



2007 Minerals Yearbook

NAMIBIA

THE MINERAL INDUSTRY OF NAMIBIA

By Philip M. Mobbs

Diamond remained the most economically significant mineral commodity produced in Namibia. The country, which is located on the southwestern coast of Africa, produced about 2% of the world's natural diamond. Namibia was the second ranked producer of gem-quality diamond in terms of dollars per carat, the sixth ranked producer of gem-quality diamond in terms of the total value of diamond production, and the eight ranked producer of diamond in terms of volume. In 2007, Namibia also was the sixth ranked producer of uranium, producing about 7% of the world's uranium, and the seventh ranked producer of fluor spar, producing 2% of the world's fluor spar (Kimberley Process Certification Scheme, 2008; World Nuclear Association, 2008; Olson, 2009).

Minerals in the National Economy

In 2007, diamond mining accounted for 5.8% of the nominal gross domestic product (GDP) of Namibia; the construction sector accounted for 3.3%. The contribution to the GDP by both sectors declined compared with that of 2006. The contribution of other mining and quarrying activity, however, surged to account for 6.6% of the nominal GDP in 2007 (Bank of Namibia, 2008, p. 78-81).

Government Policies and Programs

The Environmental Management Act, 2007, was promulgated to promote the sustainable management of the environment and the use of natural resources. The Labor Act, 2007, was to come into force on November 1, 2008. Namibia's mining industry also is regulated by the Minerals (Prospecting and Mining) Act, 1992; the Minerals Development Fund of Namibia Act of 1996; and the Diamond Act, 1999. The Ministry of Mines and Energy reviewed a new Minerals Bill and associated regulations, which were expected to be submitted to Parliament in 2008. 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 December 2006, the royalty on nonnuclear mineral fuels was reduced to 2% from 3% and the royalty on nuclear fuel minerals was increased to 3% from 2%. A 10% royalty was levied by the Government on the value of rough diamond output. Base, precious, and rare metals were subject to a 3% royalty levied on their market value. A 2% royalty was imposed on the value of industrial minerals production (Mining Journal, 2007).

Production

In 2007, Namdeb Diamond Corporation (Pty.) Ltd., its contractors, and its subsidiaries produced nearly 2.2 million

carats, which was an increase of 4.4% compared with 2006. Namdeb's increased production partially offset the significant decline in output by Sakawe Mining Corp. that was reported by The Chamber of Mines of Namibia (2008, p. 87). Notable increases in Namibian mineral production in 2007 were estimated for manganese ore and stone, especially granite and marble. Significant increases also were posted for copper concentrate, salt, and zinc metal. Fluorspar, however, declined by about 10%. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Ministry of Mines and Energy and its Diamond Affairs, Energy, and Mining Directorates regulate Namibia's mining and petroleum industries. The Ministry grants exploration and mining licenses for minerals in Namibia; compiles national exploration and mining databases; and develops exploration and mining policy and regulations. The Ministry's Geological Survey of Namibia undertakes geologic mapping and research. 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 of Trade and Industry also promotes resource-based development.

The Government held 50% equity interest in Namdeb and 3.5% interest in Rössing Uranium Ltd. Namdeb held 30% interest in De Beers Marine Namibia. The other large mining operations in Namibia were funded and operated by domestic and international investors. Numerous local operations were involved in smaller-scale industrial mineral production, especially the semiprecious gemstone sector (table 2).

Mineral Trade

Unprocessed mineral exports accounted for about 55% of total exports. This included exports of diamond, which accounted for 31% of total exports; other unprocessed mineral commodities, such as industrial minerals and uranium oxide, 19%; zinc concentrates, 3%; lead concentrates, 0.6%; and silver content of blister copper, 0.2%. Processed minerals, such as copper and refined zinc, accounted for more than 10% of total exports (Bank of Namibia, 2008, p. 52; Chamber of Mines of Namibia, The, 2008, p. 90-91).

Commodity Review

Metals

Copper.—In 2007, Weatherly International plc of the United Kingdom divided the operations of Ongopolo Mining and Processing Ltd.; the mining operations segment was renamed Weatherly Mining Namibia Ltd. and the processing segment became Namibia Custom Smelters (Pty.) Ltd. Weatherly

Mining operated the underground Matchless Mine; backfilled the Karuma area of the underground Otjihase Mine, which would allow the recovery of ore from the mine pillars; began production from the Tschudi underground mine; and recommissioned the Tsumeb West Mine, which had been closed by the previous operator in 2004. At the Kombat operations group, Weatherly placed the Asis Far West shaft on care and maintenance status in January and proceeded to dewater the flooded Kombat Number 1 shaft. Mining operations at the Number 1 shaft resumed in November but were suspended in December after a power failure resulted in the mine flooding again (Weatherly International plc, 2007, p. 3-4; 2008, p. 2).

Namibia Custom Smelters processed Weatherly's domestic concentrates and copper concentrates from the Democratic Republic of the Congo [Congo (Kinshasa)] and Zambia, which were imported under a tolling agreement with Republic House AG of Switzerland. The copper concentrates from Congo (Kinshasa) and Zambia were trucked to Tsumeb. Namibia Custom Smelters also toll smelted copper concentrate imported from Mauritania and a copper concentrate with high arsenic content from Bulgaria, which were shipped by rail to Tsumeb from the Port of Walvis Bay. In addition to the smelter's blister copper output, which contained gold and silver coproducts, Namibia Custom Smelters produced arsenic trioxide and lead dusts. In 2008, Namibia Custom Smelters was scheduled to commission an Ausmelt furnace to increase the smelter's output capacity to 35,000 metric tons (t) of blister copper and, in 2009, add an oxygen plant to the facility, which would increase the production capacity to 50,000 metric tons per year (t/yr) of blister copper (Weatherly International plc, 2008, p. 3).

Copper exploration activity in Namibia included that of Kalahari Minerals plc of the United Kingdom on the Dordabis and the Witvlei projects and Takoradi Ltd. of Australia on the Kuiseb project. Teck Cominco Ltd. of Canada continued its evaluation of the Kaoko copper project.

Gold.—In 2007, gold production from the Navachab Mine dropped by 7% as AngloGold Ashanti Namibia (Pty.) Ltd. moved to owner mining from contract mining, and the average ore grade declined to 1.56 grams per metric ton (g/t) from 1.81 g/t in 2006. AngloGold planned to install a \$17 million dense media separation plant in 2008 (AngloGold Ashanti Ltd., 2008, p. 92-93).

Other companies that explored for gold in Namibia in 2007 included Etruscan Resources Inc. of Canada on the Kamanjab project; Teal Exploration & Mining Inc. of Canada on the Otjikoto prospect; and Westport Resources Namibia (Pty.) Ltd., which was a subsidiary of Forsys Metals Corp. of Canada, on the Ondundu prospect on the Omatjete license. Desert Minerals Ltd. of the United Kingdom acquired the right to explore several of Helio Resources Corp. of Canada's gold prospects, which included the Makuru and the Vredelus prospects.

Lead and Zinc.—The estimated 5% decline in the output of Namibian zinc ore in 2007 was caused in part by the floods in southern Namibia in early 2007 and the 10-day strike and frequent equipment failures at the Rosh Pinah Mine. Rosh Pinah Zinc Corporation (Pty.) Ltd. continued exploration for lead and zinc ore primarily near the existing mine. In 2008, Rosh Pinah planned an equipment replacement and preventative

maintenance program, which would allow the mine to restore output to the 126,000-t/yr level (Exxaro Resources Ltd., 2008, p. 59-60).

The ore mined at the Skorpion zinc facility declined by 3.7% to 1.4 million metric tons (Mt) in 2007; processed ore, however increased by 5.2% to 1.38 Mt. Zinc metal output increased by 15.5% to 150,080 t (Anglo American plc, 2008, p. 161).

Manganese.—Purity Manganese (Pty.) Ltd. produced manganese ore from mining leases 35A, 35B, and 35C (ML 35). The Ministry of Mines and Energy declined to renew Purity's surrounding exclusive prospective lease (EPL) that expired in early 2006. In late 2006, EPLs 3456, 3537, 3538, and 3539, which surrounded ML 35, were issued to Otjozondou Mining (Pty.) Ltd. In 2007, Purity instituted legal proceedings that contended that it should have been reissued the EPL to the area that encompassed ML 35 (Southern African Legal Information Institute, 2009).

Mineral Fuels and Related Materials

Uranium.—Rössing continued preparations to expand mine output; staffing increased by 25% to 1,175, and the company doubled the number of loaders and trucks at the mine. Rössing's exploration efforts were focused on the SK deposit and the existing open pit. In 2007, Rössing processed about 12.6 Mt of ore and produced 3,046 t of uranium oxide (U_3O_8 , or yellowcake). 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 (Rössing Uranium Ltd., 2008).

In late 2006, Paladin Energy Ltd. of Australia (formerly Paladin Resources Ltd.) commissioned the Langer Heinrich Mine. Paladin's expected full production rate of 1,180 t/yr of U_3O_8 was reached at yearend 2007 instead of at midyear because the failure of leach tank liners that damaged heat exchangers in January limited the output for the first half of the year (Paladin Resources Ltd., 2007, p. 2; Paladin Energy Ltd., 2008, p. 2-3).

In early 2007, the Ministry of Mines and Energy temporarily suspended the awarding of new exclusive prospecting licenses for nuclear fuel minerals, such as uranium, because of the significantly increased number of applications. The moratorium was lifted before the end of the year (Mukumbira, 2007).

In 2007, Areva SA of France acquired Uramin Namibia (Pty.) Ltd. and the prospecting licenses for the Trekkopje deposit. Extract Resources Ltd. of Australia acquired its former joint-venture partner Kalahari Minerals Plc's interest in the Husab project, which included the Ida Dome and Rössing South prospects. Toro Energy Ltd. of Australia acquired Nova Energy Ltd.; and Toro's new subsidiary, Nova Energy (Namibia) Pty. Ltd., explored the Chungochoab, the Gawib West, and the Tumas North prospects.

Other exploration activity and evaluation of uranium mineralization in Namibia in 2007 included that of Bannerman Resources Ltd. of Australia on the Etango and Swakop River prospects, Forsys Metals on the Valencia project, Metals Australia Ltd. on the Mile 72 project, and the joint venture of Pitchstone Exploration Ltd. of Canada and Manica Minerals Ltd. on the Dome and the Kaoko uranium prospects. Reptile

Uranium Namibia (Pty.) Ltd., which was a subsidiary of Deep Yellow Ltd. of Australia, explored the Tubas prospect; Western Australian Metals Ltd. evaluated the Marinica project; and Namura Minerals Resources (Pty.) Ltd., which was a subsidiary of Xemplar Energy Corp. of Canada, worked on the Aus-Garub, the Cape Cross, the Engo Valley, and the Warmbad uranium projects.

Outlook

The rise in world commodity prices propelled the extensive exploration in Namibia for base metals, diamond, gold, natural gas, and uranium. New mine development and mineral-based manufacturing and processing 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, harness hydroelectric power potential, and further proposed nuclear-powered electricity generation 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 southern Africa.

References Cited

- Anglo American plc, 2008, Annual report 2007: London, United Kingdom, Anglo American plc, 172 p.
AngloGold Ashanti Ltd., 2008, Annual financial statements 07: Marshalltown, South Africa, AngloGold Ashanti Ltd., 326 p.

- Bank of Namibia, 2008, Quarterly bulletin December 2008: Windhoek, Namibia, Bank of Namibia, v. 17, no. 4, 124 p.
Chamber of Mines of Namibia, The, 2008, Annual review: Windhoek, Namibia, The Chamber of Mines of Namibia, 100 p.
Exxaro Resources Ltd., 2008, Annual report: Pretoria, South Africa, Exxaro Resources Ltd., 269 p.
Kimberley Process Certification Scheme, 2008, Annual global summary—production, imports, exports and KPC counts: Kimberley Process Certification Scheme. (Accessed February 5, 2009, at https://mmsd.mms.nrcan.gc.ca/kimberleystats/public_tables/Global_Summary_-_2007.pdf.)
Mining Journal, 2007, Namibia uranium royalty rate now 3%: Mining Journal, March 2, p. 13.
Mukumbira, Rodrick, 2007, Namibia suspends issuing new uranium prospecting licences: Mineweb Holdings Ltd., February 14. (Accessed February 15, 2007, at <http://www.mineweb.net/energy/628847>.)
Olson, D.W., 2009, Gemstones: U.S. Geological Survey Mineral Commodity Summaries 2009, p. 64-65.
Paladin Energy Ltd., 2008, Quarterly report for period ending—31 December 2007: Subiaco, Australia, Paladin Energy Ltd., January 29, 6 p.
Paladin Resources Ltd., 2007, Quarterly report for period ending—30 June 2007: Subiaco, Australia, Paladin Resources Ltd., July 31, 7 p.
Rössing Uranium Ltd., 2008, 2003-2008 performance data table: Swakopmund, Namibia, Rössing Uranium Ltd. (Accessed February 9, 2009, at <http://www.rossing.com/2007performance.htm>.)
Southern African Legal Information Institute, 2009, Purity Manganese (Pty) Ltd v Minister of Mines and Energy and others—Global Industrial Development (Pty) Ltd v Minister of Mines and Energy and another ([P] A 04/2007—[P] A 03/2007 [2009] NAHC 4 (19 January 2009): Southern African Legal Information Institute. (Accessed February 9, 2009, at <http://www.saflii.org/na/cases/NAHC/2009/4.html>.)
Weatherly International plc, 2007, Annual report: London United Kingdom, Weatherly International plc, 44 p.
Weatherly International plc, 2008, Interim report—July to December 2007: London United Kingdom, Weatherly International plc, 32 p.
World Nuclear Association, 2008, Uranium production figures—1998-2007: World Nuclear Association. (Accessed February 4, 2009, at <http://www.world-nuclear.org/info/uprod.htm>.)

TABLE 1
NAMIBIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2003	2004	2005	2006	2007 ^c
METALS					
Arsenic, white, 99% arsenic trioxide	389	1,264	89	-- ^e	50
Copper:					
Mine output, concentrate (26% - 30% Cu):					
Gross weight	64,882	58,792	40,542	25,000 ^e	30,000
Cu content	16,175	11,174	10,157	6,262	8,500
Metal, blister:					
From domestic concentrates ^c	16,106 ³	11,000	10,000	6,200	8,000
From imported toll concentrates ^c	9,930 ³	13,700	13,600	15,700	12,600
Total	26,036 ³	24,704	23,551	21,918	20,600
Gold, Au content of mine output kilograms	2,508	2,205	2,703	2,790	2,600
Lead, mine output, concentrate:					
Gross weight	31,453	27,338	24,689	21,402	21,876 ³
Pb content of Pb and Pb-Zn concentrates	18,782	14,338	14,320	11,830	11,900
Manganese, mine output, gross weight	--	--	7,320	18,918	47,000
Silver:					
Mine output, Ag content of concentrates kilograms	45,100	27,153	30,003	31,307	30,000
Metal, refined, primary ⁴ do.	18,140	14,815	-- ^r	-- ^r	--
Tantalite:					
Gross weight, concentrates ^c	100	30	--	--	--
Ta content (36%)	36	11 ^e	--	--	--
Tin:					
Gross weight, concentrates	72	25 ^e	--	--	--
Sn content (60%)	43	15 ^e	--	--	--
Zinc:					
Gross weight, mine output, concentrate (49% - 56% Zn)	107,920	123,372	126,123	100,000 ^e	94,855 ³
Zn content of Zn and Pb-Zn concentrates ⁵	60,500	66,028	69,368	55,455	52,000
Metal, refined, primary	47,436	120,533	132,818	129,897	150,080 ³
INDUSTRIAL MINERALS					
Diamond, gem thousand carats	1,481	2,004	1,902	2,356	2,266 ³
Fluorspar, acid grade (97% CaF ₂) ⁶	79,349	104,785	114,886	132,249	118,766 ³
Salt	697,914	754,351	573,248	603,501	800,000
Semiprecious stones:					
Agate	123	158	150 ^e	150 ^e	150
Amethyst ^c kilograms	300 ³	41,367 ³	40,000	40,000	40,000
Blue chalcedony ^c do.	124 ³	69 ³	50	50	50
Garnet ^c do.	--	115 ³	100	100	100
Picture stone ^c	326 ³	240 ³	200	200	200
Pietersite ^c	11 ³	9 ³	--	--	--
Rose quartz ^c	93 ³	--	--	--	--
Sodalite ^c	174 ³	--	--	--	--
Tourmaline ^c kilograms	218 ³	102 ³	100	100	100
Stone:					
Dolomite	15,401	13,536	14,000 ^e	14,000 ^e	15,000
Granite	27,456	25,492	21,380	21,000 ^e	65,000
Marble	4,523	8,356	5,112	5,100 ^e	17,000
Sodalite	704	138	100	100 ^e	100
Sulfur, pyrite concentrate:					
Gross weight (49% - 51% S)	31,786	3,658	1,035	-- ^e	8,500
S content	16,390	1,835	520	-- ^e	4,300
Wollastonite	585	406	253	55	55
MINERAL FUELS AND RELATED MATERIALS					
Uranium, U ₃ O ₈	2,401	3,583	3,711	3,617	3,395 ³

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through February 3, 2009.

²In addition to the commodities listed, produced blister copper contained silver, and lead dusts were produced, but available information is inadequate to estimate output.

TABLE 1—Continued
NAMIBIA: PRODUCTION OF MINERAL COMMODITIES¹

³Reported figure.

⁴Includes products of imported concentrate.

⁵Ore from the Skorpion Mine is leached onsite and the zinc is recovered by solvent extraction-electrowinning; the zinc ore mined at Skorpion is therefore not included in the zinc concentrate data.

⁶Fluorspar production shown in wet metric tons; approximately 9% moisture.

TABLE 2
NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Copper:				
Copper concentrates	Weatherly Mining Namibia 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	1,000,000
Do.	do.		Northern operations, includes the Tschudi and the Tsumeb West Mines, and the and the Tsumeb concentrator	500,000
Do.	do.		Kombat operations, includes Kombat Mine and concentrator, 440 kilometers north of Windhoek	400,000
Metal, blister copper	Namibia Custom Smelters (Pty.) Ltd. (Weatherly International plc, 100%)		Smelter at Tsumeb	30,000
Diamond	carats	Namdeb Diamond Corporation (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	68,000
Do.	do.	De Beers Marine Namibia [De Beers Centenary AG, 70%, and Namdeb Diamond Corporation (Pty.) Ltd., 30%]	Atlanta 1 license area, offshore Sperrgebiet	1,050,000
Do.	do.	Sakawe Mining Corp. (LL Mining Corp. BV)	Offshore mining licenses, near Luderitz Bay	260,000
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	AngloGold Ashanti Namibia (Pty.) Ltd.		Navachab Mine, 170 kilometers northwest of Windhoek	1,440,000
Metal	kilograms	Namibia Custom Smelters (Pty.) Ltd. (Weatherly International plc, 100%)	Coproduct contained in blister copper produced at the copper smelter at Tsumeb	400
Lead, Pb content of concentrate	Rosh Pinah Zinc Corporation (Pty.) Ltd. [Exxaro Resources Ltd., 93.9%, and PE Minerals (Namibia) (Pty.) Ltd., 6.1%]		Rosh Pinah Mine, near Rosh Pinah	20,000
Pyrite, concentrate	Weatherly Mining Namibia Ltd. (Weatherly International plc, 100%)		Otjihase Mine and concentrator, near Tsumeb	32,000

See footnotes at end of table.

TABLE 2—Continued
 NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2007

(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	670,000
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	Namibia Custom Smelters (Pty.) Ltd. (Weatherly International plc, 100%)	Coproduct contained in blister copper produced at the 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 Energy 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 Corporation (Pty.) Ltd. [Exxaro Resources Ltd., 93.9%, 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

Do., do. Ditto. NA Not available.