

2016 Minerals Yearbook

NAMIBIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF NAMIBIA

By James J. Barry

In 2016, the diamond sector continued to be a significant contributor to Namibia's economy. In terms of the average value of diamond production in dollars per carat (\$533), the country ranked second in the world after Lesotho. In terms of the total value of its rough diamond production (\$915 million), the country ranked fifth after South Africa. Namibia was ranked ninth in the world in terms of rough diamond production by weight (carats). Namibia's total diamond exports were valued at about \$1.1 billion (about 1.9 million carats of diamond) in 2016. According to the World Nuclear Association, Namibia's Rössing Mine and Langer Heinrich Mine were capable of providing 10% of the world's uranium output; the Langer Heinrich Mine was one of the leading producing uranium mines in the world. The country was the third-ranked producer of arsenic trioxide, after China and Morocco, accounting for 5% of world production. Metals produced in the country included copper, gold, lead, manganese, silver, and zinc. In addition to diamond, industrial minerals produced included cement, fluorspar, salt, and sulfuric acid (table 1; Kimberley Process Certification Scheme, 2017; George, 2018; World Nuclear Association, 2018).

Minerals in the National Economy

In 2016, Namibia's real gross domestic product (GDP) was \$7.5 million, which was an increase of 1.1% compared with that of 2015. Mining and quarrying accounted for 7.9% of the country's real GDP, of which about 59% was from diamond mining; 19%, from the mining of metal ores; and about 15%, from uranium mining. During the year, the real value added of mining and quarrying decreased by 5.7% compared with a decrease of 4.9% in 2015, which was mostly attributable to a 9.6% decrease in real value added for diamond and a 19.8% decrease in real value added for all mining and quarrying (excluding diamond, metallic ores, and uranium). Uranium had a 13.6% increase in real value added compared with a decline of 18.1% in 2015, however, owing to an increase in the amount of uranium produced. In 2016, diamond and copper ores were among the top export commodities. Diamond exports alone accounted for 33.2% of the country's total exports and copper ores accounted for an additional 17.5% of exports (Namibia Statistics Agency, 2017a, p. 6, 12, 19; 2017b, p. 11, 22).

Mining in Namibia is regulated by the Minerals (Prospecting and Mining) Act 33 of 1992. Petroleum exploration and production are regulated by the Petroleum Laws Amendment Act (1998).

The total number of people employed in the mineral sector in 2016, including temporary employees and full-time contractors, was about 16,000 compared with about 19,000 in 2015. About 18% of the 9,143 people permanently employed in the sector worked for Namdeb Diamond Corp. (Pty) Ltd. (Namdeb);

16%, for Swakop Uranium; about 10%, for Rössing Uranium Ltd.; and 9% each, for B2Gold Namibia (Pty) Ltd., De Beers Marine Namibia (Pty) Ltd. (Debmarine), and Skorpion Zinc and Namzinc (Pty) Ltd. (Chamber of Mines of Namibia, 2017, p. 19, 90–91).

Production

In 2016, copper electrowon production increased by 54% to 16,391 metric tons (t) from 10,659 t in 2015, which was attributed to the Tschudi Mine reaching nameplate capacity of 17,000 metric tons per year (t/yr). Uranium production increased by 22% to 3,654 t (uranium content) in 2016 from 2,993 t in 2015. The increase in uranium production was the result of improved throughput efficiencies at the Rössing Mine. Salt production increased by 14% to 835,539 t in 2016 from 732,980 t in 2015. In addition, production of sulfuric acid began at Dundee Precious Metals Inc. of Canada's sulfuric acid plant. In 2016, the production of many mineral commodities decreased, including that of silver, by an estimated 33%; lead (mine production), 20%; manganese (mine production, gross weight), 19%; manganese metal, 18%; blister copper and diamond, 16% each; and copper concentrates, 11% (tables 1, 2; Chamber of Mines of Namibia, 2017, p. 16–17).

Structure of the Mineral Industry

The majority of mining operations in Namibia were privately owned. The diamond mining company Namdeb Holdings was owned by De Beers Group of the United Kingdom (50%) and the Government (50%). Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Arsenic and Copper.—Weatherly International plc of the United Kingdom, which owned 97.5% of all copper mining operations in the country through its subsidiary Weatherly Mining Namibia Ltd., announced that plans were in place to resume operations at the Matchless and the Otjihase underground mines. These two mines had been on careand-maintenance status since September 2015 owing to the continued decline in the price of copper. Weatherly also owned the Tschudi open pit mine, which is located about 20 kilometers (km) west of Tsumeb in northern Namibia. Tschudi completed its first full year of production after reaching nameplate production capacity of 17,000 t/yr of copper cathodes in December 2015 (Weatherly International plc, 2016a, p. 2, 5, 6; 2016b, p. 4).

Dundee Precious Metals owned and operated the Tsumeb smelter, which produced blister copper from imported copper concentrates. In 2016, the smelter processed 200,272 t of

¹Where necessary, values have been converted from Namibian dollars (NAD) to U.S. dollars (US\$) at an annual average exchange rate of NAD14.663=US\$1.00 for 2016.

concentrate compared with 196,107 t in 2015. Namibia's blister copper production of 41,100 t, however, was a 16% decrease from that of 2015; the decrease was owing to a 21-day regional power outage. In 2016, the company reported that the carrying cost of producing arsenic trioxide (a byproduct of the Tsumeb smelter process) was too high to continue production and that it would stop production of arsenic trioxide by the first quarter of 2017 (Dundee Precious Metals Inc., 2017, p. 3, 5, 9,10).

Gold.—In 2016, B2Gold Corp. of Canada completed its first full year of commercial production at the Otjikoto Mine, which is located about 300 km north of Windhoek between Otjiwarongo and Otavi. B2Gold held a 90% interest in the mine, and EVI Mining (Pty) Ltd. held the remaining 10% interest. At yearend, the Otjikoto Mine produced 5,172 kilograms (kg) of gold, which was a 14% increase compared with the 4,532 kg produced in 2015. The increased production was attributed to the successful completion of the expansion of the Otjikoto mill in September 2015. The expansion increased throughput to 3.0 million metric tons per year (Mt/yr) from 2.5 Mt/yr (B2Gold Corp., 2017a, p. 42; 2017b, p. 9).

Lead and Zinc.—Skorpion Zinc (Pty) Ltd., which was wholly owned by Vedanta Resources plc of the United Kingdom, operated the Skorpion open pit mine and the Namzinc refinery through its subsidiaries Skorpion Mining Co. (Pty) Ltd. and Namzinc (Pty.) Ltd. The company produced high-grade zinc oxide ore from the Skorpion Mine, which was then refined into metal at Namzinc. The mine and refinery are located 25 km north of Rosh Pinah in southern Namibia. In November, Vedanta Resources announced the resumption of the Pit 112 expansion project; the project had been on hold awaiting higher zinc prices. The project would consist of a high wall push back, which was expected to extend the life of the mine to 2020 from 2017. The expansion would increase the reserves at the Skorpion Mine to 4.2 million metric tons (Mt) at an average grade of 9.9% zinc from 0.9 Mt at an average grade of 6.5% zinc (Vedanta Resources plc, 2016, p. 9; 2017, p. 83; Vedanta Zinc International, 2018).

Rosh Pinah Zinc Corp. (Pty) Ltd. (a subsidiary of Switzerland-based Glencore plc) operated the Rosh Pinah Mine. In 2016, the mine produced a total of 80,560 t of zinc concentrate and 14,862 t of lead concentrate compared with 99,665 t and 18,521 t of zinc and lead concentrates, respectively, in 2015. The decrease in production of both lead and zinc was attributed to a labor strike stemming from wage disputes; the strike lasted 54 days, from February to April (Chamber of Mines of Namibia, 2017, p. 44–45).

Industrial Minerals

Diamond.—According to the Kimberley Process Certification Scheme, production of diamond decreased by 16% to 1,718,000 carats in 2016 from 2,053,000 in 2015. In 2016, Namdeb Holdings had operations that produced a total of 1,573,000 carats of diamond compared with 1,764,324 carats in 2015; the decrease in production was attributed mainly to lower ore grades. In November, Debmarine Namibia (Debmarine), which was part of Namdeb Holdings, announced that its new deepwater diamond exploration and sampling vessel, the *SS Nujoma*, would be inaugurated in early 2017, following

the completion of sea trials in December. The vessel, which would become the sixth vessel in Debmarine's fleet, produced 1,170,000 carats of diamond in 2016 during sea trials (table 1; De Beers UK Ltd., 2016; Chamber of Mines of Namibia, 2017, p. 28, 29, 40; Kimberley Process Certification Scheme, 2017).

Mineral Fuels and Related Materials

Uranium.—In December, Swakop Uranium (Pty) Ltd.'s Husab uranium mine produced its first barrel of uranium oxide (U₃O₈). The Husab Mine, which is located in the Erongo region of west-central Namibia about 45 km northeast of the Port of Walvis Bay, was expected to reach nameplate capacity in 2019 and to produce 5,500 t/yr of U₃O₈. The mine had an estimated life of 21 years. Swakop was 90% owned by Hong Kong-based Taurus Minerals Ltd. and Epangelo Mining (10%). Taurus Minerals was 60% owned by CGN-Uranium Resources Co (a subsidiary of China General Nuclear Power Co.) and 40% owned by the China-Africa Development Fund (Chamber of Mines of Namibia, 2017, p. 12, 60–61; World Nuclear Association, 2018).

Outlook

According to the Bank of Namibia, Namibia's economy is expected to grow by 0.6% in 2017 and by 2.2% in 2018, with most growth expected to come from the agricultural, and mining and quarrying sectors. Diamond mining is expected to continue to be one of the major contributors to economic growth in the country, contributing, on average an estimated 10% of the GDP. Growth in diamond mining is projected to increase in 2017 and then to level off as production nears nameplate capacity. Uranium mining is expected to increase through 2019 as the Husab Mine reaches nameplate capacity; however, continued depressed uranium prices remain a threat to the performance of the country's uranium mines. Growth in the metals sector is expected to increase in 2017 by 14.6% owing to expected increases in zinc production. Growth in the metals sector is expected to continue in 2018 and 2019, but at a slower pace of 5.2% and 4.1%, respectively (Bank of Namibia, 2017, p. 3, 4).

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 $\label{eq:table 1} TABLE~1$ NAMIBIA: PRODUCTION OF MINERAL COMMODITIES 1

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2012	2013	2014	2015	2016
METALS					
Copper:	=				
Mine production, concentrate, 26% to 30% Cu:	_				
Gross weight	23,032	20,646	21,720	21,839	19,503
Cu content	5,304	4,896	5,249	3,200 r, e	
Leaching, electrowon, Cu content				10,659	16,391
Smelter production, primary, blister, Cu content ³	39,800 ^e	38,100 e	49,600 ^e	49,027 ^r	41,100
Gold, mine production, Au content ⁴ kilograms	2,302	1,960	2,377 ^r	6,069	6,592
Lead, mine production, including lead-zinc concentrates:	_				
Gross weight	17,557	20,551	22,317	18,521	14,862
Pb content ^e	10,000	11,000	11,200	9,300	7,500
Manganese, mine production, concentrate, 44% Mn:	_				
Gross weight	176,200	174,400	116,500	47,400	38,400
Mn content ^e	77,500	76,100	51,300	20,800	17,000
Silver, mine production, Ag content kilograms	1,000	1,400	1,100	900 e	600 e
Zinc:	_				
Mine production, Zn content, ore and concentrate	194,380	184,109	172,783	123,672	129,856
Smelter production, primary	144,508	124,924	117,783	71,961	75,559
INDUSTRIAL MINERALS	<u>-</u>				
Arsenic, primary, oxide content, arsenic trioxide ^e	1,590	1,520	1,980	1,960	1,900
Cement, hydraulic thousand metric tons	501	662	731	796	778
Diamond, gem, unspecified thousand carats	1,629	1,689	1,918	2,053	1,718
Fluorspar, acid grade, 97% CaF ₂ ⁵ dry metric tons	68,966	60,774	65,485		
Salt	810,000	826,985	797,405	732,980	835,539
Sulfur compounds, sulfuric acid:	_				
Gross weight thousand metric tons					192
S content do.	_ 				63
MINERAL FUELS AND RELATED MATERIALS	=				
Uranium, mine production, uranium oxide, U content	4,495	4,323	3,255	2,993	3,654

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through December 11, 2017. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, agate, aquamarine, amethyst, basalt, blue chalcedony, lead dusts, picture stone, pietersite, rose quartz, sand and gravel, sepiolite, smokey quartz, topaz, tourmaline, and wollastonite may have been produced in Namibia, but available information was inadequate to make reliable estimates of output.

³From domestic and imported concentrates.

⁴Does not include gold recovered as a byproduct of copper mining.

 $^{^5\}mathrm{Data}$ also include an unspecified amount of metallurgical-grade fluorspar.

$\label{eq:table 2} \textbf{NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016}$

(Metric tons unless otherwise specified)

C		Major operating companies and	Landing Co. 1 C. 110	Annual	
Commod	nıy	major equity owners	Location of main facilities	capacity	
Cement		Ohorongo Cement (Pty) Ltd. (Ohorongo) (Schwenk Zement KG, 60%; Industrial Development Corp., 20%; Development Bank of Namibia, 11.72%; Development Bank of South Africa, 7.3%)	Cement plant, Otjozondjupa region, near Otavi	800,000	
Copper: Mine, Cu content		Ongopolo Mining Ltd. (Weatherly Mining Namibia	Central operations, includes the Otjihase	7,000,000	
,		Ltd., 97.5%, and Labour Investment Holdings, 2.5%)	Mine ¹ and concentrator, about 18 kilometers northeast of Windhoek; and the Matchless Mine, 30 kilometers southwest of the Otjihase Mine		
Do.		do.	Northern operations, includes the Tschudi and the Tsumeb West Mines, and the Tsumeb concentrator	17,000	
Do.		do.	Kombat operations, includes Kombat Mine and concentrator, 440 kilometers north of Windhoek	400,000	
Metal, blister coppe	r	Dundee Precious Metals Tsumeb (Proprietary) Ltd. (Dundee Precious Metals Inc., 100%)	Smelter at Tsumeb, 430 kilometers north of Windhoek	60,000	
Diamond	carats	De Beers Marine Namibia (Pty) Ltd. (Debmarine) [Namdeb Holdings, 100% (De Beers Group, 50%, and Government, 50%)]	Atlantic 1, mining license area 47, offshore Sperrgebiet	1,300,000	
Do.	do.	Namdeb Diamond Corp. (Pty) Ltd. (Namdeb) [Namdeb Holdings, 100% (De Beers Group, 50%, and Government, 50%)]	Orange River Mines, mining license area 42, onshore, from mouth of Orange River east to Sendelingsdrif; includes the Auchas and the Daberas Mines	120,000	
Do.	do.	do.	Mining Area 1, mining license area 43, Orange River at Oranjemund to 145 kilometers north of Oranjemund	1,000,000	
Do.	do.	do.	Elizabeth Bay Mine, mining license area 45, onshore and offshore Sperrgebiet 24 kilometers south of Luderitz	210,000	
Do.	do.	do.	Sendelingsdrif Mine, 80 kilometers from Oranjemund and 20 kilometers south of the town of Rosh Pinah	45,000	
Do.	do.	do.	Red Area Complex diamond sorting plant 2, Oranjemund	NA	
Do.	do.	Sakawe Mining Corp. (Samicor) ² [Leviev Group, 76%; Longlife Mining Corp., 10%; Government, 8%; Namibia Youth Service, 2%; Sakawe Mining Corp. employees, 4%]	Offshore mining licenses, near Luderitz Bay	260,000	
Do.	do.	Shallow marine and coastal area contractors	Various offshore locations	68,000	
Fluorspar, acid grade Gold:		Okorusu Fluorspar (Pty.) Ltd. (Solvay SA, 100%)	Okorusu Mine and processing plant at Otjiwarongo	120,000	
Mine, Au content	kilograms	Guinea Fowl Investments Twenty Six Ltd. (QKR Corp. Corp. Ltd., 92.5%, and Epangelo Mining Company (Pty) Ltd., 7.5%)	Navachab Mine, 170 kilometers northwest of Windhoek	2,700	
Do.	do.	B2Gold Corp., 90%, and EVI Mining (Pty) Ltd., 10%	Otjikoto Mine, 300 kilometers north of Windhoek	5,600	
Metal Lead, Pb content of	do.	Namibia Custom Smelters (Pty.) Ltd. (Dundee Precious Metals Inc., 100%) Rosh Pinah Zinc Corporation (Pty.) Ltd.	Coproduct contained in blister copper produced at the Tsumeb smelter Rosh Pinah Mine, 800 kilometers south of	20,000	
concentrate See footnotes at end o		(Glencore plc., 80.1%)	Windhoek	20,000	

See footnotes at end of table.

TABLE 2—Continued NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Metric tons unless otherwise specified)

Major operating companies and			Annual
Commodity	major equity owners	Location of main facilities	capacity
Manganese	Purity Manganese (Pty) Ltd.	Otjozondu Mine, about 145 kilometers east	80,000
		of Okahandja near Hochfeld in the	
		Otjozondjupa region	
Pyrite, concentrate	Weatherly Mining Namibia Ltd. (Weatherly	Otjihase Mine and concentrator, near	32,000
	International plc, 100%)	Tsumeb	
Salt:	Cape Cross Salt (Pty.) Ltd.	North of Henties Bay	40,000
Do.	Salt & Chemicals (Pty.) Ltd. [Walvis Bay	Salt pan at Walvis Bay	690,000
	Salt Holdings (Pty.) Ltd., 100%]		
Do.	Salt Company (Pty.) Ltd.	Salt pan, Swakopmund	120,000
Do.	Walvis Bay Salt Refiners (Pty.) Ltd. [Walvis	Salt refinery at Walvis Bay	650,000
	Bay Salt Holdings (Pty.) Ltd., 100%]		
Silver:			
Concentrate, Ag	Rosh Pinah Zinc Corporation (Pty.) Ltd.	Rosh Pinah Mine, 800 kilometers south of	25
content	(Glencore plc., 80.1%)	Windhoek	
Metal	Namibia Custom Smelters (Pty.) Ltd. (Dundee	Coproduct contained in blister copper	25
	Precious Metals Inc., 100%)	produced at the Tsumeb smelter	
Sulfuric acid	Dundee Precious Metals Tsumeb (Proprietary) Ltd.	Smelter at Tsumeb, 430 kilometers north	280,000
	(Dundee Precious Metals Inc., 100%)	of Windhoek	
Uranium, uranium	Langer Heinrich Uranium (Pty.) Ltd. (Paladin Energy	Langer Heinrich Mine, Namib Desert,	1,500
oxide	Ltd., 75%, and CNNC Overseas Uranium Holdings	80 kilometers east of Walvis Bay	
	Ltd., 25%		
Do.	Rössing Uranium Ltd. (Rio Tinto Group,	Rössing Mine, 65 kilometers northeast	4,800
	69%; Iranian Foreign Investment Company, 15%;	of Swakopmund	
	Industrial Development Corp. of South Africa	•	
	Ltd., 10%; Government of Namibia, 3%;		
	other minority shareholders, 3%)		
Do.	Swakop Uranium (Pty) Ltd. (Taurus Minerals Ltd.,	Husab Mine, 45 kilometers northeast	5,500
	90%, and Epangelo Mining, 10%)	of Walvis Bay Port	
Wollastonite	Namibia Mineral Development Co.	Usakos Mine, Karibib District, Erongo	800
	(Pty.) Ltd.	region	
Zinc:			
Mine:	-		
Concentrate, Zn	Rosh Pinah Zinc Corporation (Pty.) Ltd.	Rosh Pinah Mine, 800 kilometers south of	110,000
content	(Glencore plc., 80.1%)	Windhoek	
Ore	Skorpion Zinc (Pty) Ltd. [Skorpion Mining Co.	Skorpion Mine, 25 kilometers north	1,500,000
	(Pty.) Ltd. (Vedanta Resources plc, 100%)]	of Rosh Pinah	
Metal	Skorpion Zinc (Pty) Ltd. [Namzinc (Pty.) Ltd.	Namzinc solvent extraction facilities and	150,000
			/ - + +
	(Vedanta Resources plc, 100%)]	electrowinning refinery, 25 kilometers	

Do., do. Ditto. NA Not available.

¹On care-and-maintenance status.

 $^{^2 \}mbox{Sakawe Mining Corp.'s}$ (Samicor's) diamond-mining operations remained on hold.