The Extractor
Mapping Namibia's Mineral Resources

250 abandoned mines – Namibia's costly toxic legacy

by **Editor** — August 25, 2025 in **Magazine** 0

Namibia’s mining sector has historically driven the country’s economy; however, its legacy is also marked by the scars of more than 250 abandoned and unrehabilitated mine sites that still pose environmental and public health threats today.

From the copper pits of Klein Aub to the vanadium-rich tailings of Berg Aukas, a new generation of scientific research is revealing the scale and danger of these overlooked sites.

Studies now confirm what was long suspected: heavy metals such as lead, copper, arsenic, and zinc are leaching into water supplies, accumulating in dust, and posing a threat to rural communities living near these mines.

A 2020 study by Alex Uugwanga and Peter Kgabi collected 58 samples across Klein Aub and Oamites between 2018 and 2019.

The results revealed geo-accumulation indexes for copper topping 40 at Klein Aub—levels far beyond natural occurrence.

The capped tailings at Oamites were also found to leach metals downstream.

These findings underscore how even partially rehabilitated sites can continue to pollute.

More alarming still are the findings from a 2025 paper published by the Royal Society of Chemistry, which examined fugitive dust particles under 10 microns from tailings dumps at Oamites and the former Namib Lead-Zinc mine.

Concentrations reached 8,880 mg/kg for lead and 134 mg/kg for arsenic.

In carbonate-hosted deposits, such as those at Otavi, the bioaccessibility of these metals was high, indicating significant risks of ingestion by residents and livestock through dust inhalation or contaminated soil.

Evidence of health impacts has also emerged. In Rosh Pinah, a 2020 community study revealed elevated blood lead levels in 18 out of 30 local children, drawing national attention.

The results, confirmed by the Ministry of Mines and Energy in 2023, pointed to chronic exposure from past and ongoing operations at the zinc and lead mine. Health authorities raised concerns over irreversible cognitive and developmental damage among exposed children.

Another study applied the Nevada Standardised Reclamation Cost Estimator to Oamites and found it would cost at least US$5.9 million to rehabilitate the site. These costs scale dramatically when applied to Namibia’s estimated 250 legacy mines.

The site contains two uncapped tailings dumps, collapsing infrastructure, and toxic, dust-prone waste. Researchers stressed that without urgent containment, tailings could be mobilised by seasonal rains or strong desert winds.

A joint inventory conducted by the Geological Survey of Namibia and Germany's BGR identified 157 known sites, but unofficial counts run higher.

Many of these mines—including Matchless, Otjihase, Tschudi, and others in the Erongo Goldfields—predate any legal requirement for closure planning, financial provisioning, or post-mining rehabilitation.

The 2019 review by Aune Salom and Mika Kivinen, *"Mine Closure Governance in Namibia: Gaps and Opportunities"*, highlighted serious governance shortcomings.

Fragmented policies, weak enforcement, and the absence of a cohesive financial provision system for closure continue to hamper Namibia's ability to address its mining legacy.

The report urged the establishment of a national rehabilitation fund and alignment with international standards.

A 2022 study by Everisto Masake and Ephraim Musiyarira showed that these abandoned mines have profound social consequences.

Local communities reported increased livestock mortality, loss of arable land, and water shortages due to mine-related contamination.

In some cases, traditional land-use patterns and cultural sites have been disrupted or rendered inaccessible due to degraded landscapes and lingering pollution.

While modern mines, such as Navachab, Husab, and Rössing, incorporate closure planning and financial assurance into their Environmental Management Plans (EMPs), their predecessors — and even once-flagship operations like Skorpion Zinc, now largely abandoned — left behind unsealed shafts, collapsing infrastructure, and tailings rich in heavy metals and sulphides.

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To date, efforts by the Ministry of Mines and Energy and its partners, such as GIZ, have focused on mapping and fencing a limited number of high-risk sites.

However, these interventions remain limited in scope and funding. Without a robust national remediation fund or enforceable closure bonds for older operations, large swaths of the Namibian landscape remain contaminated and dangerous.

The environmental debt is not merely a historical issue. Seasonal rains can mobilise tailings into rivers and groundwater, while dry winds carry toxic dust across grazing lands and settlements.

Livestock deaths, crop contamination, and human health effects are growing concerns.

Suppose Namibia is to reconcile its economic reliance on mining with sustainable development.

In that case, the question of abandoned mines must move from academic journals and donor-funded pilots into national budget lines and legislative reform. Because in mining, value is not only what you extract—it is also what you leave behind.

Editor

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