## Metals, Mining and Adjacent Industries Sector

The mining sector has been a key driver of economic growth, hard currency earnings and fiscal revenues in Namibia since independence in 1990. Its average annual growth rate, contribution to GDP, source of employment and income for Namibians, revenue generation for the government and supplementation to foreign exchange earnings mean it is not surprising that the government has given full backing to the sector. Mining companies also contribute to the education and skills development of current and potential employees, while demonstrating corporate social responsibility. As such, the sector helps achieve the macroeconomic goals of the country i.e. reducing poverty, creating employment and improving education, to name a few.

Some key highlights about the Namibia's mining industry:

- Major minerals in the Namibian mining sector consist of diamonds, uranium, gold, zinc, lithium, lead and copper, along with some industrial and rare earth minerals..
- Mining and quarrying have contributed an average of 11.04% in real GDP since 1980, and 11.17% in 2022.
- Diamond mining has made up over 61.4% of real GDP generated from mining and quarrying since 1980, and value added from diamond mining has increased by 45.1% in 2022, after 0.0% growth the previous year.
- The mining sector is still mainly extractive and exports mostly raw materials, although diamond processing has been promoted, contributing roughly 1% of real GDP since 2016.
- Mineral exports have contributed to 56.67% of all exports in the last six years, with diamonds alone contributing 14.29% over the same period.
- Namibia has attracted material investment into existing mines and exploration activity, with the latter focused on precious metals (gold), base metals (largely copper and zinc), nuclear fuels (uranium), and rare earth elements.
- The mining sector is vulnerable to price shocks such as that seen in iron ore prices in 2022, and is also vulnerable to water shortages, particularly for uranium mines in the Erongo region.
- Total employment was 16,147 in 2022 and consists mainly of Namibian workers (approximately 97% of the workforce). The total wage bill for the industry stood at N$6.225 billion in 2022, of which N$2.6 billion was paid to the fiscus in the form of personal income tax for salaried workers.
- Beneficiation policy is largely downstream-focused, with limited potential, given the scale and grade of Namibia's resource endowment. However, upstream activities may provide opportunity, given the emphasis on domestic procurement.

### Policy environment

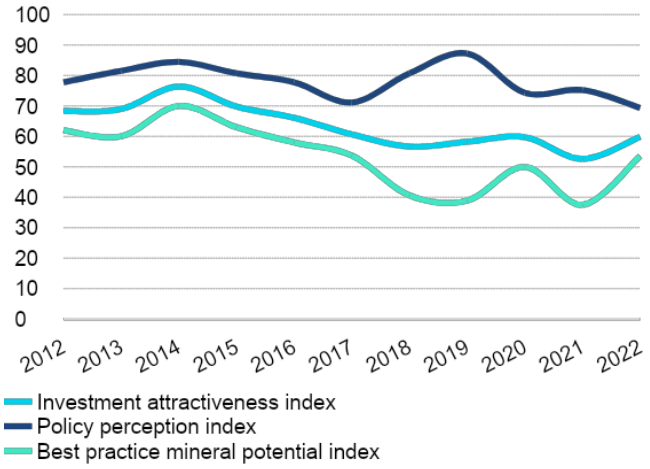
The most prominent pieces of legislation (as amended) relating to the mining and minerals sector are as follows: :

- Income Tax Act 24 of 1981
- Foreign Investments Act 27 of 1992
- Minerals (Prospecting and Mining) Act 33 of 1992
- Minerals Development Fund of Namibia Act 19 of 1996
- Diamond Act 13 of 1999
- Environmental Management Act 7 of 2007
- Export Levy Act 2 of 2016

The policy environment has generally remained predictable and stable, as reflected in Namibia's through the Fraser Institute's Annual Survey of Mining Companies as shown in the charts below. This relative success is what has helped foster the exaggerated belief in Namibia's extreme mineral wealth. Actually Namibia's extracted mineral wealth is not exceptional by regional standards, except for diamonds. Rather, the success in Namibia's mineral sector has resulted from good policy, making it an attractive jurisdiction.

**Fraser Survey of Mining Companies Scores**

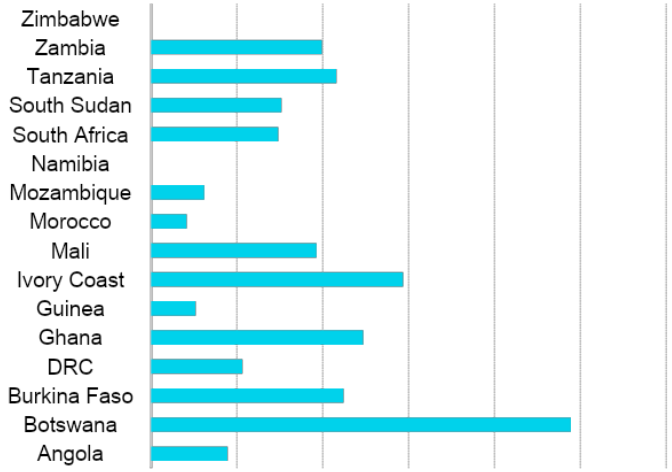
After a few years of decline, Namibia's scores are improving.




Source: Fraser Institute

**Investment Attractiveness Index Ranks (Africa – 2022)**

Namibia ranks as the second most attractive jurisdiction.



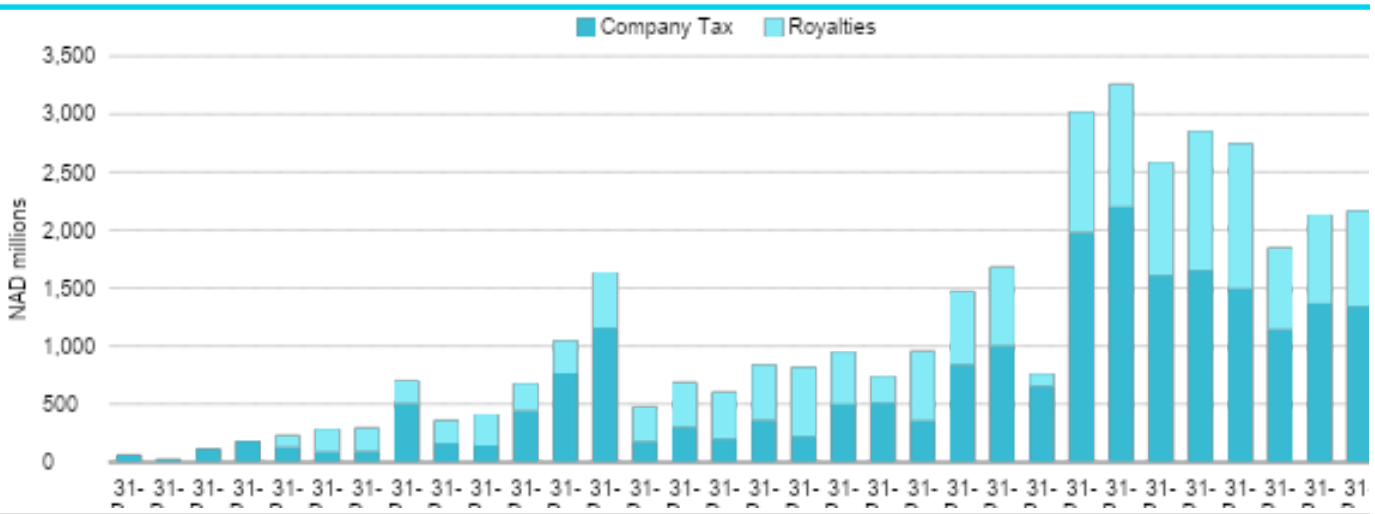

Source: Fraser Institute

## Tax Regime

The corporate tax regime differentiates between diamond mining companies, non-diamond mining companies, oil and gas companies, and non-mining companies (see table for details). Furthermore, royalties are payable, as well as export levies, which are intended to encourage domestic beneficiation. There is no capital gains tax in Namibia, and no tax on dividends to domestic shareholders, but there is a Non-Resident Shareholder's Tax set at 20%, which drops to 10% if the non-resident recipient of the dividend is a company that holds at least 25% of the capital of the Namibian company which is paying the dividend.

**Diamond Mining Government Revenue**

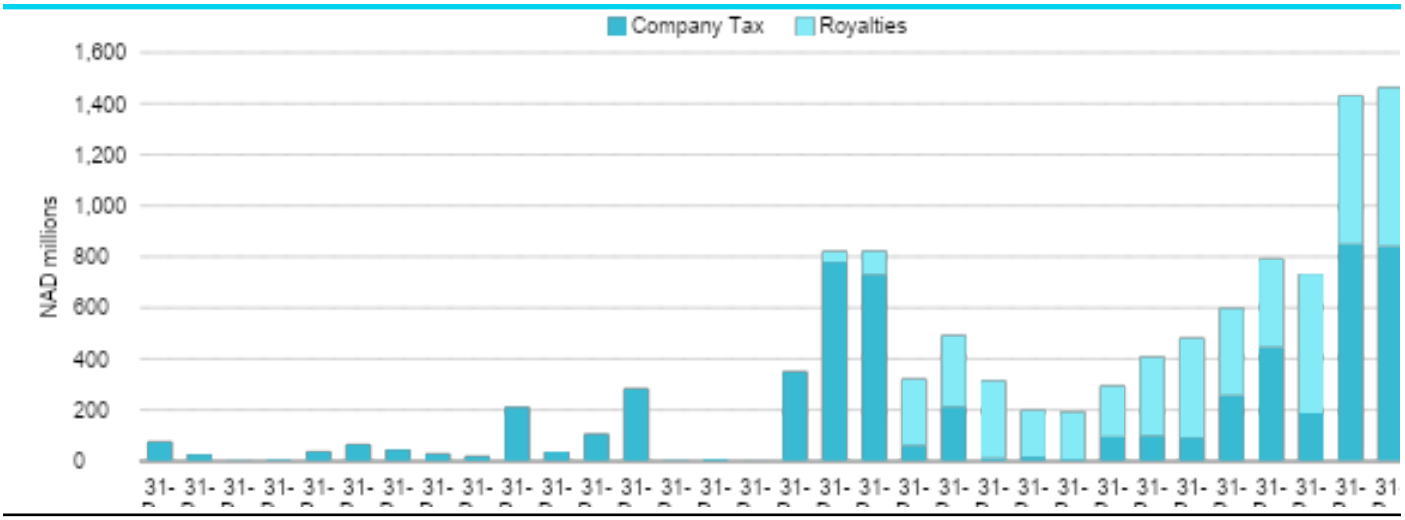
Diamond mining alone contributed over N$2.1 billion to government revenue in 2021 and 2022.




Source: Chamber of Mines of Namibia

**Non-diamond Mining Government Revenue**

Non-diamond mining contributed over N$1.4 billion in 2021 and 2022.




Source: Chamber of Mines of Namibia

Mining companies contribute to the fiscus primarily through company tax and royalties (top-line tax). Profit tax from mining companies has historically accounted for around 28% of total company profit taxes, with Namdeb being the single largest taxpayer in the country.

| **Corporate Profit Tax:** | |
|---|---|
| Non-mining companies | 31% |
| Diamond mining | 55% |
| Non-diamond mining | 37.5% |
| Oil & Gas | 35% |

| **Royalties:** | |
|---|---|
| Rough diamonds | 10% |
| Rough emeralds, rubies & sapphires | 10% |
| Oil & gas | 5% |
| Unprocessed dimension stone | 5% |
| Gold, copper, zinc & other base metals | 3% |
| Nuclear fuel minerals | 3% |
| Semi-precious stones | 2% |
| Industrial minerals | 2% |
| Non-nuclear fuel materials | 2% |

| **Other:** | |
|---|---|
| Value Added Tax | 15% |
| Land Tax (on valuation) | 0.75% Namibia citizens; 1.5% foreign nationals |
| Withholding tax | 10% |
| Capital Gains Tax | N/A |
| Training levy | 1% of payroll |
| Non-Resident Shareholder's Tax | 20% (or 15%) |
| Domestic Dividends Tax | N/A |

| **Export Levies:** | | | |
|---|---|---|---|
| **Main Product** | **Specific Products** | **EU** | **General** |
| Lithium | Lithium Carbonates | Free | 2.00% |
| Diamond | Pure unsorted rough diamonds | 2.00% | 2.00% |
| | Sorted by size | 1.50% | 1.50% |

| | | | |
|---|---|---|---|
| | Sorted & grazed | 1.00% | 1.00% |
| | Cut & polished | 0.50% | 0.50% |
| | Product of jewellery etc. | 0% | 0% |
| Zinc | Crushed Ore | 2% | 2% |
| | Zinc Concentrate | 1.00% | 1.00% |
| | Zinc Sheets | 0.50% | 0.50% |
| | Zinc Ingots | 0.25% | 0.25% |
| | Steel Products | 0.00% | 0.00% |
| Lead, Other metals | Lead Concentrate | 1.00% | 1.00% |
| Uranium | Uranium oxide/yellow | 0.25% | 0.25% |
| Copper | CU Concentrate | 1.00% | 1.00% |
| Gold | Gold Bullion | 1.00% | 1.00% |
| Manganese | Manganese Concentrate | 1.00% | 1.00% |
| Fluorspar | Acid Grade Fluorspar Acid Grade Fluorspar | 0.25% | 0.25% |
| Other Metals. Precious and Semi – precious stones | Pure metal stone | 0.25% | 0.25% |
| Dimension Stones | Stone blocks | 2.00% | 15.00% |
| Marbles | Stone blocks | 2.00% | 15.00% |
| Tantalum | Unwrought tantalum, including bars and rods obtained simply by sintering; powders | Free | 2.00% |
| Gas | Unrefined gas of all types | 1.50% | 1.50% |
| | Refined gas of all types | 0.00% | 0.00% |
| Crude Oil | Unrefined crude oil of all types | 1.50% | 1.50% |
| | Refined oil of all types | 0.00% | 0.00% |

Various deductions may also be made for calculating taxable income for a producing mine, including pre-production exploration, development costs, dividends, capital equipment, royalties, loan interest, post-production exploration, withholding taxes, import duties, and payroll taxes.

Fees for licences are payable as per the Schedule determined by the Minister of Mines and Energy, which is also available from the office of the Mining Commissioner (see table below). Surface rent is payable to the landowner by mutual consent. Exploration costs may be deducted in the first year when a discovery progresses to mine development, while development costs may be deducted during the first three years. Losses may also be carried forward indefinitely.

| **SECTION OF ACT** | **NATURE OF FEE /LICENCE/PERMIT TYPES** | **AMOUNT OF FEE** |
|---|---|---|

| | | |
|---|---|---|
| 47(1), 39(1) | Application for the approval of the Minister for the transfer of any mining claim, or the grant, cession or assignment of an interest in any mining claim, or for the joinder of any person as joint holder of any such claim or such interest | N$150 |
| 47(1), 60 | Application for reconnaissance licence per quarter degree square | N$1,200 |
| 47(1), 59 | Application for exclusive reconnaissance licence per quarter degree square | N$2,500 |
| 47(1), 33(1) | Application for a mining claim registration | N$250 |
| 47(1), 85 | Application for a mineral licence amendment | N$1,200 |
| 47(1), 79 | Application for mineral deposit retention licence | N$25,000 |
| 47(1), 91 | Application for a mining licence below N$10 million gross revenue | N$5,000 |
| 47(1), 91 | Application for a mining licence of more than N$10 million gross revenue | N$25,000 |
| 47(1), 3 | Application for a mineral licence transfer | N$1,200 |
| 47(1), 68 | Application in respect of an exclusive prospecting licence for 0ha - 20 000ha | N$10,000 |
| | Application in respect of an exclusive prospecting licence for 20 001ha - 30 000ha | N$15,000 |
| | Application in respect of an exclusive prospecting licence for 30 001ha - 40 000ha | N$20,000 |
| | Application in respect of an exclusive prospecting licence for 40 001ha - 50 000ha | N$25,000 |
| | Application in respect of an exclusive prospecting licence for 50 001ha - 60 000ha | N$30,000 |
| | Application in respect of an exclusive prospecting licence for 60 001ha - 70 000ha | N$35,000 |
| | Application in respect of an exclusive prospecting licence for 70 001ha - 80 000ha | N$40,000 |
| | Application in respect of an exclusive prospecting licence for 80 001ha - 90 000ha | N$45,000 |

| | | |
|---|---|---|
| | Application in respect of exclusive prospecting licence for 90 001ha - 100 000ha | N$50,000 |
| 18(1) | Licence in respect of non-exclusive prospecting licence | N$250 |
| 60 | Reconnaissance licence per quarter degree square | Nil |
| 59 | Exclusive Reconnaissance licence per quarter degree square | Nil |
| 68 | Licence in respect of an exclusive prospecting licence for 0ha - 20 000ha | N$10,000 |
| | Licence in respect of an exclusive prospecting licence for 20 001ha - 30 000ha | N$15,000 |
| | Licence in respect of an exclusive prospecting licence for 30 001ha - 40 000ha | N$20,000 |
| | Licence in respect of an exclusive prospecting licence for 40 001ha - 50 000ha | N$25,000 |
| | Licence in respect of an exclusive prospecting licence for 50 001ha - 60 000ha | N$30,000 |
| | Licence in respect of an exclusive prospecting licence for 60 001ha - 70 000ha | N$35,000 |
| | Licence in respect of an exclusive prospecting licence for 70 001ha - 80 000ha | N$40,000 |
| | Licence in respect of an exclusive prospecting licence for 80 001ha - 90 000ha | N$45,000 |
| | Licence in respect of exclusive prospecting licence for 90 001ha - 100 000ha | N$50,000 |
| 47(1), 33(1) | Mining claim | N$250 |
| 47(1), 79 | Licence in respect of mineral deposit retention licence | N$25,000 |
| 47(1), 91 | Licence in respect of a mining licence below N$ 10 million gross revenue | N$5,000 |
| 47(1), 91 | Licence in respect of a mining licence of more than N$10 million gross revenue | N$25,000 |
| 123(1)(c) | Transport permit | N$250 |
| 123(1)(c) | Export permit | N$500 |
| 123(1)(c) | High value mineral permit | N$1,000 |
| 123(1)(c) | Blasting certificate | N$1,000 |

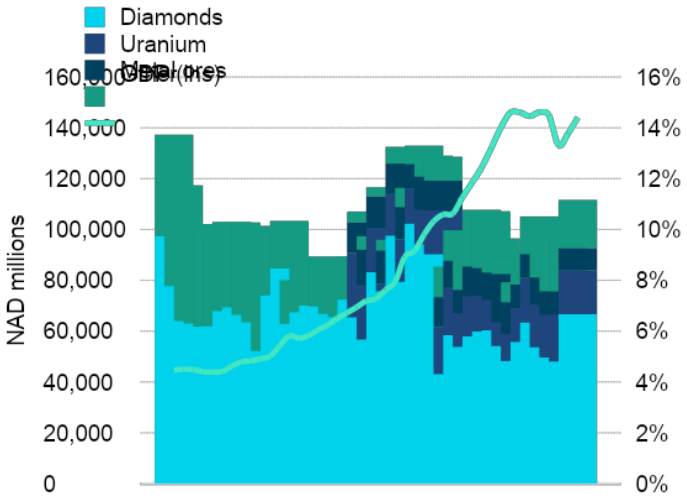
| | | |
|---|---|---|
| 123(1)(c) | Accessory works permit | N$1,000 |
| 123(1)(c) | Administrative | N$1,000 |

## Contribution to GDP

Mining and quarrying have been at the forefront of Namibia's consistent growth over the last 40 years. Despite economic diversification in other sectors, the mining sector has maintained strong contributions to annual GDP figures. Mining and quarrying contributed 11.17% of real GDP in 2022, which was slightly higher than its average contribution since 1980 (11.04%), and notably higher than its average contribution since 2012 (9.74%), which indicates strong growth in the last year.

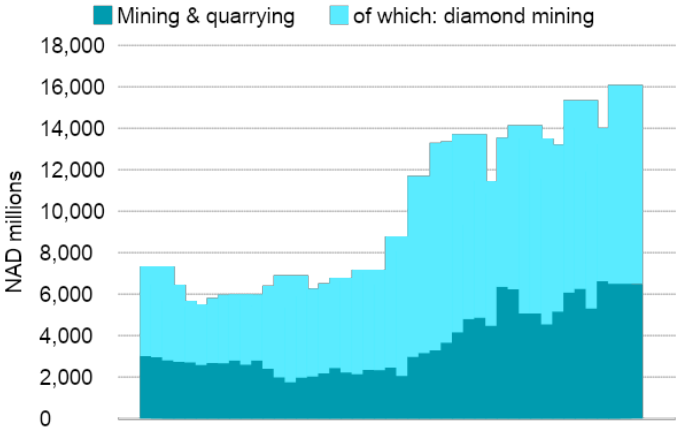
The growth in contribution in 2022 was largely driven by diamond mining, which has been Namibia's prized mineral over the last 40+ years. Diamond mining has contributed 61.4% of the real GDP generated from mining and quarrying, which has also increased significantly by 45.1% in 2022, compared to a stagnant year in 2021 (0.0%). This increase was due to Debmarine Namibia, who produced a record 1.725 million carats, with the Benguela Gem vessel producing 480,000 carats (against a budgeted 281,000). The higher production was also driven by high global diamond prices and a weaker Rand. In 2023, Debmarine is planning to produce 2.0 million carats, which will be supported by ongoing production from the onshore operations.

**Mining & quarrying contribution to annual real GDP**
Since 1980, mining has contributed an average of 11% to annual real GDP.




Source: Namibia Statistics Agency

**Mining & quarrying annual real GDP**
Since 1980, diamond mining has made up over 60% of real GDP generated from mining & quarrying.

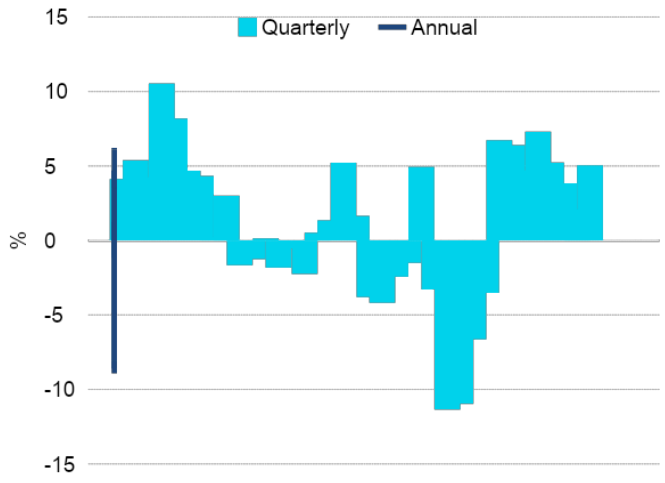



Source: Namibia Statistics Agency

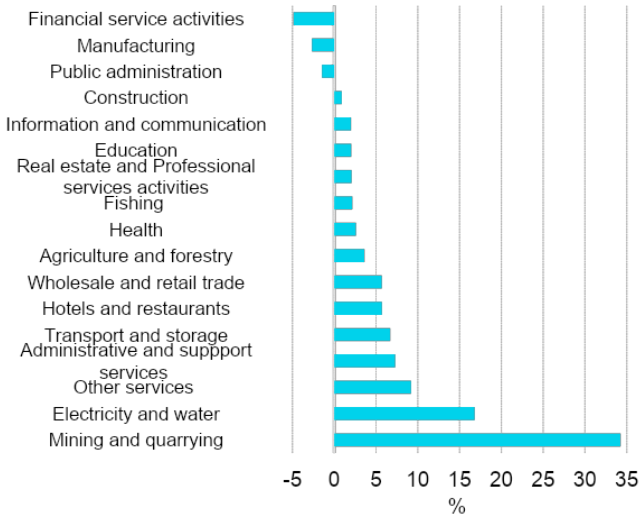
In Q1 2023, the Namibian economy posted growth of 5.0%, which was slower than the 7.3% recorded in Q1 2022; however, it is the fastest start to a year since Q1 2015 (8.2%). Growth was reported across most sectors but was primarily driven by mining and quarrying (+34.3%), up from 28.5% in Q1 2022 and 16.6% in Q4 2022.

**Real GDP growth**
This is Namibia's longest uninterrupted growth run since 2015.

**Real growth by sector**
Mining once again is the key driver of growth.




Source: Namibia Statistics Agency




Source: Namibia Statistics Agency

The faster growth is due to increased investment in exploration activities in other mining and quarrying (made up from industrial metals, dimension stone, salt, etc) and increased uranium production (+35.9%) as higher spot prices and a weaker Rand benefited the local industry. Diamond mining, which drove much of Namibia's growth in 2022, posted slower growth of 23.0% in Q1 2023, compared to 46.1% in Q1 2022, as the base effect will start seeing growth here slow down since the addition of the Benguela Gem vessel. Nonetheless, growth here remains high and will benefit overall growth given the large weighting. The metal ores mining sub sector recorded growth of 29.0%, slower than the 53.6% growth in Q1 2023, primarily due to lower gold and zinc production.

### Effects on other sectors

Mining is generally more capital- than labour-intensive, noticeable by the disparity between real value addition and employment in the sector. Mine development and the associated large levels of inward investment have benefitted the construction sector—particularly during early 2010 which saw the construction of the B2Gold Otjikoto mine, Swakop Uranium Husab mine, and operations at the Tschudi copper mine.

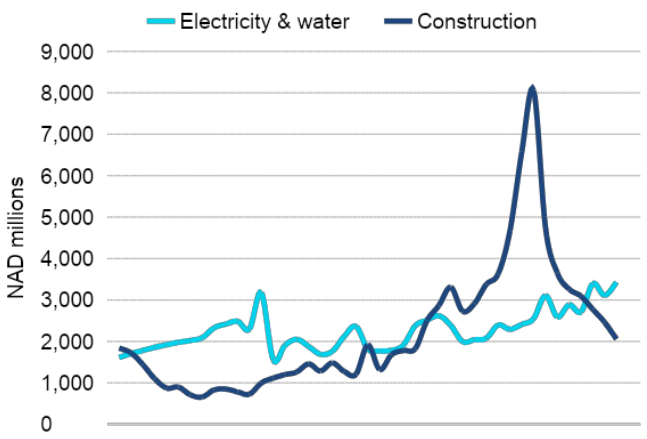
The effects on the manufacturing sector are most notably seen in diamond processing and the manufacturing of non-ferrous metals. Since 2016, diamond processing has been rising in Namibia as the government has encouraged increased availability of diamonds for the local market. This has allowed some beneficiation value to remain in Namibia and has contributed between N$1.4 billion to N$2.1 billion per year in real GDP since 2016, contributing over 1% of real GDP.

**Real GDP of other mining-supported sectors**

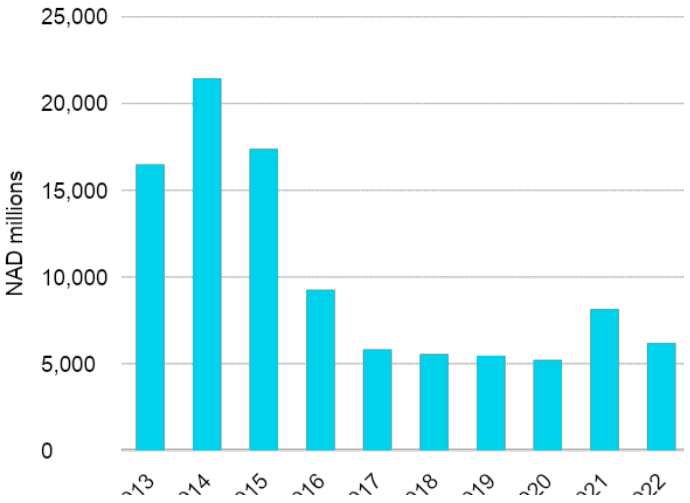
Construction benefited massively from the construction of several mines from 2013 to 2015.

**Real Gross Fixed Capital Formation: Mining & quarrying**

The construction boom from 2013 to 2015 is reflected in real mining and quarrying GFCF.




Source: Namibia Statistics Agency




Source: Namibia Statistics Agency

### Exports

The year 2022 proved to be a strong year for mineral exports, which increased 28.6% to a total value of N$37.689 billion. This was largely driven by an increase in diamond production and higher prices, with exports up 72.5% at N$14.445 billion. Uranium exports also contributed significantly, having been the leading commodity during the pandemic period. Uranium exports accounted for 29.9% of mineral exports by value. Mineral exports accounted for 54.8% of total exports in 2022 (diamonds alone 21.0%), indicating how vital Namibia's mineral exports are for earning hard currency.

**Exports of ores and minerals (N$ million, current prices)**

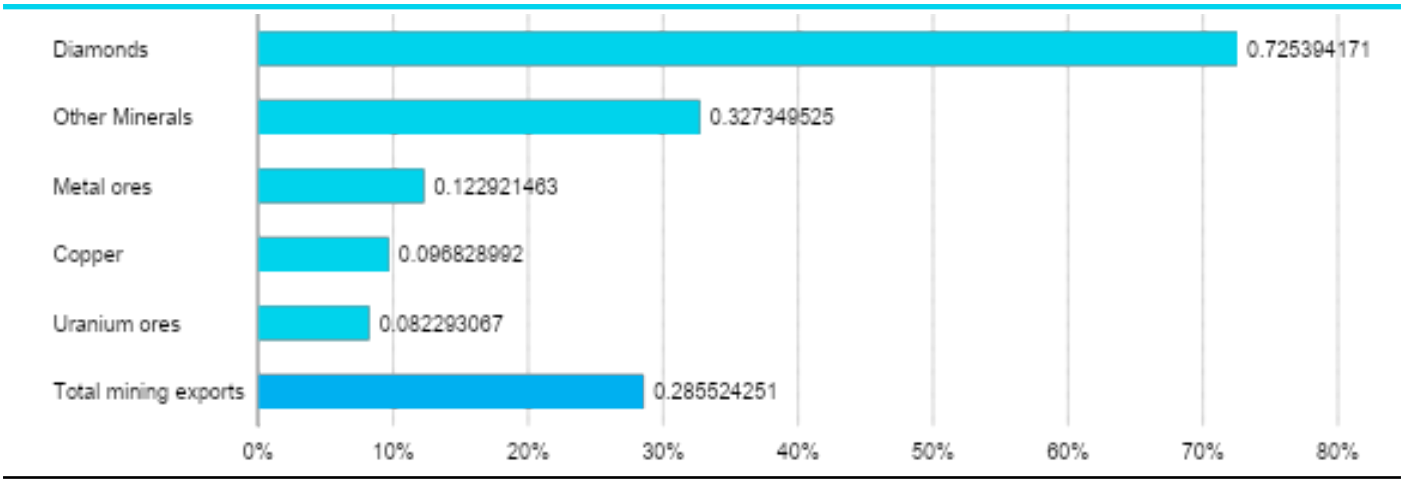
| Mineral | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Diamonds | 9,744 | 11,014 | 9,364 | 7,068 | 8,372 | 14,445 |
| Uranium ores | 4,667 | 8,579 | 9,158 | 11,445 | 10,414 | 11,271 |
| Metal ores | 5,561 | 5,402 | 6,404 | 7,568 | 7,818 | 8,779 |
| Copper | 3,001 | 3,131 | 3,318 | 3,433 | 1,766 | 1,937 |
| Zinc Refined | 3,429 | 2,543 | 2,706 | 695 | 0 | 0 |
| Other Minerals | 761 | 812 | 842 | 788 | 947 | 1,257 |
| **Total mining exports (N$ million, current prices)** | **27,162** | **31,482** | **31,804** | **30,998** | **29,318** | **37,689** |
| **Growth of mining exports** | **1.5%** | **15.9%** | **1.0%** | **-2.5%** | **-5.4%** | **28.6%** |
| **Total goods exports** | 49,865 | 55,575 | 56,063 | 51,704 | 52,950 | 68,731 |
| **Growth of total goods exports** | **3.6%** | **11.1%** | **1.8%** | **-6.3%** | **-0.7%** | **27.1%** |
| **Diamonds as % of merchandise exports** | 19.5% | 19.8% | 16.7% | 13.7% | 15.8% | 21.0% |
| **All minerals as % merchandise exports** | 54.5% | 56.6% | 56.7% | 60.0% | 55.4% | 54.8% |

Source: Chamber of Mines of Namibia, Bank of Namibia

In terms of mining exports, diamonds have historically accounted for the largest share, averaging 43.4% but trending lower, thanks to growth in other minerals. Uranium ores have been a close second in the last six years, contributing 29.5% of all mineral exports, while metal ores have contributed 22%. Copper has made up 8.8% of the value over the period but made up only 5.1% in 2022. Refined zinc currently contributes nothing, after historically making up 5% of the total value.

**2022 Export Value Growth (current prices)**

Diamonds and other minerals saw considerable growth in 2021 export values.




Source: Chamber of Mines

### Employment & Skill Development

At Namibia's last Labour Force Survey, conducted in 2018, the mining sector reportedly employed 12,087 persons (or 1.6% of total employment). This was down from its peak of 17,598 persons (3.3% of total employment) in 2011. Despite its relatively low employment, especially when compared to its contribution to GDP, the mining sector has consistently paid amongst the best average wages of any economic sector.

**Average Wage by Sector**

In 2018, the average wage in the mining sector was N$17,963 – second only to the financial & insurance sector.

Source: Namibia Statistics Agency

With intermittent data on employment from the Namibia Statistics Agency, reliance must be placed on data reported by the Chamber of Mines of Namibia. As these figures reflect data only of Chamber members, actual employment will be somewhat higher. Total direct employment by this measure increased by 5.9% in 2022, collectively employing 16,147 people. The increase was largely due to new employment positions created through Debmarine Namibia's new mining vessel and increased exploration activities, contributing to a significant increase in contractors employed (27.5% more than in 2021). Given Namibia's long history of mining and relatively low levels of foreign employment (approximately 97% of direct employees are Namibian), adequate skills and personnel for the sector are largely available in the country.

**Total direct employment by all Chamber members**

Employment has recovered from COVID-19 retrenchments.

| Year | Permanent employment | Temporary employees | Contractors | Total | Growth |
|---|---|---|---|---|---|
| 2017 | 9,643 | 906 | 6,424 | **16,973** | **8.29%** |
| 2018 | 9,042 | 498 | 6,681 | **16,221** | **-4.43%** |
| 2019 | 9,027 | 800 | 6,515 | **16,342** | **0.75%** |
| 2020 | 8,353 | 917 | 5,321 | **14,591** | **-10.71%** |
| 2021 | 8,640 | 1,103 | 5,503 | **15,246** | **4.49%** |
| 2022 | 8,391 | 742 | 7,014 | **16,147** | **5.91%** |

Source: Chamber of Mines

Jobs created by the mining sector also generate tax revenue for the government through PAYE (pay as you earn) and VAT (value added tax). In 2022 the mining sector paid a total of N$2.6 billion in PAYE. As Namibians constituted 97% of individuals employed in the mining sector in 2022, the majority of the N$6.225 billion wage bill has circulated and catalysed economic activity within Namibia, benefiting other sectors of the economy.

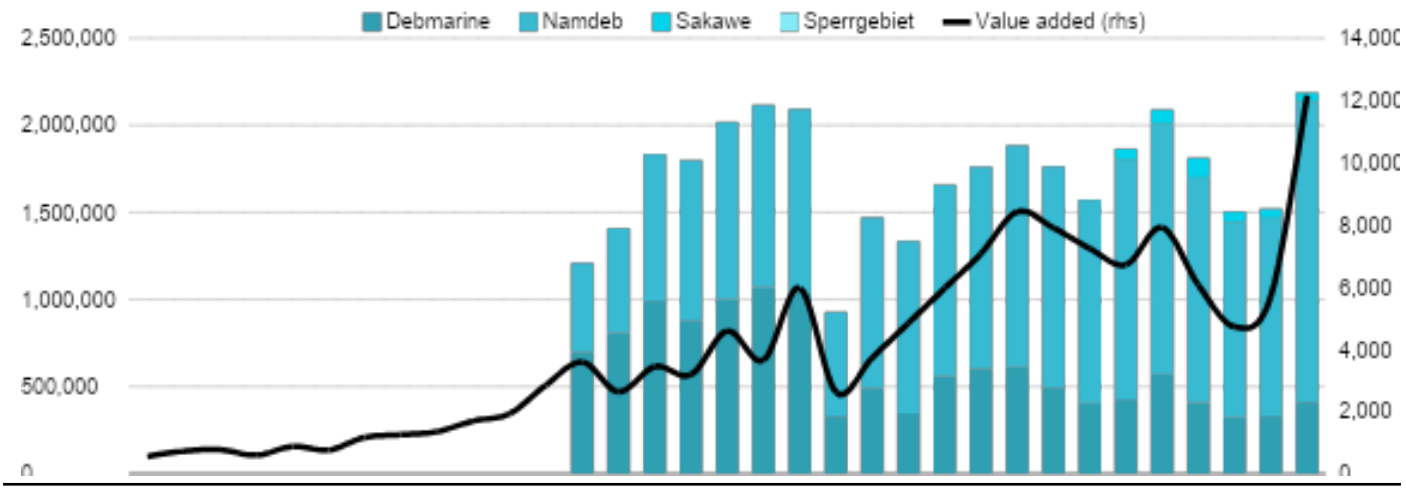
### Significant Minerals

## Diamonds

Diamond production in Namibia consistently boasts exceptional levels of quantity and quality. In 2021, Namibia was ranked eighth globally in diamond production. In 2022, Namibia ranked second in terms of carat value, coming in at US$601 per carat. Namdeb Holdings (Debmarine Namibia and Namdeb Diamond Corporation) have been the major contributors, producing an average of 1.69 million carats yearly since 2002. The year 2022 saw the highest volume of total carat output at 2.19 million with a total value added to GDP of N$12.15 million, largely due to the addition of the Benguela Gem mining vessel by Debmarine Namibia.

**Diamond Production**

2022 proved an extraordinary year for diamond production.




Source: Namibia Statistics Agency

The Benguela Gem saw carat output grow by a substantial 43.7% in 2022. Marine diamond mining by Debmarine has thus more than covered depreciating land-reserves.

**Recent Diamond Production (carats)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Namdeb Holdings: | 1,804,000 | 2,007,847 | 1,699,986 | 1,447,376 | 1,466,196 | 2,137,094 |
| - Debmarine Namibia | 1,378,000 | 1,436,000 | 1,292,000 | 1,125,000 | 1,136,000 | 1,725,000 |
| - Namdeb Diamond Corporation | 426,000 | 571,847 | 407,986 | 322,376 | 330,196 | 412,094 |
| Sakawe Mining Corporation | 61,529 | 82,332 | 113,520 | 56,249 | 51,329 | 50,981 |
| Sperrgebiet Diamond Mining | | | | | 5,595 | No info |
| **Total** | **1,865,529** | **2,090,179** | **1,813,506** | **1,503,625** | **1,523,120** | **2,188,075** |
| **Growth** | **18.6%** | **12.0%** | **-13.2%** | **-17.1%** | **1.3%** | **43.7%** |

Source: Namibia Statistics Agency

Diamond processing is an additional avenue for revenue and investment as the price increases about eightfold by processing rough diamonds. Its contribution of N$1.4 billion to N$2.1 billion per year in real GDP since 2016—over 1% of real GDP—demonstrates the high potential available by moving away from pure extraction.

### Gold

Namibia has two active gold mines, namely the Navachab open pit mine and B2Gold's Otjikoto mine, respectively. Navachab, located near Karibib, has been in operation since 1989. It has produced an average of 2,050 kilograms per year, with production strongest in the 2000s where an average annual production of 2,396 kilograms was achieved. Production increased 60.5% in 2022 to 2,411 kilograms, owing to ongoing improvements, including to the recovery plant. Navachab holds two exploration licenses (EPL 3275 and EPL 999) and conducted RC drilling over 6,425 meters. Ground magnetics surveys covering 2,970 hectares between the licenses have also been completed.

B2Gold's Otjikoto mine is located between Otavi and Otjiwarongo. After the first gold pour in December 2014, commercial production started in March 2015. Since 2015 the mine has produced an average of 4,876 kilograms per annum and has more than tripled total gold production in Namibia, which has averaged 6,616 kilograms per annum since 2015. B2Gold successfully completed the development of the Wolfshag underground mine in November 2022. In September 2022 the Otjikoto gold mine was successfully connected to the national power grid, which has reduced electricity costs. Previously, the mine generated its own electricity, which was costly due to increases in the price of heavy fuel oil (HFO); the mine continues to make use of its solar generation capacity. In 2022, brownfields exploration was conducted on ML 169 and neighbouring EPLs 2410 and 4309. Further exploration of ML 169 is planned for 2023. Gold production has fluctuated each year since 2017. B2Gold's 2022 drop in production of over 1,000 kilograms was mainly due to delays in the development of the Wolfshag mine, however, this has been addressed, and output is expected to recover. Navachab's 2022 production growth of 60.5% largely made up for the drop by B2Gold.

**Recent Gold Production (kilograms)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Navachab | 1,843 | 1,427 | 1,481 | 1,491 | 1,502 | 2,411 |
| B2Gold | 5,429 | 4,744 | 5,045 | 4,763 | 5,601 | 4,581 |
| **Total** | **7,272** | **6,171** | **6,526** | **6,254** | **7,103** | **6,992** |
| **Growth** | **10.1%** | **-15.1%** | **5.8%** | **-4.2%** | **13.6%** | **-1.6%** |

Source: Chamber of Mines

### Uranium

Namibia has consistently been one of the world's largest uranium suppliers, producing 11.5% of global output in 2022 and ranking third in the world and first in Africa. Namibia also has special permission to mine and export yellowcake ($U_3O_8$), as the country has met safety requirements to ensure that the uranium is used strictly for energy generation and not weapons/military. This is an obligation arising from being signatory to the 1996 African Nuclear Weapon Free Zone Treaty and the 1998 Nuclear Non-Proliferation Treaty. In turn, the development of uranium is easier than in other

countries and encourages further exploration. As uranium mining was already under way before independence, Namibia has a long history of safely mining and exporting radioactive materials.

Swakop Uranium's Husab Mine, one of the largest open pit mines in Africa, started production in December 2016. In the last five years, Swakop Uranium has produced between 3,900 – 4,000 tonnes of uranium oxide per annum. However, water shortages in 2022 saw Husab's output fall 11% below budget for the year. Husab has yet to reach nameplate capacity, which would equal output by Rössing and Langer Heinrich if both are operational.

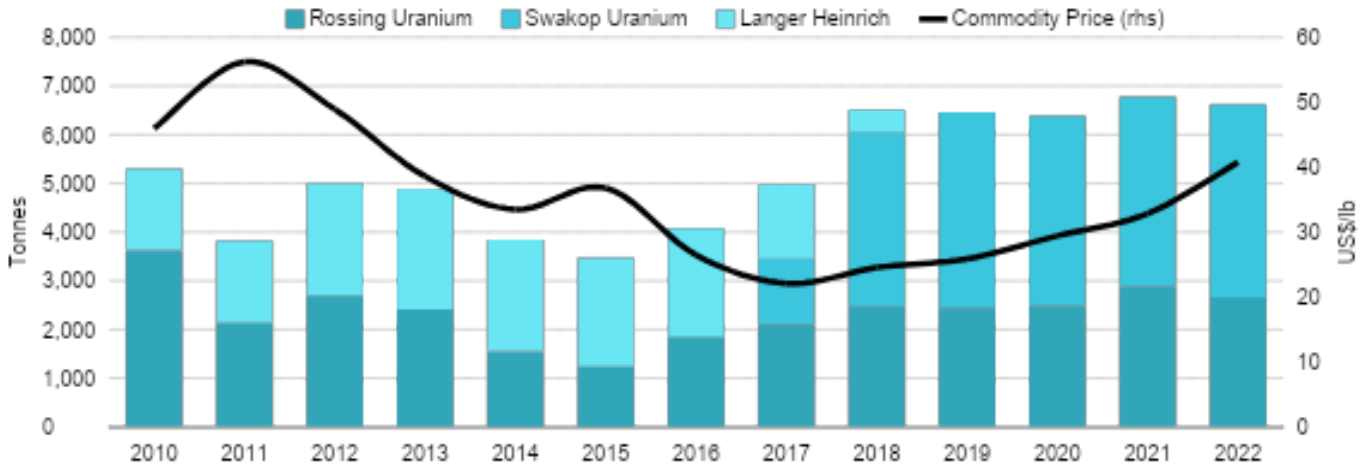
Rössing Uranium, Namibia's oldest open pit uranium mine, has been operating for over 45 years. Majority-owned by China National Uranium Corporation Limited (CNUC) after purchasing it from Rio Tinto in 2018, it is located 12 km from Arandis and 70 km inland from Swakopmund in the Erongo region. Rössing's life of mine has been extended to 2036 through pit extension. Rössing Uranium has produced between 2,400 and 2,900 tonnes per annum over the last five years and has been a stable provider since 1976. However, water shortages meant Rössing's operations were temporarily halted in 2022, when they saw an 8% decrease in production.

Langer Heinrich Uranium (LHU) is primarily owned by Paladin (75% controlling stake). The remaining 25% is owned by China National Nuclear Corporation (CNNC) Overseas Uranium Holding Limited, which is a wholly-owned subsidiary of CNNC. Located within the Erongo region, LHU is an open pit uranium mine situated approximately 90 km to the east of Walvis Bay, specifically, within the Namib Naukluft National Park. The mine has been under care and maintenance since 2018 due to sustained low global uranium prices. However, in July 2022 it was announced that operations would restart, and investments in material, equipment and contractors mean the mine is expected to restart in Q1 2024 and has a confirmed 17-year project life.

The Trekkopje uranium mine, owned entirely by Uramin Inc. through Orano Mining Namibia, was built in the northeast of Swakopmund. To fulfil the water requirements for the Trekkopje operations, the Erongo Desalination Plant at Wlotzkasbaken serves as the water source. The mine has been under care and maintenance since 2018 and has never been under commercial production.

**Uranium Production**

Swakop Uranium has more than made up for Langer Heinrich's temporary closure, with uranium prices encouraging restart.




Source: Chamber of Mines

Total production grew by 22.0% in 2017 and 30.8% in 2018, thanks to Swakop Uranium's Husab mine. Growth has since been stagnant due to Langer Heinrich going into care and maintenance. The Rössing Uranium mine has provided a stable amount of uranium, averaging 2,532 tonnes per year since 2010.

Insufficient water supply and infrastructure poses a threat to uranium output. Increased output and development of exploration projects are at risk if the water issues are not resolved. Reliance is placed on Orano's desalination plant,

but algal blooms and other challenges have seen irregular water supply hampering production. Significantly higher prices of consumables used in uranium plants such as sulphur and mill balls have also proven hindrances for firms. Shipping delays have also negatively affected product shipment and exports due to challenges in securing shipping containers and vessels needed to deliver the final product.

**Recent Uranium Production (tonnes)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Swakop Uranium | 1,345 | 3,571 | 4,010 | 3,893 | 3,902 | 3,958 |
| Rössing Uranium | 2,110 | 2,478 | 2,448 | 2,489 | 2,882 | 2,659 |
| Langer Heinrich | 1,526 | 465 | 0 | 0 | 0 | 0 |
| **Total** | **4,981** | **6,514** | **6,458** | **6,382** | **6,784** | **6,617** |
| **Growth** | **22.0%** | **30.8%** | **-0.9%** | **-1.2%** | **6.3%** | **-2.5%** |

Source: Chamber of Mines of Namibia

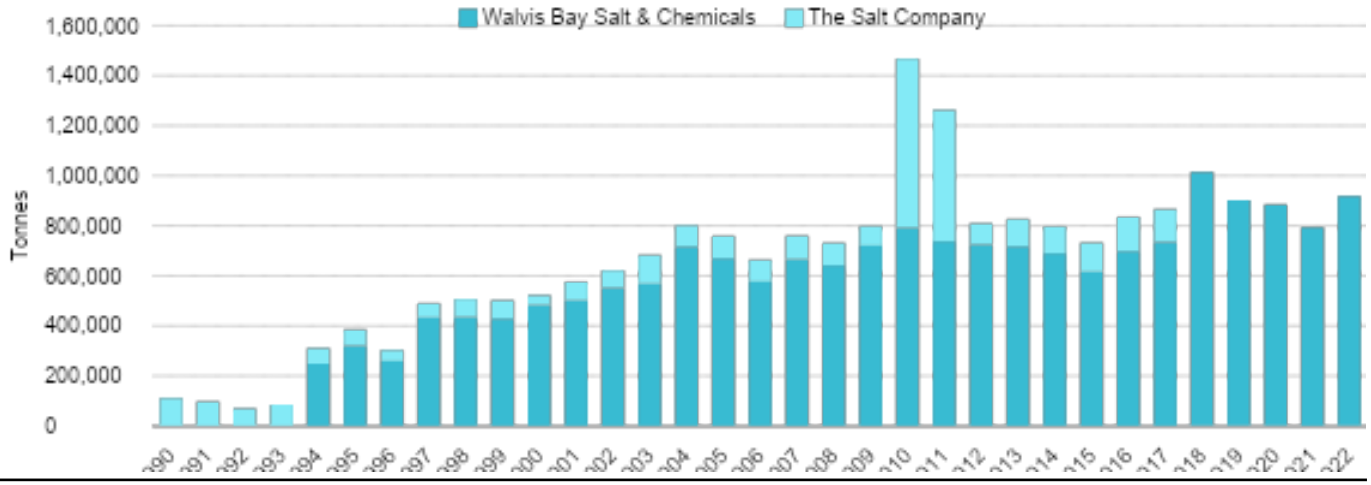
## Salt

Salt in Namibia is harvested for commercial and household use. Seawater in Namibia has a salt content of between 1% and 5%, and is harvested by evaporating seawater in artificial ponds or coastal basins. Namibia is the leading producer of salt in Southern Africa, and the largest producer of marine salt in Africa. The salt is exported to South Africa and other international markets.

Currently, Walvis Bay Salt & Chemicals, a subsidiary of Walvis Bay Salt Holdings, is the sole carrier of salt mining in Namibia. Despite The Salt Company's eventual halting of production in 2017, total production grew in 2018 as Walvis Bay produced over a million tonnes of salt after the company successfully expanded by 1,000 hectares (to 5,500).
Salt demand is largely driven by the chemical industry worldwide. However, the lack of proper development of a chemical industry in Africa means the regional demand is largely for agriculture and food processing. Nonetheless, salt demand is expected to grow steadily worldwide given its worldwide application.

**Salt Production**

2010 saw an all-time high of 1,468,000 tonnes of salt output.




Source: Chamber of Mines

**Recent Salt Production (tonnes)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Walvis Bay Salt & Chemicals | 735,205 | 1,015,205 | 901,797 | 886,333 | 794,042 | 918,351 |
| The Salt Company | 131,381 | No info | No info | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total** | **866,586** | **1,015,205** | **901,797** | **886,333** | **794,042** | **918,351** |
| **Growth** | **3.7%** | **17.1%** | **-11.2%** | **-1.7%** | **-10.4%** | **15.7%** |

Source: Chamber of Mines

### Zinc & Lead

Global demand for zinc is largely driven by manufacturing demand: the need to galvanise steel, produce zinc alloys, food supplements, etc. Lead is less in demand and is typically a by-product/co-product of zinc mining. Mines typically produce both concentrates and separate the two via smelting. In Namibia, Rosh Pinah Zinc Corporation and Namib Lead & Zinc Mine produced both, while Skorpion Zinc only produced the former.

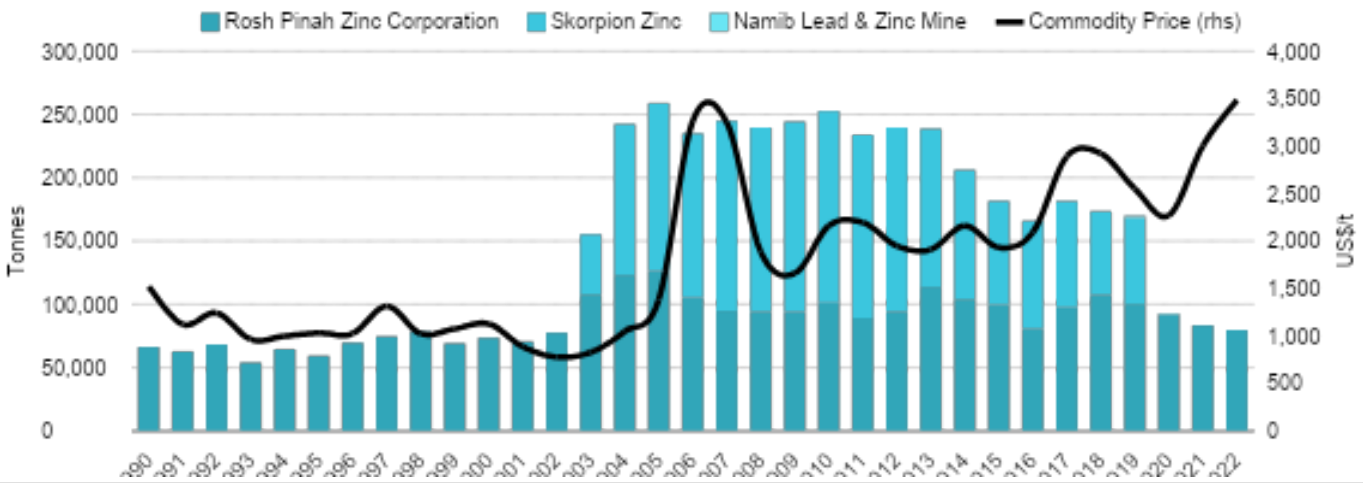
Rosh Pinah, located in southwestern Namibia approximately 20 km north of the Orange River, was formerly operated by Trevali, but was subsequently taken over by Appian Natural Resources Fund III LP in 2023. The mine has been operational without interruption since 1969. At present, it produces primarily zinc and lead concentrates, which also contain small quantities of copper, silver, and gold. The mine is undergoing the RP2.0 expansion project, which could see output nearly double in the near future.

Vedanta's Skorpion zinc mine was the country's only producer of further refined product, special high grade zinc. However, in 2020 Vedanta placed the Skorpion Zinc mine under care and maintenance due to pit instability challenges and limited oxide ore. There has been talk of refinery conversion to treat sulfide ores from Rosh Pinah Zinc Corp and mines in South Africa, but the significant capital outlay and high electricity tariffs pose a challenge.

Although the Namib Lead & Zinc Mine began production in 2019, it was also put under care and maintenance the following year.

**Zinc Production**

Skorpion Zinc's temporary halting comes at a time of price hikes.




Source: Namibia Statistics Agency

**Recent Zinc Production (tonnes)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Rosh Pinah Zinc Corporation | 97,364 | 107,568 | 100,409 | 91,099 | 83,362 | 79,666 |
| Skorpion Zinc | 84,215 | 65,993 | 67,295 | 659 | 0 | 0 |
| Namib Lead & Zinc Mine | | | 2,267 | 1,054 | 0 | 0 |
| **Total** | **181,579** | **173,561** | **169,971** | **92,812** | **83,362** | **79,666** |
| **Growth** | **9.4%** | **-4.4%** | **-2.1%** | **-45.4%** | **-10.2%** | **-4.4%** |

Source: Namibia Statistics Agency

After a decline and stagnation from 2015 to 2019, the mine has consistently increased its production to return to its usual high levels. Impact studies suggest that lead production in Namibia could theoretically reach 60,000 tonnes a year, however, poor economies of scale, low profit margins through smelting and the short life of mines discourage investment. It may be somewhat encouraging if Namibia can prove that the smelting and refining of lead is more viable than in other African countries due to lower input costs such as transportation and electricity.

**Recent Lead Production (tonnes)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Rosh Pinah Zinc Corporation | 13,915 | 14,068 | 13,019 | 17,594 | 19,989 | 26,276 |
| Namib Lead & Zinc Mine | | | 764 | 192 | 0 | 0 |
| **Total** | **13,915** | **14,068** | **13,783** | **17,786** | **19,989** | **26,276** |
| **Growth** | **-6.4%** | **1.1%** | **-2.0%** | **29.0%** | **12.4%** | **31.5%** |

Source: Namibia Statistics Agency

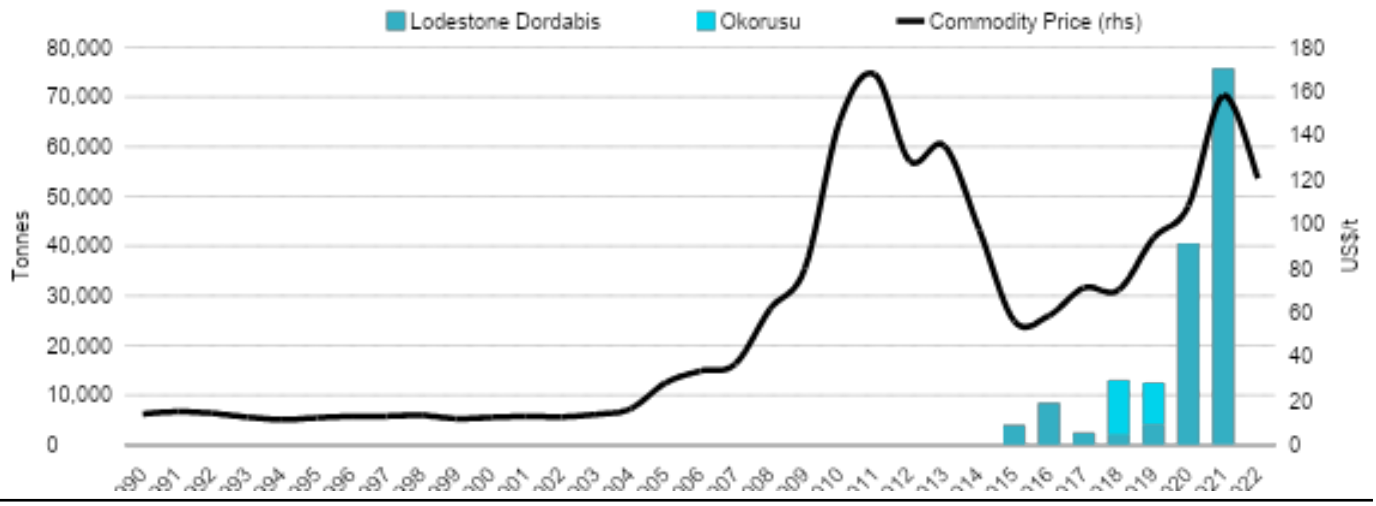
### Iron Ore

Despite large resources, large scale iron ore mining is relatively nascent in Namibia, as grades have historically been viewed as too low to be commercially viable. In 2015, Lodestone Namibia began operations at the Dordabis iron ore mine (ML 182), located 20 km north of Dordabis and about 75 km from Windhoek. The iron ore is refined to produce pig iron for use in making steel. As iron ore is needed for making steel, the price thereof is heavily reliant on steel demand, which has significantly decreased in 2022. COVID-19 lockdowns, property debt bubbles and civil unrest in China have caused iron ore prices to fall, as the Chinese economy has a significant influence over the price. Cement has also experienced declining demand, due to stagnant construction industry conditions, which also negatively impact the demand for steel. Iron ore prices decreased from an all-time high of US$230/tonne in 2021, to a low of

US$88/tonne in 2022. Although production has been halted, Lodestone is now looking to secure funding for full-scale mining and further exploration.

**Iron Ore Production**

Production grew significantly during an all-time high average yearly price of US$158.2/t, but has now completely halted.




Source: Namibia Statistics Agency

Both iron ore and copper production have halted completely. Lodestone Namibia has exported remaining stockpiles in one shipment.

**Recent Iron Ore Production (tonnes)**

| Mine | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Lodestone Dordabis Iron Ore Mine | 2,450 | 1,956 | 4,030 | 40,544 | 75,718 | 0 |
| Okorusu (operated by Gecko Namibia) | | 11,079 | 8,500 | 0 | 0 | 0 |
| **Total** | **2,450** | **13,035** | **12,530** | **40,544** | **75,718** | **0** |
| **Growth** | **-71.1%** | **432.0%** | **-3.9%** | **223.6%** | **86.8%** | **-100.0%** |

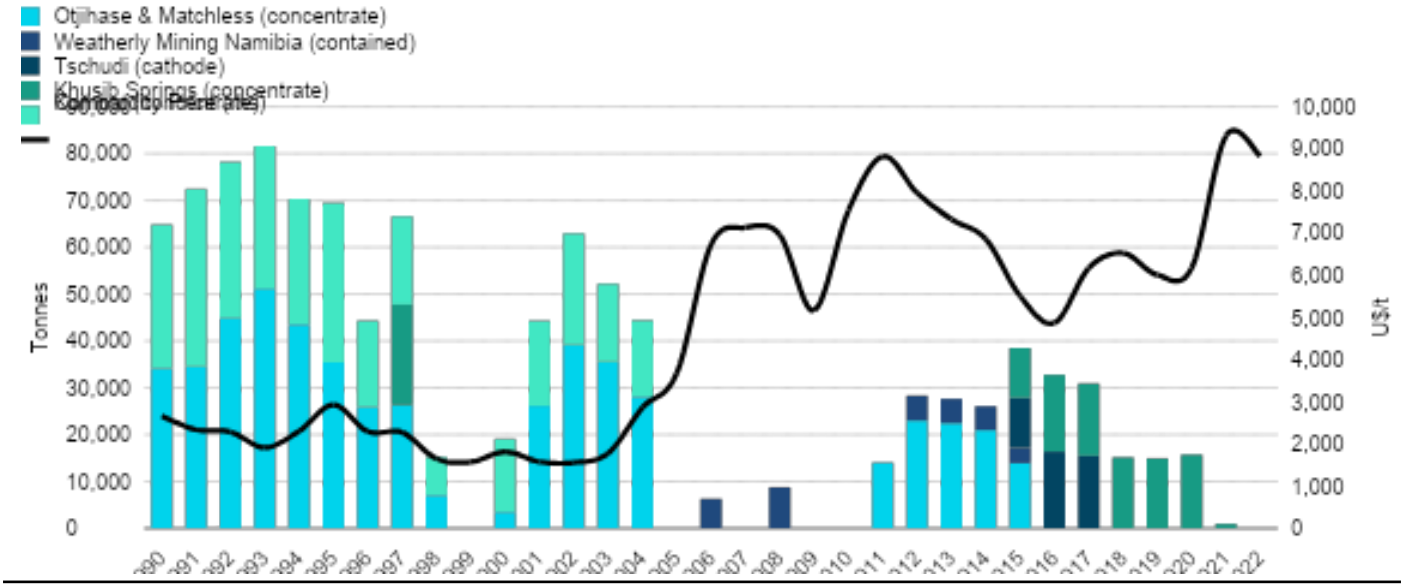
## Copper

Although there is a long history of copper mining in Namibia, it only supplied about 1% of global output during its production span. In 2015 global copper prices fell to the lowest level in six years, and the lowest average yearly price since 2006, as China's struggling construction industry significantly reduced demand. The longstanding Kombat mine stopped production in 2008 due to global market conditions and excessive flooding, making the operations unprofitable. However, Canadian company Trigon Metals Inc., which owns the Kombat mine through the acquisition of Manila Investments in 2012, resumed operations in October 2021 and plans to produce 14,500 tonnes of copper concentrate per year after production restarted in late 2023. This comes at a time when the copper price has recovered and hit an all-time high in 2021. Consolidated Copper Corporation (CCC) has taken over Weatherly Mining Namibia's operations after financial challenges and flooding at the Tschudi mine saw operations come to a halt. More specifically, CCC intends to focus on the Tschudi mine – and intends to restart copper cathode production.

As for the smelting of copper, Dundee Precious Metals' Tsumeb Custom Smelter produces blister copper from imported concentrates as one of few smelters that still handles deleterious materials. The plant has also been adapted to produce by-products for the local market, such as sulphuric acid for mines.

**Copper Production**

Copper production in the 2010s was a shadow of its former self, with production completely halted in 2022.



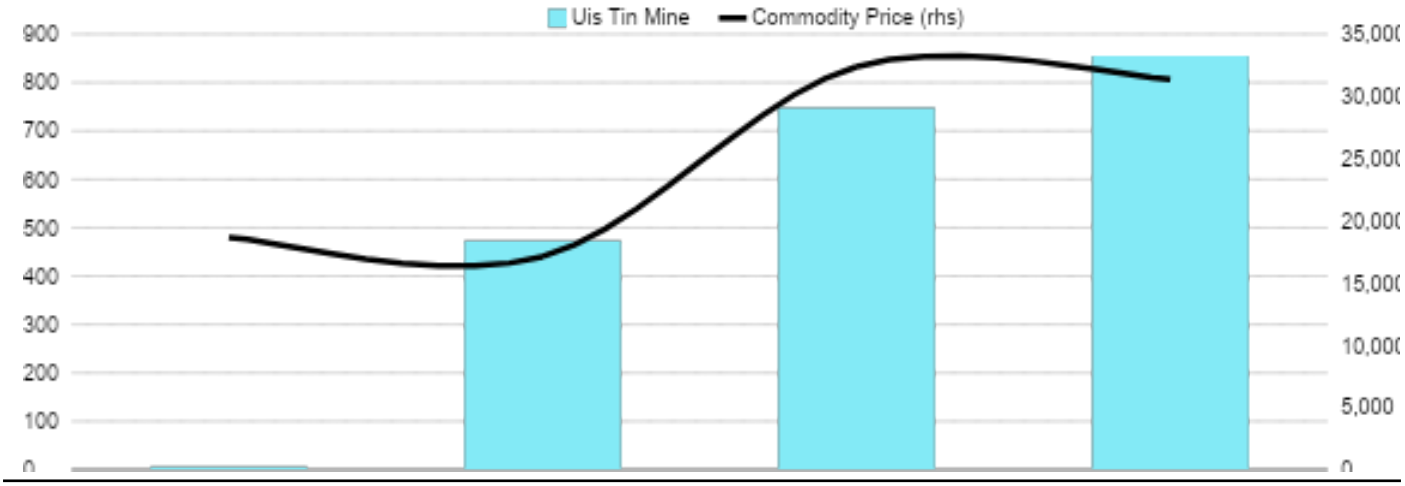

Source: Namibia Statistics Agency

### Tin

Andrada Mining (Namibia) (Pty) Ltd, renamed from AfriTin, successfully redeveloped the Uis Tin Mine in Q3 of 2022, increasing production capacity from 800 to 1,200 tonnes of tin concentrate per annum. Andrada has started constructing two facilities to extract lithium and tantalum from the Uis pegmatites as it ramps up tin production.

**Tin Production**

Tin production is expected to grow after the expansion of Uis Tin Mine's capacity.




Source: Namibia Statistics Agency

### Exploration, R&D & Investment

Generally, Namibia's expenditure on Research and Development (R&D) is relatively small, and this is reflected in the mining sector. The establishment of the University of Namibia's Centre for Mining and Metallurgical Research and Training at Arandis in 2017/2018 never materialised. Nonetheless, the sector is involved in smaller R&D projects such as:

- The Geological Survey of Namibia (GSN) serves as the primary repository for the nation's geological data, including mineral records. Apart from research, the GSN actively monitors mineral contamination at mines, as they possess the expertise and equipment for this task. The insights gathered are shared with the Ministry of Environment, Forestry and Tourism to enhance compliance monitoring.

- The GSN and German Institute for Geosciences and Natural Resources (BGR) collaborative project focuses on non-metallic raw materials—a partnership spanning 20 years. BGR and GSN's ongoing project, "Sustainable Use of Namibia's Mineral Resource Potential II," aids GSN's Economic Geology Division in evaluating and enhancing the economic feasibility of local mineral deposits.
- Training and research collaborative efforts between the Namibian University of Science and Technology (NUST) and Bern University, Switzerland, and Namibia Uranium Association Scientific Committee.

### Sustainability & Environmental Projects

The Namibian government places great emphasis on environmental protection in relation to mining activities. This is demonstrated through strict environmental requirements imposed by the Mines and Environment Ministries both before and after granting exploration and mining licenses. The government acknowledges the potential hazards associated with unchecked mining-related actions and has implemented measures to address both historical and ongoing mining environments in the country.

To ensure the safe, responsible, and sustainable exploitation of mineral resources, the Mining Directorate within the Ministry of Mines and Energy oversees these activities. The directorate proactively develops and implements environmental policies to mitigate the impact of mineral resource exploitation, as well as to ensure the safety and well-being of mining industry workers and the public. Additionally, efforts have been made by the government to assess the impact of over 200 abandoned mines that were opened before the country's independence.

The 2002 Minerals Policy of Namibia highlights the importance of properly planned mine closures as part of an integrated land use strategy involving community engagement. The policy promotes land rehabilitation and encourages the continued economic use of remaining infrastructure.

The environmental clearance certificate (ECC) is a crucial requirement for various mining-related activities, and compliance with environmental regulations is generally strict. Stringent conditions are placed on ECCs for projects with high social or environmental risks. The Environmental Management Act (EMA) empowers the Environmental Commissioner to monitor and enforce compliance with the act and ECC conditions. The Act also mandates the submission of an environmental management plan (EMP) as part of the ECC application.

The Minerals (Prospecting and Mining) Act includes principles such as 'the polluter pays' principle, and emphasises mine closure and rehabilitation. The Chamber of Mines has established a framework for mine closure aligned with its Code of Ethics and is endorsed by its members. The Minerals Policy emphasises the need for a comprehensive mine closure plan and funding mechanism before granting a mining license.

The Ministry of Environment, Forestry and Tourism (MEFT) is responsible for regulating environmental performance, while the DEA (Department of Environmental Affairs) oversees the granting of environmental clearance certificates and the administration of the environmental impact assessment process. At the same time, the Environmental Management Act (EMA) and its associated regulations govern the environmental aspects of the entire mining life cycle. Various activities related to exploration, mining, and quarrying require an ECC, which involves preparing reports, plans, and assessments. A sustainable development offset system has also been established by the Chamber of Mines and the Namibian Chamber of Environment to support the objectives of the Minerals Policy.

### Technological Innovation

The mining sector in Namibia is actively integrating new technology to improve operational efficiency. The transition towards digital transformation encompasses a surge in demand for automation within an industry that traditionally relied heavily on manual labour.

Dundee Precious Metals Tsumeb has made progress on automating the Slag Processing Plant, which implements a Distributed Control System to make all equipment visible. They have also previously launched the Safety Object Recognition and Analytics (SORA) initiative, an Artificial Intelligence (AI) project aimed at enhancing workplace safety

through computer vision. The software uses object detection models to ensure all employees wear the required Personal Protective Equipment (PPE).

Namdeb Diamond Corporation has successfully concluded the implementation of the Advanced Driver Assistance System (ADAS), a technology designed to mitigate fatigue-related incidents. Concurrently, the company has initiated the deployment of Global System for Mobile Communications (GSM) networks across its mining sites.

Navachab completed the construction of the ARGO plant in 2022, which uses technology to improve water and power consumption efficiency, while Rosh Pinah Zinc Corporation has introduced a series of dynamic technologies on-site, including cyber response and threat management systems, visualisation platforms for business reporting, real-time chat tools, productivity apps, robotics for hazardous area inspections and drone technology.

## Investment Opportunities

Opportunities in the mining and exploration sector persist, reinforced by the increase in related spend by both mining companies and exploration/development companies. Particular areas of interest include gold (along the Damara Belt), uranium and other nuclear fuels in the Erongo region, copper prospecting along the Kalahari Belt (near the border with Botswana), and a host of activity focusing on rare earth elements and other "critical minerals". Namibia is also home to a host of industrial minerals, such as salt and dimension stone, which are also export products. The growing importance of copper and other materials used in renewable energy technologies (including batteries) has seen renewed exploration interest for these minerals in Namibia.

While much of the focus related to mining is on beneficiation, this is almost wholly on downstream beneficiation. Downstream beneficiation faces several challenges in Namibia, including relatively small mineral output for activity that requires scale, generally low grades (by international comparison), and relatively high input costs (energy, water, and skills deficit for downstream beneficiation). Furthermore, Namibia currently offers no manufacturing incentives. There are some levels of downstream beneficiation in the country, such as limited diamond cutting and polishing. Namibia at one stage produced copper cathode and refined zinc (SHG zinc), but these ended as the oxide deposits for the relevant mines were largely depleted.

While the emphasis is on downstream beneficiation, there may be scope for upstream beneficiation in the country, which often appears overlooked. There is some upstream beneficiation, such as the sulphuric acid produced at the Tsumeb Custom Smelter for local mines. While the mining sector prides itself on local procurement, much of this spend is to Namibian-registered entities that import these inputs for the mining sector—ranging from highly-specialised mining equipment through to textiles, such as personal protective equipment. Potential upstream beneficiation linkages may also lie in more complex chemical inputs, such as chlorine gas and caustic soda, more so given Namibia's large salt operations. The difficulty in identifying beneficiation opportunities, for instance, gold refining in a country that produces gold, is that it must be balanced with commercial viability and sustainability. This justifies a broader approach to upstream inputs rather than to potentially single-source dependent downstream beneficiation.

### *About the Author*

*The Cirrus Group is a Namibian-owned, broad-scoped financial services group started in February 2017, with a focus on corporate advisory, capital raising, venture investments, asset management, stockbroking and research. The company's research offering is market-leading, covering listed and unlisted equity, macroeconomics, fixed income, policy, politics, and a plethora of bespoke projects.* Cirrus has *also assisted government agencies on issues of policy and legislation.*