great Dyke. The Bougai and the Kironde claims formerly had been explored by subsidiaries of Anglo Platinum (Southridge Ltd. and Unki Mines) and subsequently transferred to ZMDC and then awarded to Todal. In 2008, Central African Mining & Exploration Company Plc (CAMEC) of the United Kingdom acquired Lefever.

By mid-2009, Todal had drilled and cored 66 holes at Bougai and had issued an NI 43-101-compliant resource estimate. In November, ENRC Africa 1 Ltd. of the United Kingdom, which was a subsidiary of Eurasian Natural Resources Corporation PLC, acquired CAMEC and its interest in the Bougai and the Kironde prospects (Central African Mining & Exploration Company Plc, 2009; Eurasian Natural Resources Corporation PLC, 2010, p. 12). The Bougai platinum prospect also was claimed by Mid-Ma Platinum of Zimbabwe, which was a joint venture of Ndumera Trust of Zimbabwe (74.9% equity interest) and Kameni Ltd. of South Africa (25.1%). In 2009, Mid-Ma started exploration of the prospect and attempted to resolve the contested Bougai claim with the Ministry of Mines and Mining Development (Sergeant, 2009).

#### **Industrial Minerals**

**Asbestos.**—Production continued at a lower rate at the two asbestos mines owned by SMM Holdings (Private) Ltd. owing to electrical power outages and unresolved maintenance issues. Production continued despite allegations that, for much of 2009, the Government-appointed administrator of SMM Holdings intermittently failed to pay workers. The continuation of operations was attributed to the fact that miners could be evicted from company-owned housing if they failed to report to work. In September, rallies and a strike to protest the lack of pay at the mine in Zvishavane reportedly were forcibly broken up by civil authorities (Chikari, 2009; Sibanda, 2009; Sifile, 2010).

**Cement.**—Cement production was estimated to have nearly doubled in 2009 compared with that of 2008. Lafarge Cement Zimbabwe Ltd. reported that it increased the utilization of its production capacity to 72% from 62% in 2008. Pretoria Portland Cement Company Ltd. (PPC) of South Africa reported that Portland Holdings Ltd. had increased its cement output in 2009; capacity utilization by the company was estimated to have averaged about 40% in 2009 compared with less than 10% in 2008. PPC planned to renovate the Colleen Bawn facility in 2010, which would increase the facility's production capacity by about 20% (Dzirutwe, 2009a; Mutandi, 2009; Pretoria Portland Cement Company Ltd., 2009, p. 30).

**Diamond.**—Recovery of diamond from the Marange deposit in the Chiadzwa area of eastern Zimbabwe remained an international issue in 2009. In the past few years, mining at Marange had been by artisanal miners. About 90% of the output from Marange was industrial-quality diamond. Calls to ban Zimbabwe's diamond from the world markets because of illicit trade of diamond, involvement of the military in mining and trading activities, and reported human rights abuse resulted in a Kimberley Process Certification Scheme (KPCS) review visit to Government agencies and to the diamond fields. In 2009, a subsidiary of ZMDC began small-scale commercial operations at Marange (Kimberley Process Certification Scheme Secretariat—Namibia, 2009; Kimberley Process Certification Scheme, 2010).

In August, Grandwell Holdings Ltd. of Mauritius, which was a subsidiary of New Reclamation Group Ltd. of South Africa, in partnership with Marange Resources (Private) Ltd., which was a subsidiary of ZMDC, formed Condurango (also known as Mbada Mining (Private) Ltd.), which was authorized to begin mechanical mining operations at Marange. The Government also authorized Canadile Miners (Private) Ltd., which was a venture of Core Mining and Minerals Ltd. of South Africa and Marange Resources, to begin mining operations. In November, the KPCS considered the suspension of Zimbabwe as a KPCS participant; such a suspension would have prohibited Zimbabwe from trading diamond with other KPCS participant nations, which accounted for about 98% of the international diamond trade. Instead, the KPCS imposed a suspension of official exports of diamond from Marange until a KPCS-appointed representative was able to monitor activity in Marange (Childress, 2009; Chikane, 2010).

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. In December, the Government cancelled the registered mining claims in the Marange area that had been held by African Consolidated Resources, Dashaloo Investments, Heavy Staff Investments, Olebile Investments, and Possession Investments (African Consolidated Resources plc, 2009; Musarurwa, 2009).

In 2009, RioZim commissioned a project to increase the processing of ore at the Murowa Mine. The ongoing dispute between Bubye Minerals (Private) Ltd. and River Ranch Ltd. concerning the ownership of the River Ranch Mine in southern Zimbabwe continued to work its way through the court system (Financial Gazette, The, 2009; RioZim Ltd., 2010, p. 14).

**Phosphate Rock.**—African Consolidated Resources continued to explore for phosphate rock at the Chishanya carbonate complex in eastern Zimbabwe. A 2-hole diamond drill program was planned for 2010 (African Consolidated Resources plc, 2010, p. 7).

#### **Mineral Fuels**

**Coal.**—Hwange Colliery Company Ltd. operated at about 50% to 60% of capacity in 2009 owing in part to problems with the JKL Mine's dragline, which was out of commission for about 9 months. Reserves at the JKL Mine were expected to last at least 3 years at current (2009) production levels. To reach additional resources associated with the JKL pit, the company would have to dewater and re-route the Deka River (Kadzere, 2009; Marawanyika, 2009; AllAfrica Global Media, 2010; Nyakazeya, 2010).

With the JKL dragline operational, and with the acquisition of two excavators and six dump trucks from South Africa in December, Hwange expected to increase the output of coal in 2010. Hwange's output was supplemented by the production from Clidder Minerals, which was in the middle of a 3-year contract to extract coal from the Chaba Mine. In March, ZESA Holdings (Private) Ltd. awarded Clidder a contract to develop a coal mine in the Western coalfields and an associated electrical powerplant. In July, however, the Government cancelled ZESA's concessions in the Sinamatela and the Western coalfields, which had been awarded in 2006 and 2005, respectively (Herald, The, 2009; Sunday Standard, The, 2009).

In 2008, trial mining had ceased at RioZim's Sengwa Mine in western Zimbabwe. In 2009, RioZim resumed planning for the development of the coal-fueled Sengwa electrical-power generation project, which was known as the Gokwe North Power Station project prior to being deferred in 2000. Tulicoal (Private) Ltd. resumed production at the Tuli coal mine in southern Zimbabwe in late 2009 (RioZim Ltd., 2010, p. 13).

#### Outlook

Zimbabwe has abundant mineral resources and a well-developed (but deteriorated) transportation system. With the transition from the Zimbabwe dollar, the mineral industry's chronic foreign currency shortage was expected to begin to abate, but shortages of electrical power, food, fuel, and skilled employees are expected to continue to affect mineral sector operations adversely in the near term. The massive debt load of the state-owned mineral-sector companies also casts a significant shadow on their future viability.

The political uncertainty and the future divestment of equity interest under the Indigenization and Economic Empowerment Act are expected to continue to constrain short-term investment in the Zimbabwe mining industry; however, optimistic mining companies, especially those from Asia, could pursue mineral-sector investments, especially if the Zimbabwean properties are considered to be inexpensive assets to acquire (Makoshori, 2008).

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

#### (Metric tons unless otherwise specified)

Commodity <sup>2</sup> METALS	2005	2006	2007 <sup>e</sup>	2008 <sup>e</sup>	2009 <sup>e</sup>
Chromite, gross weight	614,720	712,908 <sup>r</sup>	614,559 <sup>r, 3</sup>	442,584 <sup>r, 3</sup>	193,673 <sup>3</sup>
Cobalt, metal content <sup>4</sup>	281	110 <sup>r</sup>	100	85 r	74
Copper:					
Mine output, concentrate, Cu content	2,570	2,581	2,681 <sup>r, 3</sup>	2,827 <sup>r, 3</sup>	3,572 3
Metal, refinery output, refined/cathode, primary	7,000 3	7,000 <sup>3</sup>	6,798 <sup>3</sup>	$3,072^{-3}$	3,000
Gold kilograms	14,024	11,354	6,750 <sup>3</sup>	3,579 <sup>r, 3</sup>	4,965 3
Iron and steel:	1.,02.	11,001	0,700	5,675	.,,, 00
Mine output, iron ore:					
Gross weight thousand metric tons	377	104	79 <sup>r, 3</sup>	2 <sup>r, 3</sup>	
Fe content <sup>e</sup> do.	185	52	55	25	
Metal:	100	52	55	25	
Pig iron do.	129	24			
Steel, crude do.	107	24	23 <sup>r</sup>	10 <sup>r</sup>	20
Ferroalloys:	107	21	25	10	20
Ferrochromium	218,143	200,673	187,327 <sup>r, 3</sup>	145,430 <sup>r, 3</sup>	72,223 <sup>3</sup>
Ferrosilicon chromium	5,000	1,000 <sup>r, e</sup>	3,100 <sup>r</sup>	1,600 <sup>r</sup>	600
Nickel:	5,000	1,000	5,100	1,000	000
Mine output, concentrate, Ni content	8,556	8,825	8,582 <sup>r, 3</sup>	6,354 <sup>3</sup>	4,858 3
Refinery output, refined metal: <sup>e</sup>	0,550	0,025	0,502	0,554	4,000
Refined from domestic materials	7,500	5,510	4,500	3,400	
	<i>,</i>	<i>,</i>	,	,	
Toll refined from imported materials <sup>5</sup>	5,700	9,000	9,500	10,300	6,000
Total refined nickel metal	13,200	14,500	14,000	13,700	6,000
Platinum-group metals:	2 0 7 0	4 0 2 2	4 100 3	12053	<b>5</b> (00)
Palladium kilograms	3,879	4,022	$4,180^{-3}$	4,386 3	5,680
Platinum do.	4,834	4,998	5,306 <sup>3</sup>	5,642 3	6,849 <sup>3</sup>
Rhodium do.	404	410	810	860	1,100
Ruthenium do.	317	317	600	630	800
Iridium do.	141	147	149 <sup>r, 3</sup>	151 <sup>r, 3</sup>	209 3
Total do.	9,575	9,894	11,000 <sup>r, 3</sup>	11,700 <sup>r, 3</sup>	14,600
Silver do.	187	500 <sup>e</sup>	250	150	200
INDUSTRIAL MINERALS			o ( <b></b> o <b>r</b> )	11 100 5 2	
Asbestos	122,041	96,956	84,520 <sup>r, 3</sup>	11,489 <sup>r, 3</sup>	4,971 3
Cement, hydraulic <sup>e</sup> thousand metric tons	600	700	400	400	700
Clays <sup>6</sup>	600 <sup>e</sup>	300 e	600	600	600
Diamond carats	251,152	1,046,000	695,015 <sup>3</sup>	797,198 <sup>3</sup>	963,502 <sup>3</sup>
Graphite	4,298	6,588	5,418 <sup>r, 3</sup>	5,134 <sup>r, 3</sup>	2,463 3
Lithium minerals, gross weight	37,499	30,000 <sup>e</sup>	50,000 r	50,000 r	50,000
Magnesite	893	939	1,814 <sup>r, 3</sup>	2,549 <sup>r, 3</sup>	449 <sup>3</sup>
Mica <sup>e</sup>	160,000	130,000	200,000	150,000	150,000
Nitrogen, N content of ammonia	45,000 <sup>e</sup>	10,000 e	35,000	25,000	25,000
Perlite <sup>e</sup>	4,000	3,000	3,000	3,000	3,000
Phosphate rock, marketable concentrate	45,705	65,838	46,106 <sup>r, 3</sup>	21,051 <sup>r, 3</sup>	20,000
Stone, sand and gravel:					
Granite, black		1,000 e	1,000	1,000	500
Limestone thousand metric tons	84	50 e	50	50	40
Silica <sup>7</sup> do.	20 <sup>e</sup>	12 <sup>e</sup>			
Sulfur:					
Pyrite:					
	59,683	39,777	19,812 <sup>r, 3</sup>	30,308 <sup>r, 3</sup>	3
Gross weight	57,005	/		2	
Gross weight S content (32.6%)	19,500	13,000	6,500 <sup>r, 3</sup>	9,900 <sup>r, 3</sup>	
		,	6,500 <sup>r, 3</sup> 1,000	9,900 <sup>r, 3</sup> 1,000	1,000
S content (32.6%) Byproduct acid, metallurgical and coal process gas, S content <sup>e</sup>	19,500	13,000	<i>,</i>	<i>,</i>	1,000 7,000
S content (32.6%)	19,500 1,500	13,000 1,000	1,000	1,000	

See footnotes at end of table.

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

#### (Metric tons unless otherwise specified)

Commodity	y <sup>2</sup>	2005	2006	2007 <sup>e</sup>	2008 <sup>e</sup>	2009 <sup>e</sup>
MINERAL FUELS AND REL	ATED MATERIALS					
Coal, bituminous	thousand metric tons	2,891	2,107	2,080 r, 3	1,947 <sup>r, 3</sup>	1,750
Coke, including metallurgical <sup>e</sup>	do.	200	160	400	112 <sup>r, 3</sup>	43 <sup>3</sup>

<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. -- Zero.

<sup>1</sup>Table includes data available through September 1, 2010.

<sup>2</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 tantalum, tin, and tungsten may be produced, but information is inadequate to estimate output.

<sup>3</sup>Reported figure.

<sup>4</sup>Metal includes metal content of compounds and salts and may include cobalt recovered from nickel-copper matte imported for toll refining.

<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 2009

#### (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	
Do.	do.	Gaths Mine, Mashava	1,400,000	
Cement:		· · · · · · · · · · · · · · · · · · ·		
Clinker	Portland Holdings Ltd. [Pretoria Portland Cement Company Ltd. (PPC)]	Colleen Bawn, about 115 kilometers southeast of Bulawayo	1,000,000	
Portland	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 Industrial 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. (Zim Alloys) [Benscore Investments (Private) Ltd.]	Inyala Mine	60,000	
Coal	Hwange Colliery Company Ltd. [Government, 38%; Edwards Nominees (Private) Ltd., 15.46%; Messina Investments Ltd., 12.6%]	3 Main underground mine, the Chaba open pit mine, and the JKL open pit 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	
Do.	Tulicoal (Private) Ltd. [Senzile Mining (Private) Ltd.]	do.	1,200,000	
Cobalt:				
Ore, cobalt content	Bindura Nickel Corporation Ltd. (Mwana Africa PLC, 53%)	Trojan Mine at Bindura and Shangani Mine, about 100 kilometers northeast of Bulawayo	800 1	
Hydroxide	BSR Ltd. (Bindura Nickel Corporation Ltd., 100%)	Bindura	700 1	
Copper: Ore, copper content	Bindura Nickel Corporation 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.	River Ranch Mine, near Beitbridge	NA <sup>2</sup>	
Do. do.	Canadile Miners (Private) Ltd. (Core Mining and Minerals Ltd. and Marange Resources (Private) Ltd.)	Marange deposit in the Chiadzwe area	NA <sup>2,3</sup>	
Do. do.	Mbada Mining (Private) Ltd. [Grandwell Holdings Ltd. and Marange Resources (Private) Ltd.]	do.	NA <sup>2, 3</sup>	
Gold kilograms	Mwana Africa PLC	Freda Rebecca Mine, Bindura	2,000	
Do. do.	RioZim Ltd.	Renco Mine, 75 kilometers south-southeast of Masvingo	1,000	
Iron and steel:				
Ferroalloys, ferrochromium	Zimbabwe Mining and Smelting Co. (Private) Ltd. (Zimasco) [Zimasco Consolidated Enterprises Ltd. (ZCE)]	Smelter at Kwekwe	180,000	
Do.	Zimbabwe Alloys Ltd. (Zim Alloys) [Benscore Investments	Smelter at Gweru	45,000	

### TABLE 2—Continued ZIMBABWE: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

#### (Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel—Continued	Major operating companies and major equity owners	Location of main facilities	capacity
Iron:	_		
Iron ore, gross weight	Buchwa Iron Mining Co. [Zimbabwe Iron and Steel Company (Private) Ltd. (Zisco)]	Ripple Creek Mine, near Redcliff	600,000
Sponge iron	Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Masvingo	54,000
Steel:		<b>v</b>	,
Crude steel	Zimbabwe Iron and Steel Company (Private) Ltd. (Zisco)	Blast furnace at Redcliff, near Gweru	72,000 1,4
Do.	Steelmakers Zimbabwe (Private) Ltd. (Steelmakers Ltd.)	Electric arc furnace at Redcliff	60,000
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	100,000
lithium	Bikita Minerals (Private) Ltd.	Bikita Mine, 60 kilometers east of Masvingo	33,000
Nickel:			
Ore	Bindura Nickel Corporation 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 Corporation Ltd., 100%)	Bindura	15,600 1
Do.	Empress Nickel Refinery (RioZim Ltd.)	Eiffle Flats, near Kadoma	9,000
Phosphate	Dorowa Minerals (Private) Ltd. (Chemplex Corporation Ltd., 100%)	Dorowa Mine, 90 kilometers west of Mutare	155,000
Platinum-group metals:			
Ore	Zimbabwe Holdings Ltd. (Impala Platinum Holdings Ltd., 86.9%)	Ngezi Mine	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 Platinum 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
Pyrite	Iron Duke Pyrites (Chemplex Corporation 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>Nominal capacity 1,000,000 metric tons per year. Blast furnaces need refurbishment.