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2019 Minerals Yearbook

BOTSWANA [ADVANCE RELEASE]

U.S. Department of the Interior
U.S. Geological Survey

November 2023

The Mineral Industry of Botswana

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In 2019, Botswana was the world's second-ranked producer of mined diamond, by value and amount, accounting for 25% and 17% of the value and amount of global mined diamond production, respectively. Botswana's share of the world's mined soda ash production, by amount, was about 2%. In recent years, the country also produced aggregates, cement, clay, coal, cobalt, mined and smelted copper, gemstones (such as agate), gold, mined and smelted nickel, palladium, platinum, salt, and silver. In 2019, Botswana was not a globally significant consumer of minerals or mineral fuels (Kimberley Process Rough Diamond Statistics, 2020; Bolen, 2021; Olson, 2021a, b).

Minerals in the National Economy

In 2019, the mining and quarrying sector accounted for 15.2% of Botswana's gross domestic product, and the manufacturing sector, 5.2%. The value of output in the mining and quarrying sector decreased by 3.9% in 2019 after increasing by 7.6% in 2018. Formal employment in the mining and quarrying sector was reported to be 16,762 workers in 2019, which was nearly unchanged from that of 2018. As of January 2019, formal employment in the diamond cutting and polishing sector was reported to be 2,398 workers (Southern Times, The, 2019; Statistics Botswana, 2020a, p. 14, 18; Kenalemang Charles, Botswana Department of Mines, written commun., June 19, 2020).

In 2019, Botswana's exports were valued at about $6.56 billion,[1] of which diamond accounted for 90.7%; soda ash, 1%; and gold, 0.8%. Botswana's imports were valued at $5.23 billion in 2019, of which diamond (mostly rough diamond) accounted for 28.4%; fuels, 12.5%; metal and metal products, 5%; and salt, ores, and related products, 1% (Statistics Botswana, 2020b, p. 13, 15).

Botswana's mining and quarrying sector is governed by the Mines and Minerals Act of 1999. The petroleum sector is governed by the Petroleum (Exploration and Production) Act of 1981. Botswana is a signatory to the Kimberley Process Certification Scheme, which is a certification system established to reduce the trade in conflict diamond. The cutting and polishing of diamond is regulated by the Diamond Cutting Act of 1979.

Production

In 2019, Botswana's production of coal and gold decreased by 15% each. Cement and mined copper production were shut down in 2018 and remained on care-and-maintenance status in 2019 (Kenalemang Charles, Botswana Department of Mines, written commun., June 19, 2020). Data on mineral production are in table 1.

[1]Where necessary, values have been converted from Botswanan pula (BWP) to U.S. dollars (US$) at the annual average exchange rate of BWP10.75=US$1.00 for 2019.

Structure of the Mineral Industry

The Government owned BCL Ltd. and maintained an equity position in the soda ash mine and the majority of the diamond mines. The Government also owned Lobatse Clay Works (Pty.) Ltd. through Botswana Development Corp. (BDC). Diamond, gold, salt, and soda ash were produced by large-scale mines. The mineral industry also consisted of a number of small-scale mines and artisanal operations that produced agate, aggregates, bricks, and dimension stone. Capacity, location, ownership, and production information were not readily available for these operations. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Cobalt, Copper, Nickel, Platinum-Group Metals, and Silver.—MMC Norilsk Nickel of Russia agreed to sell its interest in the Phoenix Mine in October 2014. In April 2017, Norilsk announced its intention to pursue legal action against the Government regarding BCL's reported failure to pay for its purchase of Norilsk's share in the Phoenix and Selkirk Mines in the North-East District. In December 2018, Norilsk terminated the agreement requiring BCL to pay for Norilsk's share in the mine. In February 2019, the Botswana Court of Appeals allowed Norilsk to pursue damages against BCL in the London Court of International Arbitration (Cornish, 2017b; MMC Norilsk Nickel, 2019).

In early December 2018, Cradle Arc plc of the United Kingdom placed the Mowana Mine on care-and-maintenance status. The mine remained shut down in 2019 (Webb, 2018; Kenalemang Charles, Botswana Department of Mines, written commun., June 19, 2020).

Cupric Canyon Capital LP (CCC) of the United States estimated that resources at Zone 5 of the Khoemacau copper-silver project in the North-West District (which was adjacent to the Boseto copper-silver mine) were more than 100 million metric tons (Mt) at a grade of 2% copper and 20 grams per metric ton (g/t) silver. The company obtained $565 million in financing for Khoemacau in February 2019. Initial planned production was about 62,000 metric tons per year (t/yr) of copper and 59,000 kilograms per year (kg/yr) of silver in concentrate. CCC planned to start production by mid-2021 (Cornish, 2017a; Benza, 2019b).

CCC planned to use the concentrator from the Boseto Mine to process ore from Khoemacau; capacity at the concentrator would be increased to 3.65 million metric tons per year (Mt/yr) from 3 Mt/yr. The company purchased Boseto, which was on care-and-maintenance status, from Discovery Metals Ltd. of Australia in February 2015 (James, 2016; Cornish, 2017a).

In late March 2019, MOD Resources Ltd. of Australia completed a feasibility study on a new mine at the T3 copper-silver deposit. MOD could produce about 28,000 t/yr of copper and 34,000 kg/yr of silver during an estimated mine life of between 11 and 12 years at T3. Reserves at T3 were estimated to be 34.4 Mt at grades of 1% copper and 13.2 g/t silver. In October, MOD was purchased by Sandfire Resources NL of Australia. Sandfire planned to complete an updated feasibility study and reserve estimate in the second quarter of 2020 followed by a decision on proceeding with the project (Metal Tiger plc, 2019; Sandfire Resources NL, 2019).

Manganese.—In August 2019, Giyani Metals Corp. of Canada completed a preliminary economic assessment on the reopening of the manganese mine at K. Hill. Depending on the results of further studies, the company could produce more than 27,000 t/yr of manganese metal at a purity of more than 99.7%. Giyani planned to produce manganese metal using solvent extraction and electrowinning. Resources at K. Hill were estimated to be 1.1 Mt at a grade of 31.2% manganese oxide (Kotze, 2018; Giyani Metals Corp., 2019, p. 4, 8, 10, 12).

Industrial Minerals

Cement.—In January 2018, Matsiloje Portland Cement Co. closed its plant because of competition with cement imported from South Africa. The plant was still shut down as of April 2019 (Global Cement, 2019).

Clay and Shale.—In 2019, national brick clay production was an estimated 130,000 metric tons per year (t) compared with 120,000 t in 2018 and 170,000 t in 2017. Lobatse Clay Works closed its plant in 2018; the company reopened in 2019 after receiving additional financing from BDC. In October, Lobatse Clay Works was operating with 300 employees compared with 500 in 2018 (Dikuelo, 2019; Selatlhwa, 2019).

Diamond.—The distribution arm of De Beers Group of Companies of Luxembourg operated a sorting center in Gaborone from where it shipped its products worldwide. The Government-owned Okavango Diamond Trading Co. was responsible for marketing the Government's portion of Debswana Diamond Co. (Pty) Ltd.'s production. Under the Government's agreement with De Beers, Okavango had the right to market between 10% and 15% of Debswana's production.

The value of Botswana's rough diamond production was reported to be $3.43 billion in 2019, the majority of which was exported before any cutting and polishing (Kimberley Process Rough Diamond Statistics, 2020). In 2019, total rough diamond exports were $3.9 billion compared with $5.06 billion in 2018. The value of imports of rough diamond (including from Canada, Namibia, and South Africa) was $1.42 billion in 2019 compared with $1.15 billion in 2018; the majority of these imports was reexported before any cutting and polishing (Statistics Botswana, 2020b, p. 16–17).

Debswana's production of rough diamond at the Damtshaa, the Letlhakane, and the Orapa Mines decreased to a total of 10.8 million carats in 2019 from 12.2 million carats in 2018. Decreased production was attributable to delays in an infrastructure project and lower ore grades. The company's output at the Jwaneng Mine increased to 12.5 million carats in 2019 from 11.9 million carats in 2018. Mining could continue at Jwaneng until 2043, and at Orapa, until 2064 (James, 2019; Anglo American plc, 2020, p. 59).

Lucara Diamond Corp. of Canada operated the Karowe Mine, which produced diamond from the AK6 kimberlite. In 2019, Lucara mined about 433,000 carats at Karowe compared with about 366,000 carats in 2018. The company planned to produce between 370,000 and 410,000 carats at Karowe in 2020 (Lucara Diamond Corp., 2019, 2020).

Mining was expected to continue at the Karowe open pit until 2026. In November 2019, Lucara completed a feasibility study that supported the development of an underground mine at Karowe. The underground mine could double the life of Karowe. Lucara planned to start construction of the mine in mid-2020, and production, in 2023. The company planned to reach full capacity by 2026 (Engineering & Mining Journal, 2017; Lucara Diamond Corp., 2020).

National net exports of polished diamond were $394 million in 2019 compared with $578 million in 2018. As of March 2019, Botswana had 21 companies that cut and polished diamond, of which 17 were supplied rough diamond by De Beers (Southern Times, The 2019; Statistics Botswana, 2020b, p. 17).,

Salt and Soda Ash.—Botswana Ash (Pty.) Ltd. (BotAsh) had a capacity of 650,000 t/yr of salt and 300,000 t/yr of soda ash at Sua Pan. In 2019, BotAsh's production of soda ash decreased to 269,119 t from 297,237 t in 2018. The company's salt production increased to 383,779 t in 2019 from 367,988 t in 2018 (table 2; Kenalemang Charles, Botswana Department of Mines, written commun., June 19, 2020).

Mineral Fuels and Related Materials

Coal.—National coal production decreased to 2.11 Mt in 2019 from 2.48 Mt in 2018, most of which was attributable to Debswana's Morupule Mine. Debswana planned to increase production at the Morupule Mine to 8 Mt/yr by 2025. Coal from the Morupule Mine was used at the Morupule B power station; the company planned to export to South Africa, Zambia, and Zimbabwe as production increased (Mguni, 2018; Kenalemang Charles, Botswana Department of Mines, written commun., June 19, 2020).

The Morupule B power station had a rated capacity of 600 megawatts (MW); the plant operated at 63% of capacity during Government-owned Botswana Power Corp.'s (BPC's) fiscal year 2019 (which started on April 1, 2018, and ended on March 31, 2019). BPC planned to complete upgrades to Morupule B that would increase its effective capacity to 520 MW by 2023. The company also planned to restore the Morupule A power station to its full capacity of 132 MW by November 2019. Morupule A was expected to operate at more than 75% of capacity between 2020 and 2023. At yearend, the restoration of Morupule A was not complete (Botswana Power Corp., 2019, p. 28, 39–40; Kanono, 2020).

In July 2019, Minergy Ltd. started production at its new Masama Mine in the Kweneng District, and it had produced 39,000 t by early August. Coal from Masama was exported to Namibia and South Africa. The company planned to produce at the rate of between 840,000 and 960,000 t/yr for the remainder of 2019. Minergy expected to increase production to the mine's full capacity of 1.2 Mt/yr in 2020. As of yearend, the company had not reached its production target (Benza, 2019a; Minergy Ltd., 2020, p. 28).

Uranium.—In September 2016, the Government granted A-Cap Resources Ltd. of Australia a mining license at its Letlhakane uranium project in the Central District. Depending on the results of studies that the company planned to complete in 2018 or 2019, construction was expected to start at Letlhakane in 2019, and mining, in 2021. Planned production was nearly 1,400 t/yr of uranium oxide (U_3O_8); the estimated life of the mine was 18 years. Resources were estimated to be 822 Mt at a grade of 0.02% U_3O_8 (A-Cap Resources Ltd., 2017; 2018, p. 10).

In 2018, A-Cap shifted its focus to cobalt projects in Australia. Work on the feasibility study for the Letlhakane uranium project was on hold. In August 2019, the Government granted A-Cap a deferment on starting construction until the fourth quarter of 2021 (A-Cap Resources Ltd., 2018, p. 2–4; A-Cap Energy Ltd., 2020).

Outlook

Mined diamond production is expected to increase slightly because of the recent reopening of the Damtshaa Mine and the startup of the Letlhakane Mine Tailings Resource Treatment project. Copper and silver production are expected to restart with the opening of the Khoemacau and the T3 projects in 2021. Uranium mining could start with the opening of Letlhakane Mine in 2023. Manganese mining could restart at K. Hill in the near future.

New investment would be required to restart nickel and cobalt production. The remaining resources at Selebi-Phikwe were low-grade and at a depth of at least 2 kilometers. The Phoenix Mine required investment to increase its life by between 4 and 5 years (Cornish, 2017b; Chansonette Yun, Economic and Commercial Officer, U.S. Embassy Gaborone, oral commun., February 15, 2017).

Coal production is expected to more than quadruple by 2025 because of the expansion of the Morupule Mine and the opening of the Masama Mine. The lack of new coal mines opening and the depletion of existing mines in South Africa could increase that country's demand for Botswana's coal. Domestic coal consumption is likely to be limited by the repairs to the Morupule B power station in 2020 through 2022 and to increase after the repairs are completed. For times when the Morupule B power station is not fully operational because of the repair work in 2020 through 2022, BPC planned to rely on its two diesel-powered stations (which have a combined power-generating capacity 160 MW) and to obtain an additional 150 MW of capacity through imports (Mguni, 2018; Botswana Power Corp., 2019, p. 40).

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TABLE 1
BOTSWANA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2015	2016	2017	2018	2019
METALS						
Cobalt, mine, matte, Co content[3]		316	248	--	--	--
Copper:						
Mine, concentrate, Cu content		9,126	12,415	1,239	1,462	--
Smelter, primary[4]		13,888	11,348	--	--	--
Gold, mine, Au content	kilograms	756	833	920	1,105	943
Nickel:						
Mine, concentrate, Ni content		16,789	14,273	--	--	--
Smelter, matte[4]		16,789	14,273	--	--	--
Platinum-group metals, mine, elemental content:						
Palladium	kilograms	930 e	--	--	--	--
Platinum	do.	190 e	--	--	--	--
Silver, mine, Ag content[5]	do.	2,801	--	--	--	-- e
INDUSTRIAL MINERALS						
Aggregates, unspecified[e]		3,800,000	3,900,000	4,100,000	4,100,000	4,100,000
Cement, hydraulic		15,000	15,000	15,000 e	1,000 e	-- e
Clay, brick[e]		170,000	170,000	170,000	120,000 r	130,000
Diamond, gem and industrial[6]	thousand carats	20,824	20,954	22,900	24,498	23,687
Gemstones, semi-precious stones, agate[e]	kilograms	77,000	64,000	64,000	64,000	64,000
Salt[7]		404,295	399,837	369,613	367,988	383,779
Soda ash, natural		243,369	280,457	226,667	297,237	269,119
MINERAL FUELS AND RELATED MATERIALS						
Coal, bituminous		2,065,775	1,873,547	2,215,782	2,482,313	2,110,891

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through July 15, 2020. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, dimension stone and sand and gravel may have been produced, but available information was inadequate to make reliable estimates of output.

[3]Reported cobalt content of pelletized nickel-copper matte.

[4]Content of nickel-copper matte exported to Norway for refining.

[5]Silver was produced and exported in the nickel-copper-cobalt matte.

[6]About 70% gem and near-gem quality and 30% industrial quality.

[7]From natural soda ash production.

TABLE 2
BOTSWANA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aggregates, unspecified		Pretoria Portland Cement Ltd. (PPC)	Quarry at Kgale	830,000.[e]
Do.		do.	Quarry at Francistown	330,000.[e]
Do.		do.	Quarry at Mokolodi	280,000.[e]
Cement		Matsiloje Portland Cement Co.	Plant at Matsiloje in North East District[1]	36,000.
Clay[2]		Makoro Brick and Tile (Pty.) Ltd.	Plant at Makoro in Central District	100,000.[e]
Do.		Lobatse Clay Works (Pty.) Ltd. (Botswana Development Corp. and Interkiln Corp. joint venture)	Plant at Lobatse in South East District	70,000.[e]
Coal		Morupule Colliery (Pty) Ltd. [Debswana Diamond Co. (Pty.) Ltd., 100%]	Morupule Mine, 14 kilometers west of Palapye	3,200,000.
Do.		Minergy Ltd.	Masama Mine in Kweneng District	1,200,000.
Diamond	thousand carats	Debswana Diamond Co. (Pty.) Ltd. (Government, 50%, and De Beers Centenary AG, 50%)	Jwaneng Mine near Jwaneng	30,000.
Do.	do.	do.	Orapa Mine near Orapa	20,000.
Do.	do.	do.	Letlhakane Mine near Letlhakane	1,000.
Do.	do.	do.	Damtshaa Mine in Central District	670.
Do.	do.	Lucara Diamond Corp.	Karowe Mine in Boteti Sub-District	460.[e]
Do.	do.	Kimberley Diamonds Ltd.	Lerala Mine near Lerala[1]	400.
Do.	do.	Gem Diamonds Ltd.	Ghaghoo Mine in Ghanzi District[1]	210.
Gemstones, semiprecious	kilograms	Agate Botswana (Pty.) Ltd.	Plant at Pilane in Kgatleng District	70,000.[e]
Do.	do.	Masa Semi-Precious Stones (Pty.) Ltd.	Plant at Bobonong	20,000.[e]
Gold	do.	Galane Gold Ltd.	Mupane Mine, 30 kilometers southeast of Francistown	2,000.
Nickel-copper-cobalt		BCL Ltd. (Government, 100%)	Selebi-Phikwe Mines, 350 kilometers northeast of Gaborone[1]	3,000,000 ore matte content (of which 30,000 nickel, 25,000 copper, 400 cobalt).
Do.		Tati Nickel Mining Co. (Pty.) Ltd. (BCL Ltd., 100%)	Phoenix and Selkirk Mines, 23 kilometers east of Francistown[1]	5,000,000 ore matte content (of which 21,000 nickel, 12,500 copper, 800 cobalt, 4,400 kilograms palladium, 700 kilograms platinum).
Do.		Cupric Canyon Capital LP (CCC)	Boseto Mine in North-West District[1]	36,000 copper.
Do.		Cradle Arc plc, 60%	Mowana Mine in Central District[1]	10,000[e] copper.
Salt		Botswana Ash (Pty.) Ltd. (BotAsh) (Government, 50%, and Chlor Alkali Holdings, 50%)	Mine at Sua Pan near Sowa	650,000.
Silver	kilograms	Cupric Canyon Capital LP (CCC)	Boseto Mine in North-West District[1]	34,000.
Soda ash		Botswana Ash (Pty.) Ltd. (BotAsh)	Mine at Sua Pan near Sowa	300,000.

[e]Estimated. Do., do. Ditto.
[1]Not operating at the end of 2019.
[2]For brick and tiles.