



2006 Minerals Yearbook

NAMIBIA

THE MINERAL INDUSTRY OF NAMIBIA

By Philip M. Mobbs

Diamond remained the most economically significant mineral commodity produced by the mining industry of Namibia. The country produced about 2% of the world's gem-quality diamond, which placed it as the eighth ranked producer of gem diamond in terms of value. Namibia, which is located on the southwestern coast of Africa, also was the sixth ranked producer of uranium, producing about 8% of the world's uranium in 2006 (World Nuclear Association, 2007; Olson, 2008).

Namibia's mining industry is regulated by the Diamond Act, 1999; the Minerals (Prospecting and Mining) Act, 1992; and the Minerals Development Fund of Namibia Act of 1996. The petroleum sector is governed by the Petroleum (Exploration and Production) Act, 1991; the Petroleum (Taxation) Act, 1991; the Petroleum (Exploration and Production) Amendment Act, 1993; the Petroleum Laws Amendment Act, 1998; the Model Petroleum Agreement, 1998; and the Petroleum Products and Energy Amendment Act, 2000.

In 2006, the Government confirmed a royalty schedule that originally had been introduced in 2004. A 3% royalty was levied on the market value of base, precious, and rare metals and nonnuclear mineral fuels. A 2% royalty was levied on industrial minerals and nuclear mineral fuels.

Minerals in the National Economy

Diamond mining contributed about 8.6% to the gross domestic product (GDP) of Namibia; construction accounted for 3.7% of the GDP, and other mining and quarrying, 3.1%. Mineral exports accounted for a significant segment of trade and foreign exchange earnings (Bank of Namibia, 2007).

Production

In 2006, manganese, diamond, and fluorspar output increased by 158%, 24%, and 15%, respectively, compared with that of 2005, and copper, lead, wollastonite, and zinc posted significant production declines. The increase in manganese was attributable to the expansion of production at the reopened Purity Mine (formerly the Otjisondu Mine). The decline in copper output could be attributed in part to instability during the transition of ownership of Ongopolo Mining and Processing Ltd. Lead and zinc output declined in part because of a short strike by workers at the Rosh Pinah Mine. Data on mineral production are provided in table 1.

Structure of the Mineral Industry

The Government encourages private sector exploration and development according to guidelines set out in its 2003 paper entitled "The Mineral Policy of Namibia." The Ministry of Mines and Energy and its Diamond Affairs, Energy, and Mining Directorates regulate Namibia's mining and petroleum industries, and the Ministry concerns itself with the provision

of national exploration and mining databases and competitive exploration and mining policy and regulations. The Ministry of Trade and Industry is responsible for regulating manufacturing activity, which includes mineral beneficiation, the production of cement, and the processing of semiprecious stones; the Ministry also promotes resource-based development.

The larger mining operations in Namibia tended to be funded and operated by domestic and international investors. Numerous local operations were involved in smaller-scale industrial mineral production, especially the semiprecious gemstone sector.

Commodity Review

Metals

Copper.—In 2006, Weatherly International plc of the United Kingdom agreed to acquire 56% interest in financially-distressed Ongopolo; Weatherly subsequently increased its equity interest in the company to 100%. Ongopolo operated the Kombat, the Matchless, and the Otjihase Mines. Ongopolo suspended operations at the Tsumeb copper smelter in mid-2006, relined the 30,000-metric-ton-per-year (t/yr)-capacity reverberatory furnace, and reopened the smelter in August. A second reverberatory furnace at Tsumeb remained inactive, pending renovation (Weatherly International plc, 2006).

Ongopolo evaluated the development of an underground mine at the Tschudi copper-silver prospect. Other copper exploration activity in Namibia included that of Copper Resources Corp. of South Africa on the Haib project, Helio Resource Corp. of Canada on the Honib prospect, Teck Cominco Ltd. of Canada on the Kaoko project, and Yale Resources Ltd. of Canada on the Leicester prospect.

Gold.—Companies that explored for gold in 2006 included Forsys Metals Corp. of Canada on the Ondundu prospect, Teal Exploration & Mining Inc. of Canada on the Otjikoto prospect, and Teck Cominco on the Vredelus prospect. Yale Resources worked on the Makuru (also known as the Otjimakuru) project.

Lead and Zinc.—Contributing to the decline in Namibian zinc output in 2006 was the nearly 3-week fire-related suspension of zinc metal production operations at the Skorpion zinc facility and a strike at the Rosh Pinah Mine for higher wages, which lasted for about 2 weeks and adversely affected lead and zinc concentrate production. Kumba Resources Ltd. of South Africa proposed to reduce its 89.5% equity interest in Rosh Pinah to about 50%. A local investor group, which included PE Minerals (Namibia) (Pty.) Ltd., was expected to acquire Kumba's divested interest (Bloomberg.com, 2006; Reuters, 2006).

Industrial Minerals

Cement.—Cement had been imported since the closure of the Otjiwarongo factory of African Portland Cement several years ago. Holcim (Namibia) (Pty.) Ltd., which was owned

by Holcim S.A. of Switzerland, 54%, and the Aveng Group of South Africa, 46% (and known as Alpha Cement prior to 2004), imported about 25,000 metric tons per month of cement to meet local demand.

In 2005, Cheetah Cement Factory, which was a joint venture of Whale Rock Cement of Namibia and CP Cimento e Participacoes S.A. of Brazil, proposed to import cement from Brazil until a 500,000-t/yr-capacity cement plant near Otjiwarongo was built. In late 2005, Cheetah Cement imported 36,000 metric tons (t) of cement from Brazil, but most of the cement was lost when Cheetah Cement's warehouse was flooded in early 2006. As a result, planning for the construction of the new cement factory was suspended (Namibian Economist, The, 2007).

Diamond.—Namdeb Diamond Corp. (Pty.) Ltd., which was a joint venture between De Beers Centenary AG and the Namibian Government (50% each), was the country's leading diamond producer. During 2006, Namdeb, its contractors, and its subsidiaries produced more than 2 million carats. The partners also negotiated the Namdeb Sales Agreement in 2006, which created the Namibia Diamond Trading Co., to sort and value the volume of Namdeb's production that would be marketed to the domestic diamond-cutting industry (Namdeb Diamond Corp. (Pty.) Ltd., 2007, p. 6, 14, 16).

Mineral Fuels and Related Materials

Petroleum.—Offshore petroleum activity included exploration on Block 1711 by the joint venture of Z.A.O. Sintezneftegas of Russia (70%), Petroleum, Oil & Gas Corp. of South Africa (PetroSA) (10%), EnerGulf Resources Inc. of the United States (10%), and the National Petroleum Corp. of Namibia (NAMCOR) (7%). Onshore exploration included that of the joint venture of Circle Oil Namibia Ltd. (90%) and NAMCOR (10%). In 2006, Mitusi Atlantic Energy BV (15%) joined the joint venture of BHP Billiton Ltd. of Australia (75%) and PetroSA (10%), which held Blocks 2813A, 2814B, and 2914.

Uranium.—Rössing Uranium Ltd. processed about 12 million metric tons of ore in 2006 and produced 3,617 t of U_3O_8 . Production was exported to the Asia and the Pacific, the European, and the North American markets by Rio Tinto Uranium; Rössing shareholders had no offtake rights.

Earlier this decade, Rössing had announced that the Rössing Mine would be closed in 2009. By 2005, the increase in the world market price of uranium allowed Rössing to plan to extend operations to 2016. In 2006, positive exploration results and continued favorable uranium market conditions allowed Rössing to propose that the mine's life could be extended to 2021 (Rössing Uranium Ltd., 2007a, b).

In late 2006, Paladin Resources Ltd. commissioned the Langer Heinrich uranium oxide (U_3O_8 , or yellowcake) plant; startup output was not included in the country's 2006 production data. Paladin expected to ramp up U_3O_8 production to about 1,180 t/yr (2.6 million pounds per year) (Paladin Resources Ltd., 2006).

Exploration activity and evaluation of uranium mineralization in Namibia in 2006 included that of Bannerman Resources Ltd. of Australia on the Goanikontes and Swakop River prospects, Extract Resources Ltd. of Australia on the Husab project, Forsys Metals on the Valencia project, Metals Australia Ltd.

of Australia (formerly Australian United Gold Ltd.) on the Engo Valley and Mile 72 projects, Rössing Uranium on the SH and SK anomalies on Rössing's mining lease near Arandis, UranMin Inc. on the Trekkopje deposit, and Western Australian Metals Ltd. of Australia on the Marinica project. In early 2006, Xemplar Energy Corp. of Canada acquired Namura Minerals Resources (Pty.) Ltd., which held the Aus, the Cape Cross, and the Warmbad uranium projects. Namura subsequently acquired a reconnaissance license in the Engo Valley area.

Outlook

The long tradition of mining in Namibia has been renewed with the reopening of the Tsumeb-area copper mines and smelter, the opening of the Skorpion zinc project, the expansion of the fluorspar and the gold mines, and the continued offshore diamond development of the past few years. Extensive exploration in Namibia for base metals, diamond, gold, natural gas, and uranium has been attributed, in part, to the rise in world commodity prices. Potentially new mine development and new value-added gemstone cutting and polishing, metal-processing, and other mineral-based manufacturing industries could maintain the mineral sector's position as a significant segment of the economy of Namibia for the foreseeable future.

With a climate that is among the driest in the world, the lack of water resources will continue to be a constraint on mineral development in Namibia, as will the availability of fuel and electric power. New investment to develop the country's natural gas resources and harness the hydroelectric power potential, and the recently proposed (2006) introduction of nuclear-powered electricity-generating plants, will influence the future economic growth of Namibia. The expansion of regional transportation infrastructure in northern Namibia could see the Port of Walvis Bay become an alternative route for mineral exports from southeastern Angola, Botswana, and Zambia.

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TABLE 1
NAMIBIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2002	2003	2004	2005	2006 ^b
METALS					
Arsenic, white, 99% arsenic trioxide	880	389	1,264	89	-- ^c
Copper:					
Mine output, concentrate (26% – 30% Cu):					
Gross weight	63,997	64,882	58,792	40,542	25,000 ^e
Cu content	18,012	16,175	11,174	10,157	6,262
Metal, blister:					
From domestic concentrates ^c	17,850 ²	16,106 ²	11,000 ^r	10,000 ^r	6,200
From imported toll concentrates ^c	8,853 ²	9,930 ²	13,700 ^r	13,600 ^r	15,700
Total	26,703 ²	26,036 ²	24,704	23,551	21,918
Gold kilograms	2,815	2,508	2,205	2,703	2,790
Lead, mine output, concentrate:					
Gross weight	24,140	31,453	27,338	24,689	21,402
Pb content of Pb and Pb-Zn concentrates	13,809	18,782	14,338	14,320	11,830
Manganese	--	--	--	7,320	18,918
Silver:					
Mine output, Ag content of concentrate kilograms	43,632	45,100	27,153	30,003	31,307
Metal, refined, primary ³ do.	12,020	18,140	14,815	15,000	15,000
Tantalite:					
Gross weight, concentrates ^c	23	100	30	--	--
Ta content (36%)	8	36	11 ^e	--	--
Tin:					
Gross weight, concentrates	--	72	25 ^e	--	--
Sn content (60%)	--	43	15 ^e	--	--
Uranium, U ₃ O ₈	2,751	2,401	3,583	3,711	3,617
Zinc:					
Gross weight, mine output, concentrate (49% – 56% Zn)	77,587	107,920	123,372	126,123	100,000 ^e
Zn content of Zn and Pb-Zn concentrates ⁴	42,685	60,500	66,028	69,368 ^r	55,455 ^e
Metal, refined, primary ³	35	47,436	120,533	132,818	129,897
INDUSTRIAL MINERALS					
Diamond, gem thousand carats	1,562	1,481	2,004	1,902	2,356
Fluorspar, acid grade (97% CaF ₂) ⁵	81,084	79,349	104,785	114,886 ^r	132,249
Salt	630,159	697,914	754,351	573,248	603,501
Semiprecious stones:					
Agate	190	123	158	150 ^e	150 ^e
Amethyst ^c kilograms	4,500	300 ²	41,367 ²	40,000	40,000
Blue chalcedony ^c do.	NA	124 ²	69 ²	50	50
Chrysocolla ^c do.	13 ²	--	--	--	--
Garnet ^c do.	150	--	115 ²	100	100
Picture stone ^c	NA	326 ²	240 ²	200	200
Pietersite ^c	--	11 ²	9 ²	--	--
Rose quartz ^c	--	93 ²	--	--	--
Sodalite ^c	1,691 ²	174 ²	--	--	--
Tourmaline ^c kilograms	--	218 ²	102 ²	100	100
Stone:					
Dolomite	--	15,401	13,536	14,000 ^e	14,000 ^e
Granite	24,754	27,456	25,492	21,380	21,000 ^e
Marble	3,182	4,523	8,356	5,112	5,100 ^e
Sodalite	NA	704	138	100	100 ^e
Sulfur, pyrite concentrate:					
Gross weight (49% – 51% S)	3,633	31,786	3,658	1,035	-- ^e
S content	1,874	16,390	1,835	520	-- ^e
Wollastonite	742	585	406	253	55

See footnotes at end of table.

TABLE 1--Continued
NAMIBIA: PRODUCTION OF MINERAL COMMODITIES¹

⁶Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. NA Not available. ^PPreliminary. ^RRevised. --Zero.

¹Table includes data available through November 14, 2007.

²Reported figure.

³Includes products of imported concentrate.

⁴Ore from the Skorpion Mine is leached onsite; the zinc is recovered by solvent extraction-electrowinning and is thus not included in the zinc concentrate data.

⁵Fluorspar production shown in wet metric tons; approximately 9% moisture.

TABLE 2
NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2006

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Copper:				
Cu content of concentrates		Ongopolo Mining and Processing Ltd. (Weatherly International plc, 100%)	Central operations, includes the Otjihase Mine and concentrator, about 30 kilometers north of Windhoek; and the Matchless Mine, 80 kilometers southwest of the Otjihase Mine	23,000
Do.		do.	Kombat operations, includes Kombat Mine and concentrator, 440 kilometers north of Windhoek	9,000
Metal, blister copper		do.	Smelter at Tsumeb	30,000
Diamond	carats	Namdeb Diamond Corp. (Pty.) Ltd. (Government, 50%, and De Beers Centenary AG, 50%)	Mining Area 1, from Orange River to 145 kilometers north of Oranjemund, includes Pocket Beaches	1,000,000
Do.	do.	do.	Northern Areas and Elizabeth Bay Mines, 24 kilometers south of Luderitz	180,000
Do.	do.	do.	Orange River Mines, from mouth of Orange River east to Sendelingsdrif; includes the Auchas and the Daberas Mines	120,000
Do.	do.	do.	Beach and marine contractors	35,000
Do.	do.	De Beers Marine Namibia [De Beers Centenary AG, 70%, and Namdeb Diamond Corp. (Pty.) Ltd., 30%]	Atlanta 1 license area, offshore Sperrgebiet	1,020,000
Do.	do.	Sakawe Mining Corp. (LL Mining Corp. BV)	Twenty-two offshore mining licenses, near Luderitz Bay	225,000
Do.	do.	Joint venture of Diamond Fields (Pty.) Ltd. of Namibia (Diamond Fields International Ltd., 100%), and Bonaparte Diamond Mines NL	Mining License 111, offshore Luderitz	NA
Do.	do.	Diaz Exploration (Pty.) Ltd.	Offshore operation	15,000
Fluorspar, acid grade		Okorusu Fluorspar (Pty.) Ltd. (Solvay Fluor GmbH, 100%)	Mine and plant at Okorusu	105,000
Gold:				
Ore	kilograms	AngloGold Ashanti Namibia (Pty.) Ltd.	Navachab Mine, 170 kilometers northwest of Windhoek	2,700
Metal	do.	Ongopolo Mining and Processing Ltd. (Weatherly International plc, 100%)	Copper smelter at Tsumeb	400
Lead, Pb content of concentrate		Rosh Pinah Zinc Corp. (Pty.) Ltd. [Kumba Resources Ltd., 89.5%, and PE Minerals (Namibia) (Pty.) Ltd., 6.1%]	Rosh Pinah Mine, near Rosh Pinah	20,000
Pyrite, concentrate		Ongopolo Mining and Processing Ltd. (Weatherly International plc, 100%)	Ojihase Mine and concentrator, near Tsumeb	32,000

See footnotes at end of table.

TABLE 2--Continued
 NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2006

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Salt	Salt & Chemicals (Pty.) Ltd. [Walvis Bay Salt Holdings (Pty.) Ltd., 100%]	Salt pan at Walvis Bay	650,000
Do.	Walvis Bay Salt Refiners (Pty.) Ltd. [Walvis Bay Salt Holdings (Pty.) Ltd., 100%]	Salt refinery at Walvis Bay	650,000
Do.	Salt Company (Pty.) Ltd.	Swakopmund	120,000
Do.	Cape Cross Salt (Pty.) Ltd.	North of Henties Bay	40,000
Silver:			
Concentrate, Ag content	Rosh Pinah Zinc Corp. (Pty.) Ltd. [Kumba Resources Ltd., 89.5%, and PE Minerals (Namibia) (Pty.) Ltd., 6.1%]	Rosh Pinah Mine, near Rosh Pinah	25
Metal	Ongopolo Mining and Processing Ltd. (Weatherly International plc, 100%)	Coproduct of copper smelter at Tsumeb	23
Uranium, uranium oxide	Rössing Uranium Ltd. (Rio Tinto Group, 68.6%; Government of Iran, 15%; Industrial Development Corp. of South Africa Ltd., 10%; Government of Namibia, 3.5%)	Rössing Mine, 65 kilometers northeast of Swakopmund	4,800
Do.	Langer Heinrich Uranium (Pty.) Ltd. (Paladin Resources Ltd., 100%)	Langer Heinrich Mine. 80 kilometers east of Walvis Bay	1,180
Wollastonite	Namibia Mineral Development Co. (Pty.) Ltd.	Usakos Mine	800
Zinc:			
Mine:			
Concentrate, Zn content	Rosh Pinah Zinc Corp. (Pty.) Ltd. [Kumba Resources Ltd., 89.5%, and PE Minerals (Namibia) (Pty.) Ltd., 6.1%]	Rosh Pinah Mine, near Rosh Pinah	110,000
Ore	Skorpion Mining Co. (Pty.) Ltd. (Anglo American plc, 100%)	Skorpion Mine, 25 kilometers north of Rosh Pinah	1,500,000
Metal	Namzinc (Pty.) Ltd. (Anglo American plc, 100%)	Skorpion solvent extraction facilities and electrowinning refinery, 25 kilometers north of Rosh Pinah	150,000

^cEstimated; estimated data are rounded to no more than three significant digits. NA Not available.

