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Abbreviations and Acronyms

| Acronym | Description |
|---------|--|
| ASM | Artisanal and Small-Scale Mining |
| BGR | German Federal Institute for Geosciences and Natural Resources |
| BRGM | Bureau de Recherche Géologique et Minière/ French Geological Survey |
| CUI | Common User Infrastructure |
| DBA | Disc-Based Association |
| DEA | Department of Environmental Affairs |
| ECC | Environmental Clearance Certificates |
| ECRM | Extended Critical Raw Materials |
| EIA | Environmental Impact Assessments |
| EMA | Environmental Management Act |
| EPA | Economic Partnership Agreements |
| ESG | Environmental, social and governance |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| GSN | Geological Survey of Namibia |
| HPP | Harambee Prosperity Plan |
| LNEG | Laboratório Nacional de Energia e Geologia |
| MARC | Minerals Ancillary Rights Commission |
| MET | Ministry of Environment and Tourism |

| | |
|------|--|
| MME | Ministry of Mines and Energy |
| MPM | Mineral Potential Mapping |
| MSFI | Mining Sector Specialized Institutions (|
| RF | Random Forest |
| ROE | Return-on-equity |
| SACU | Southern African Customs Union |
| SSM | Small-Scale Mining |
| SEZ | Special Economic Zone |
| WP | Work package |

Wording

Mineral prospectivity: “Mineral potential mapping is concerned with quantifying and mapping the likelihood that mineral deposits are present in a study area. It is synonymous to mineral prospectivity mapping, which is concerned with quantifying and mapping the likelihood that mineral deposits may be found by exploration in a study area.”

Keywords

ECRM, Mineral potential, Ore processing, Refining capacities, Recycling units, Value chain, Primary raw material, Secondary raw material, Bottlenecks, Finance, Investment, Sustainability, ESG, Land-use, Taxation, Mining regulation, Mining policies, Child labour, Responsible extraction, Namibia, Pan-African

Executive Summary

This Namibia country case study represents a collaboration by the German Federal Institute for Geosciences and Natural Resources (BGR) and the Namibian consulting office Odikwa Geoservices. The Republic of Namibia is a country with a very long mining tradition. In the past especially Diamonds and Uranium played the major role in the commodities sector. Besides these two raw materials, there is a high number of prospects and mines of so called critical raw materials (CRM) or, as used within AfricaMaVal, extended critical raw materials (ECRM). The most prospective ECRM as main or by-product are tin, lithium, tantalum and rare earth elements, but there are also interesting occurrences and deposits for graphite, copper, cobalt, manganese, nickel as well as gallium, germanium and barite. The majority of deposits is of small to medium size and in the exploration or (pre)feasibility stage.

This report gives an overview of the geological setting and ECRM endowment in Namibia. It shows the value chain and potential investment opportunities in this value chain, as at present the majority of raw materials is only mined, concentrated and exported afterwards. We will also present insights into the regulations for financing, including taxation and royalties and give an overview about the macroeconomic context of Namibia. Besides these financial issues we will also present an assessment of the social, environmental and governance challenges of Namibia, which includes Mining practices vs. Environmental, Social and Governance (ESG) goals. This also relates to the lack of coordination among some oversight institutions and the issue that e.g. there is no provision for land access to environmental assessment studies. On the other hand Namibia does have a robust legal framework that aligns with international laws, agreements, conventions, and standards in several key areas. These include the Environmental Management Act (EMA), the Environmental Policies and Regulations, the Mineral Act (Prospecting and Mining), Mineral Policies and Regulations, the Corporate Governance Act, and the NamCode (2014).

Artisanal and small scale mining also plays an important role, especially for coloured gemstones and semi-precious stones, and informal artisanal production of lithium ore can be observed in 2022. The Namibian law distinguishes between artisanal small-scale mining (rudimentary equipment) and small-scale mining (mining in a small scale). A few industrial mining operators have implemented structured purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems ensure that the miners can sell their products and receive regular payments, providing them with a stable income to support their mining activities. The involvement of industrial mining operators in purchasing ore from small-scale miners not only contributes to the local economy but also helps formalize and regulate mining operations in specific areas.

Namibia is a well-known mining jurisdiction with (according to international stakeholders in the mining sector) a good geological database, clear environmental regulations and a high certainty concerning the enforcement of regulations. On the other side labour regulations, the taxation regime, trade barriers and an uncertainty about protected areas are criticized by the same stakeholders.

1. Extended Critical Raw Materials (ECRM) supply potential of Namibia

1.1. Inventory of the ECRM

Apart from the 74 deposits, occurrences and prospects, delivered by BRGM and LNEG as part of AfricaMaVal work package 1, the national Namibian Consultant (Odikwa Geoservices) subcontracted by the BGR delivered a list of further 625 occurrences, prospects and deposits, of which 588 are holding a valid mining or prospecting license. 39 of these additional 588 areas with a certain geopotential do have defined non-historical resources. Almost 200 deposits/occurrences yield information about historical resources or recent drill core intersections. It is clearly visible that Namibia has numerous prospective areas with known occurrences, but at the moment, only very few deposits, which are mined for ECRM or where ECRM are about to be produced.

1.1.1 Geological setting

Namibia's varied geology encompasses rocks of Archaean to Phanerozoic age, thus covering more than 2600 million years of Earth history. About half of the country's surface area is bedrock exposure, while the remainder is covered by Cenozoic deposits of the Kalahari and Namib Deserts (Figure 1).

Highly deformed gneisses, amphibolites, diverse metasediments and associated intrusive rocks are exposed within several metamorphic inliers in the central and northern parts of the country, and represent the oldest rocks of Archaean to Palaeoproterozoic age (ca. 2600 to 1600 Ma) in Namibia. These include the volcanic Haib Subgroup and Vioolsdrif Granite Suite along the Orange River, the volcano-sedimentary Khoabendus and Rehoboth Groups, as well as the Kunene and Grootfontein Igneous Complexes in the north.

The Mesoproterozoic (1600 to 1000 Ma) is represented by the Namaqua Metamorphic Complex in the south, which comprises granitic gneisses, metasediments and felsic to mafic intrusions, and by the volcano-sedimentary Sinclair Supergroup of central Namibia, with its associated granites (e.g. Gamsberg Suite).

The coastal and intracontinental arms of the late Proterozoic Damara Orogen (ca. 800 to 500 Ma) underlie much of northwestern and central Namibia, with stable platform carbonates in the north, and diverse metasedimentary rocks pointing to more variable depositional conditions further south. The volcano-sedimentary Gariep Belt along the southwestern coast represents the southern extension of the Damara Orogen. Shallow-marine clastic sediments of the Nama Group, which covers parts of southern Namibia, are derived from orogenic uplift of the Damara and Gariep Belts.

Sedimentary and volcanic rocks of the Carboniferous to Jurassic Karoo Supergroup occur in the Aranos, Huab and Waterberg Basins, in the southeastern and northwestern parts of the country. They are extensively intruded by dolerite sills and dykes which, in collusion with predominantly basaltic volcanism (Etendeka Plateau) and a number of subvolcanic complexes (e.g. Spitzkoppe, Erongo), herald the break-up of the Gondwana Supercontinent, and the formation of the South Atlantic during the Cretaceous (ca.

130 Ma). The currently last chapter of Namibia's geological history is told by the widespread Palaeogene to Recent (< 50 Ma) sediments of the Namib and Kalahari Groups.

A great variety of mineral deposits has been identified throughout the stratigraphic column. Metamorphic complexes host several base and precious metal occurrences, such as copper-molybdenum porphyry, volcano-exhalative copper-lead-zinc and gold, volcanogenic copper, sedimentary-exhalative lead-zinc, shear-zone gold and beryllium-niobium-tantalum pegmatites. Meso- to Neoproterozoic rocks locally contain extensive red-bed copper, while calc-alkaline granitoid intrusives of that age have potential for porphyry and hydrothermal copper, as well as for vein-type gold mineralisation.

In the Neoproterozoic Damara Orogen and Gariep Belt, mineralisation is associated with successive phases of intracontinental rifting (copper, graphite), spreading and the formation of passive continental margins (volcano-exhalative base metals, e.g. Rosh Pinah (1), Skorpion (2); sedimentary-exhalative lead-zinc, e.g. Tsongoari (3); glaciomarine iron-manganese, e.g. Otjosondou (4); sediment-hosted copper, e.g. Klein Aub (5). Besshi-type copper-pyrite (e.g. Otjihase (6)) is related to mid-ocean ridge development, whereas subsequent subduction led to the localised enrichment of carbonate-hosted base metals (e.g. Tsumeb (7)), Kombat (8)), uraniferous granites (Rössing (9)), rare metal and tin pegmatites (Uis (10), Rubicon (11), as well as skarn tungsten and gold (Navachab (12), Otjikoto (13)).

Coal measures are hosted in Palaeozoic rocks of the Karoo Supergroup, while Cretaceous anorogenic complexes, contain a variety of semi-precious stones, fluorite (Okorusu (14)), apatite, rare earth elements, iron and other base metals. Following the discovery of the offshore Kudu gas field of Cretaceous age (15), hydrocarbon exploration also intersected oil-prone source rocks in boreholes. Cenozoic epigenetic uranium mineralisation occurs in calcretes above basement rocks in the Namib Desert (e.g. Langer Heinrich (16)), and salt is produced by solar seawater evaporation (e.g. Walvis Bay and Swakopmund Salt Works (17)).

The most important mineral resources of the country, however, are the Cenozoic diamondiferous beach and river gravels, which are exploited along the Orange River (e.g. Daberas (18)) as well as the southwestern coast, both offshore and onshore (19). With mining techniques being developed to suit the unique conditions of these deposits, Namibia has become one of the world's top five producers of diamonds.

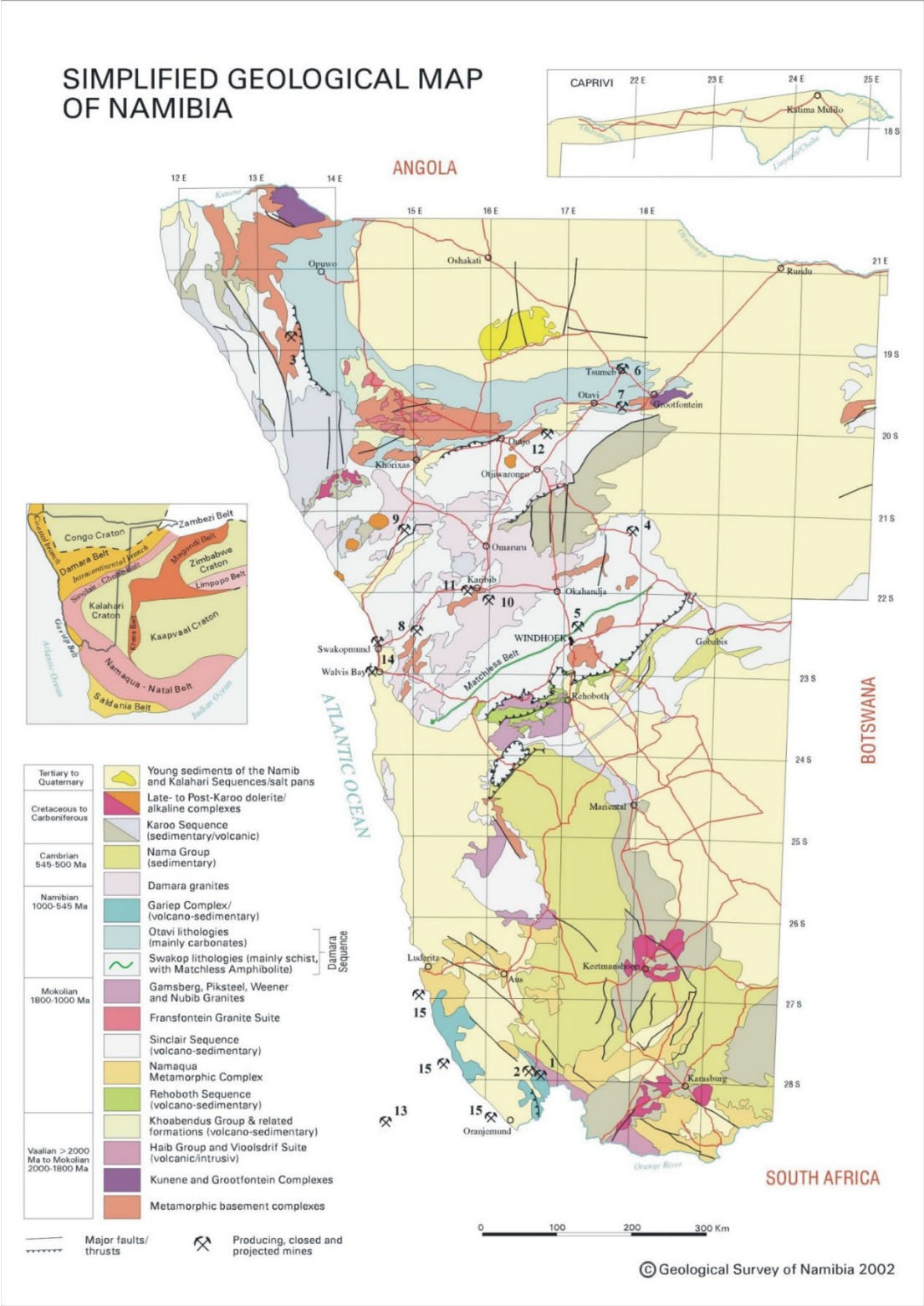


Figure 1: Geological map of Namibia (GSN 2002)

1.1.2 Known Ore deposits and occurrences

For the estimation of mineral potential zones in this chapter, a total number of 1649 ECRM occurrences (Figure 2, Table 1) was used, which is quite high within the African context but relatively low in comparison to countries with a mature exploration history such as South Africa where about 12,000 occurrences are referenced by the Council of Geoscience (CGS).

Namibia remains to date underexplored despite the geology being favourable for a number of deposit styles (sediment-hosted, igneous, and structurally controlled), easy access to a wealth of high quality geoscientific data at the Geological Survey, as well as modern infrastructure, mining laws and active mining community. Namibia's ECRM commodities include a large range of elements (34) of widely varying age and origin. The most abundant commodity by far is copper (762 occurrences), followed by tin (153), beryllium (107), zinc (103), tungsten (100), lithium (64), and tantalum (58; Figure 2: Regional geology of Namibia and the ECRM occurrences used for this study recorded in the SIG-Afrique of BRGM). The most favourable environments in terms of ECRM abundance are to date the Central Zone of the Damara Belt (score = 16), followed by the Namaqua Belt (11.5), the Northern Zone of the DO (9), the Richtersveld Province (7) and the Rehoboth Group (4).

From the national consultant Odikwa Geoservices we received information about 679 deposits and occurrences. There is a huge difference in information that is available for these areas. Sometimes there is only a short description of geological features and observations, sometimes first drill results are published and for the deposits, there usually is a certain resource defined. Of these areas, 362 are categorized as occurrences, 122 are greenfield exploration projects, 93 are brownfield exploration projects, 3 have started a feasibility study, 13 are dormant mines, and 53 are abandoned mines and 22 are mines. For the missing occurrences, there is no such information available. The majority of these occurrences has copper as the primary commodity (379), followed by tin (49) and lithium (38), although the pure number is not of value, as there might be listed only 2 occurrences of one raw material, which are big mines and thus have a far bigger importance, compared to 50 very small occurrences, which will most probably never be mined.

The prospectivity of some areas of Namibia will be discussed in more detail in chapter 1.2.

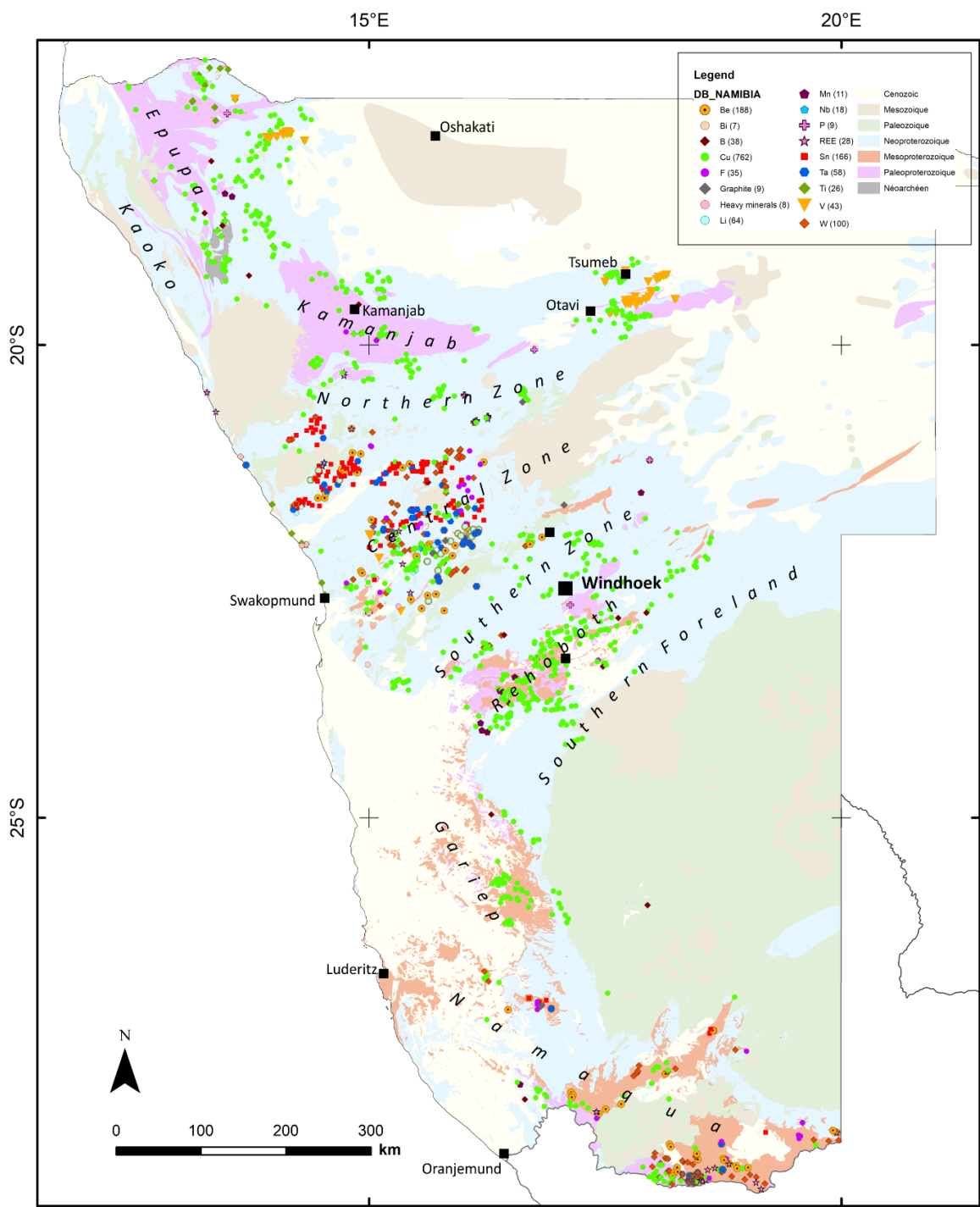


Figure 2: Regional geology of Namibia and the ECRM occurrences used for this study recorded in the SIG-Afrique of BRGM

1.2. Prospectivity and mineral high potential mapping

1.2.1 Selection of the ECRM for mineral prospectivity

Among the 34 ECRMs present in Namibia, only **three** were selected for mineral potential mapping (MPM) in order to demonstrate the principle of the method (**Cu, F and Li**).

The lack of geoscientific data (e.g. aerial and ground geophysics, satellite data, soil and stream geochemistry) and the low resolution of the geological maps used for this study (1:2 Million scale) imply only limited information value of the weakly constrained mineral potential maps for exploration. Therefore, it seems not of great interest to illustrate this for the whole range of Critical Raw Materials (CRM's).

The MPM was performed using the disc-based association (DBA) grid method coupled with Random Forest (RF) method (*Vella, 2022*). The software analyses the local spatial associations of geological variables and features of various natures to describe the relationships between the predictors and the mineralization. This allows the identification of geological environments in the study area around each node of the DBA grid, and the integration of both quantitative and non-quantitative spatial data, such as geophysical anomaly maps and location of geological map units, respectively. In a second step, RF classification is used to perform a generalization of complex geological environments and features and evaluate their likelihood to host potential mineralization occurrences by giving a score between 0 (low potential) and 1 (high potential).

The data base for the MPM of Namibia comprised the following:

- SIG-Afrique mineral resources database - BRGM
- SIG-Afrique 1:2,000,000 geological map - BRGM
- SIG-Afrique 1:2000,000 structural data (faults, thrusts) - BRGM
- SRTM (Shuttle Radar Topography Mission)
- Slope

The DBA grid for predictive modelling is mainly defined by five parameters:

- Size of cell – d;
- Search radius for lithologies – R;
- R/d ratio,
- Search radius for mineral occurrences – R1. It can be null, in this case the search radius will be restricted to the cell size (d)
- Search radius for faults – R2. It can be null, in this case the search radius will be restricted to the cell size or it can take into account the distance of the cell to the neighboring faults

In order to maximize the grid resolution while minimizing overlaps and cells with only one lithology, the parameters of DBA grid for Cu, F, and Li commodities used in this study are as follows: d = 2500 m, R = 10,000 m, R/d = 4, R1 = 2500 m, R2 = distance.

| Namibia (1649 occurrences) | | | Archean | Paleoproterozoic | | | | Mesoproterozoic | | | Neoproterozoic | | | | | | Paleo-Mesozoic | Meso-Cenozoic | Score element |
|----------------------------|-----------------|---------|---------|------------------|-----------------|----------------|-----------------------|-----------------|-------------|--------------|----------------|---------------|--------------|---------------|-------------------|--------|----------------|----------------------------|---------------|
| Substance AfricaMaVal | Element (oxide) | No occ. | NN | Epupa Complex | Kamanjab Inlier | Rehoboth Group | Richtersveld Province | Kunene Complex | Sinclair SG | Namaqua Belt | Kaoko Belt | Northern Zone | Central Zone | Southern Zone | Southern Foreland | Gariep | Karoo | Cretaceous - Tertiary Rift | |
| Bauxite | Al | 1 | | | | | | | | | | | | | | | | | 0 |
| Beryllium | Be | 107 | | | | | 1 | | | 2 | | | 2 | | | | | | 5 |
| Bismuth | Bi | 7 | | | | | * | | | | | | 0.5 | | | | | | 0.5 |
| Borate | B | 38 | | | | | | | | | | | | | | | | | 0 |
| Baryte | Ba | 32 | | | 0.5 | | | | * | * | | 0.5 | | | | | | | 1 |
| Cobalt | Co | 2 | | | | | | | | | | | | | | | | | 0 |
| Coking coal | C | 4 | | | | | | | | | | | | | | | | | 0 |
| Copper | Cu | 762 | 1 | 1 | 1 | 2 | 2 | | 2 | 1 | | 2 | 1 | 1 | 2 | | | | 16 |
| Fluorspar | F | 35 | | | 0.5 | | | | | 1 | | | 2 | | | | | | 3.5 |
| Gallium | Ga (Al, Zn) | 2 | | | | | | | | | | | | | | | | | 0 |
| Germanium | Ge (Zn) | | | | | | | | | | | | | | | | | | 0 |
| Natural graphite | C | 9 | | | | | | | | * | | | 1 | | | | | | 1 |
| Hafnium | Hf (Zr, HM) | | | | | | | | | | | | | | | | | | 0 |
| Heavy Minerals | HM | 3 | | | | | | | | | | | | | | | | * | 0 |
| Indium | In (Zn) | | | | | | | | | | | * | | | | | | | 0 |
| Lithium | Li | 64 | | | | | 1 | | | 1 | | | 1 | | | | | * | 3 |
| Magnesium | Mg | 1 | | | | | | | | | | | | | * | | | | 0 |
| Manganese | Mn | 11 | | | | 0.5 | | | | | | * | | | | | | | 0.5 |
| Niobium | Nb | 15 | | | | | | | | 0.5 | | | 1 | | | | | | 1.5 |
| Nickel | Ni | 22 | | | | 1 | * | | | | | | | | | | | | 1 |
| Phosphate | P | 9 | | | | | | | | | | | | | | | | | 0 |
| Platinum Group Metals | Pt, Pd, Rd | | | | | | | * | | | | | | | | | | | 0 |
| REE non-diff | REE | 28 | | | | | | * | | 1 | | | 1 | | | | | 1 | 3 |
| HREE | HREE | 1 | | | | | | | | | | 2 | | | | | | | 2 |
| Antimony | Sb | 2 | | | | | | | | | | | | | | | | | 0 |
| Scandium | Sc | | | | | | | | | | | | | | | | | | 0 |
| Silicon metal | SiO2 | 9 | | | | | | | | | | | | | | | | | 0 |
| Tin | Sn | 153 | | | | | | | | 2 | | | 2 | | | | | | 4 |
| Strontium | Sr | 2 | | | | | | | | | | | | | | | | | 0 |
| Tantalum | Ta | 58 | | | | | 1 | | | 1 | | | 2 | | | | | | 4 |
| Titanium | Ti | 26 | | 1 | | | | 0.5 | | | | 0.5 | 1 | | | | | | 3 |
| Vanadium | V | 43 | | | | | | 0.5 | | | | 2 | * | | | | | | 2.5 |
| Tungsten | W | 100 | | | | | 2 | | * | 1 | | | 1 | | | | | | 4 |
| Etain | Zn | 103 | | | 0.5 | 0.5 | * | | * | 1 | | 2 | 0.5 | 0.5 | | 2 | | | 7 |
| score domain | | | 1 | 2 | 2.5 | 4 | 7 | 1 | 2 | 11.5 | 0 | 9 | 16 | 1.5 | 2 | 2 | 0 | 1 | |
| | | | 0.5 | Minor presence | | | | | | | | | | | | | | | |
| | | | 1 | Presence | | | | | | | | | | | | | | | |
| | | | 2 | Major presence | | | | | | | | | | | | | | | |
| | | | * | Potential | | | | | | | | | | | | | | | |

Table 1. Overview of known mineral occurrences in Namibia and their geological environment (based on SIG-Afrique of BRGM)



1.2.2 Mineral potential maps of the ECRM's Cu, Li, F¹

Copper:

With 762 entries in the SIG Afrique of BRGM, copper is by far the most abundant mineral commodity in Namibia. The mineralisations occur all over the country and are hosted mainly by lithologies of Palaeoproterozoic to Neoproterozoic age. The Handbook of Mineral Resources of Namibia (1992) illustrates the large variation in mineralization style with a predominance of structural-controlled deposits (Rehoboth area (Klein Aub), Otavi Bergland (Tsumeb)), and minor magmatic massive sulfide (Matchless belt,) porphyry (Haib), and metamorphic (Abenab) deposits amongst others. Sediment-hosted, copper belt style deposits are assumed below the sediments of the eastern Kalahari but only few occurrences have been identified so far in the Nauchas-Klein Aub area where the Neoproterozoic rocks outcrop.

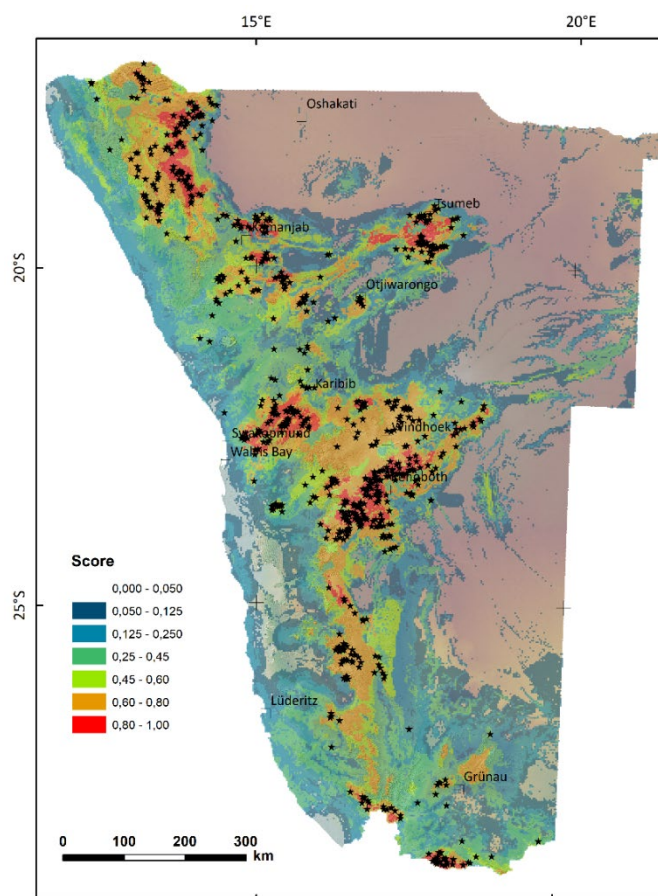


Figure 3: Mineral Potential Map of Namibia for copper (Cu). The known occurrences (762) are indicated as black stars.

The mineral potential map (Figure 3) shows accordingly increased potential for copper in most of the areas where bedrocks are cropping out. Areas with high potential have been identified, from north to south, (1) in the Epupa Complex, (2) the Otavi Mountainland of the northern Damara platform, (3) in the Central

¹ See appendix APPENDIX_1.2_MPM_NAMIBIA.pdf for further details

Zone of the Damara orogeny, (4) in the Rehoboth Inlier and overlying late Meso- to early Neoproterozoic sediments, (5) the Mesoproterozoic Sinclair area, and (6) the Mesoproterozoic Namaqua Belt with Palaeoproterozoic Inliers (Richtersveld). The DBA-RF model has an accuracy of ~87 % and indicates that about 14 % of Namibia are prospective for discovering new Cu deposits. This percentage represents a minimum value since areas in eastern Namibia, which are covered by sediments of the Kalahari Desert, were given low scores.

The statistically most favourable factors are, in decreasing order, **slope, fault, srtm**, and lithologies **73** (Neoproterozoic (820-650 Ma) sedimentary rocks (Damara SG; Auas, Khomas, Nosib Fms.), **79**, Neoproterozoic (730-600 Ma) sedimentary rocks (Damara SG; Abenab, Otavi Fms), **60** (Neoproterozoic (700-650 Ma) sedimentary and volcanic rocks (Damara SG; Karibib, Khomas, Swakop Fms.), **82** (Neoproterozoic (730-600 Ma) sedimentary rocks (Damara SG; Huab, Tsumeb, Otavi Fms), **1** (Quaternary sand sea, Namib Desert). It is interesting that Palaeoproterozoic and Mesoproterozoic rocks are not considered as favourable factors from a statistical point of view, even though they are prospective in the reality. This is probably due to a bias in the occurrences, most of which are situated in Neoproterozoic rocks.

Fluorite:

Although fluorite is widely distributed in various types of deposits throughout Namibia, only a few have so far been exploited. These include replacement ore bodies in carbonate rock associated with the Okorusu Alkaline Complex, veins hosted deposits by igneous, metamorphic and sedimentary rocks and the in-filling deposits of a volcanic breccia pipe. 16 occurrences are indicated in the Central Zone of the Damara orogeny within the triangle Swakopmund-Omaruru-Karibib, 13 in the Namaqua Belt of southern Namibia and the remaining 6 in different areas.

The mineral potential map (Figure 4) shows high potential for Fluorite in central Namibia, not only restricted to the known occurrences but also in larger distances, in strike with the regional Damara trend. No relationship is indicated in this area between the recorded tectonic structures and areas of increased mineral potential nor is there any clear association with specific geological units. In the Namaqua Belt, areas with increased mineral potential are influenced by the presence/absence of tectonic structures and partly by different rock types. The same holds true for the areas around mineral occurrences in northern and central Namibia.

The DBA-RF model has an accuracy of ~97 % and indicates that about 3.5 % of Namibia is prospective for fluorite deposits. The statistically most favourable factors are, in decreasing order, **89** (Neoproterozoic to Cambrian syn- to post-tectonic plutonic suites (Naauwpoort, Salem suites), **83** (Neoproterozoic (730-650 Ma) sedimentary rocks (Damara SG; Kuiseb, Khomas, Swakop Fms.), **slope, fault, srtm**, **154** (Mesoproterozoic pre- to syntectonic biotite-rich augen gneiss of the Namaqua Belt, **158** (Mesoproterozoic gneiss, amphibolite and metasediments of the Namaqua Belt), and **4** (Cenozoic sand, calcrete, and gravel; Kalahari Formation),

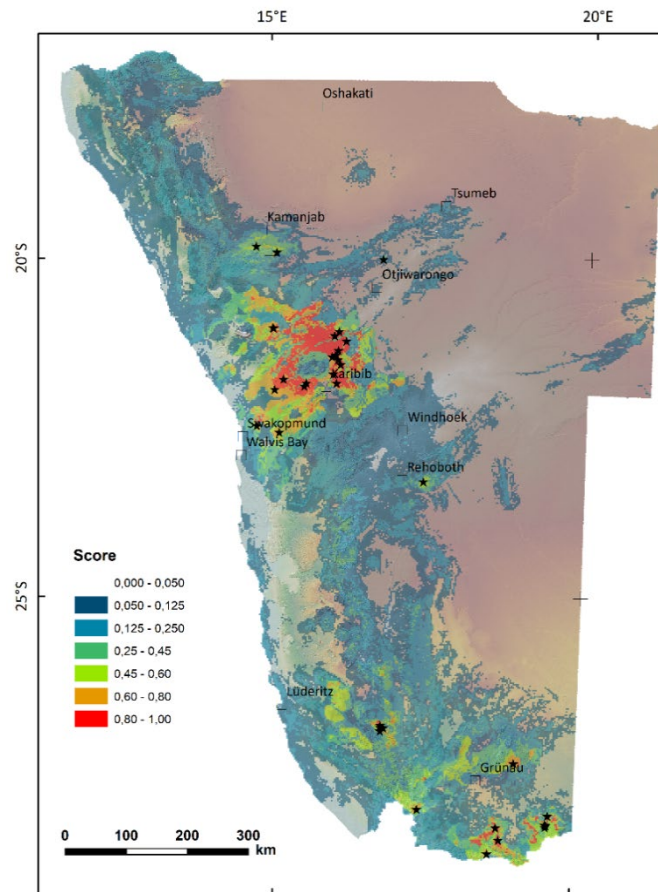


Figure 4: Mineral Potential Map of Namibia for fluorine (F). The known occurrences (35) are indicated as black stars.

Lithium:

Lithium occurrences associated with pegmatites are mainly recognised in the Karibib-Usakos district in central Namibia. A total of 35 occurrences are variously associated with beryl, tantalum, niobium and tungsten. Two other pegmatite groups are located in the extreme south of the country in the Namaqua metamorphic complex (17 occurrences) and in the area SW of Uis (i.e. the so-called Uis pegmatite swarm, 12 occurrences).

The mineral potential map (Figure 5) displays high potential for lithium around the known occurrences in these areas. In the Namaqua belt the linear arrangement of the zones with increased lithium potential suggests the influence of the tectonic structures on the mineral potential extending the prone zones into a NW direction beyond the known occurrences of the Warmbad area to the Aus- and Lüderitz areas. In the central Damara area are additional zones, which suggest Li potential: (1) between the known Usakos and Uis pegmatite fields, (2) SE of Karibib, (3) NW of the Uis pegmatite field, and (4) of low Li potential in a NW-SE strip west of Sesrien in the Kaoko Belt.

The DBA-RF model has an accuracy of ~99.5% and indicates that about 0.7% of Namibia is prospective for lithium. The statistically most favourable factors are, in decreasing order, **Be** and **Ta** occurrences, **89**

(Cambrian syn- to post-tectonic plutonic; Naauwpoort, Salem suites), **slope, srtm, 83** (Neoproterozoic (730-650 Ma) sedimentary rocks (Damara SG; Kuiseb, Khomas, Swakop Fms)), **170** (Richtersveld Province; Palaeoproterozoic Vioolsdrif Suite), **73** (Neoproterozoic (<820-650 Ma) sedimentary rocks (Damara SG; Aua, Khomas, Nosib Fms)).

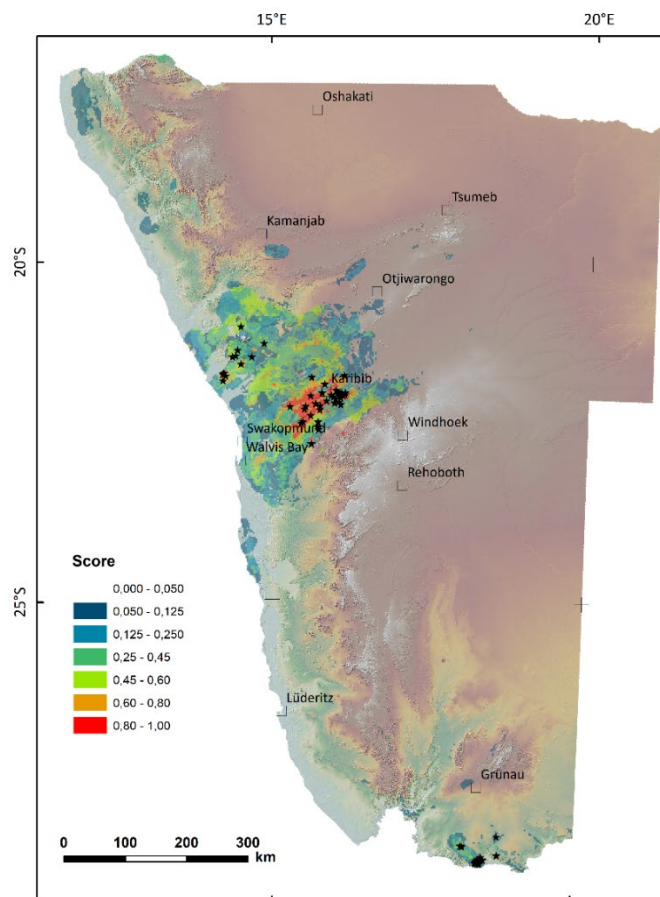


Figure 5: Mineral Potential Map of Namibia for lithium (Li). The known occurrences (17) are indicated as black stars.

1.2.3 Further mineral high potential areas

Mineral high potential areas can be anticipated by the geographical location of known deposits and occurrences. We additionally provide an overview of national priority areas compiled by Odikwa Geoservices CC (national consultant):

Kunene Region: A Mining Hotspot

Namibia's Kunene Region has emerged as a significant mining hub with promising ventures. Gecko Cobalt Mining is planning to extract copper and cobalt, with estimated resources to sustain operations for two decades. The Lofdal Project, a joint venture between Namibia Critical Metals and JOGMEC, focuses on rare earth metals, with production expected to commence in 2026. Namibia East China Non-Ferrous Investment's discovery of 2.37 billion tons of iron ore promises a century-long lifespan for their mining operations in the same region, if it should be brought to production.

Collaborative efforts between Southern African Universities, Anglo-American, the NRF, and RISA have yielded research on the Kunene Complex. This research helps identify areas with prospective Ni-Cu-(Co-PGE) mineralization, while simultaneously training Southern African geoscientists and fostering valuable research and expertise. African Nickel's exploration on the Kunene Complex has shown promising intersections, hinting at substantial discoveries. The region's potential extends beyond nickel, encompassing Cu, Co, Pt, Pd, and Au.

The GSN launched the Kunene Mineral Prospectivity project with the aim of enhancing the utility of geophysical data and encouraging mineral investments within the region. This initiative has yielded five maps, now accessible for geophysical analysis, for Swartbooisdrift, Opuwo, Kamanjab, Fransfontein, and Sesfontein areas. The GSN has also provided "The Geophysics Pilot Project," an online platform designed to provide prospective mining investors with complimentary access to airborne magnetic and radiometric data, with the objective of encouraging mineral exploration in an underexplored region characterized by a substantial Kalahari cover.

A new substation called the "Kunene" substation is planned, along with a 400kV transmission line, to significantly boost power supply capacity and resolve energy constraints. Road network upgrades, including the B1 national highway and coastal MR44 and MR76 highways, are underway to enhance accessibility to new developments. In Addition, national plans exist to construct a deepwater seaport at Cape Fria.

Lithium in central Namibia

Namibia's lithium industry holds immense promise, potentially contributing up to N\$13.9 billion or 6.7% of the country's GDP annually. It could inject N\$4.6 billion into government coffers through taxes and royalties (Simonis Storm, 2023). The Erongo region is witnessing a surge in government and private sector projects and exploration activities for Rare-Earth-Elements. Projects like Soris and the Karibib Lepidolite Project in the Erongo region show substantial lithium extraction potential. Andrada Mining, a tech metals producer, specializes in lithium, tin, and tantalum in the Brandberg West mining asset, offering untapped potential with a history of two decades of concentrate production and valuable mineralization.

To support the water needs of the mining industry in the Erongo region, the Namibian government is collaborating with NamWater to build a scalable, modular desalination plant. This plant will provide desalinated water to central regions, addressing water supply needs for Botswana in the future.

Southern Namibia Mapping Program

The Southern Namibia Mapping Program (SNMP) represents a collaborative effort between the Council for Geoscience (CGS) in South Africa and the Geological Survey of Namibia (GSN) since March 2013. This initiative focuses on regional-scale geological mapping and capacity building. Its primary objective is to establish a comprehensive lithostratigraphy and tectonostratigraphy spanning the South Africa-Namibia border. The program also seeks to provide deeper insights into the geological formations and structural features that influence mineral deposits within the region, specifically targeting resources such as copper (Cu), lead (Pb), zinc (Zn), uranium (U), tantalum (Ta), niobium (Nb), rare-earth elements (REE), lithium (Li), and tungsten (W).

To date, the SNMP has successfully generated 59 new geological maps at a scale of 1:50,000, covering approximately 28,000 square kilometers. The geological mapping efforts are complemented by a range of scientific techniques, including U-Pb geochronology, Sm-Nd and Rb-Sr isotope geochemistry, comprehensive analysis of major, trace, and rare-earth elements in whole-rock samples, as well as investigations into structural geology.

The overarching goal of the SNMP aligns with the broader vision of achieving comprehensive geological map coverage at a 1:50,000 scale for the entire country by the year 2030. This objective is in accordance with the strategic goals outlined in Vision 2030, the Millennium Development Goals, the National Development Plan (NDP4-5), and the Harambe Prosperity Plan (HPP), all of which are vital components of the Namibian government's agenda. Additionally, the SNMP places significant emphasis on elevating research capabilities and enhancing expertise in geological mapping within the Geological Survey of Namibia.

1.3. Ore processing and refining capacities

Processing/Comminution

Over 90% of the operational or previously active large-scale mining sites in Namibia, as well as those currently under care and maintenance, have their own on-site facilities for early-stage processing or comminution (Figure 6: Location and operational status of processing facilities and refineries in Namibia.). These facilities are responsible for several essential processing activities, including ore crushing, screening, grinding, size classification, and concentration.

Centralized processing facilities are also widespread in Namibia's small-scale mining sector, particularly for copper, where they serve as key hubs for receiving bulk ore from multiple small-scale mining sites. Centralized processing facilities in the small-scale mining sector play a crucial role in enabling small-scale miners to access processing capabilities that would otherwise be economically unfeasible for individual operations. By consolidating ore from multiple mining sites, these facilities increase efficiency and reduce costs for small-scale miners. Figure 6 shows the location and operational status of processing facilities and refineries in Namibia. In certain instances, large-scale mining operators have established purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems are designed to procure the necessary raw materials from small-scale miners to supply their own processing plants.

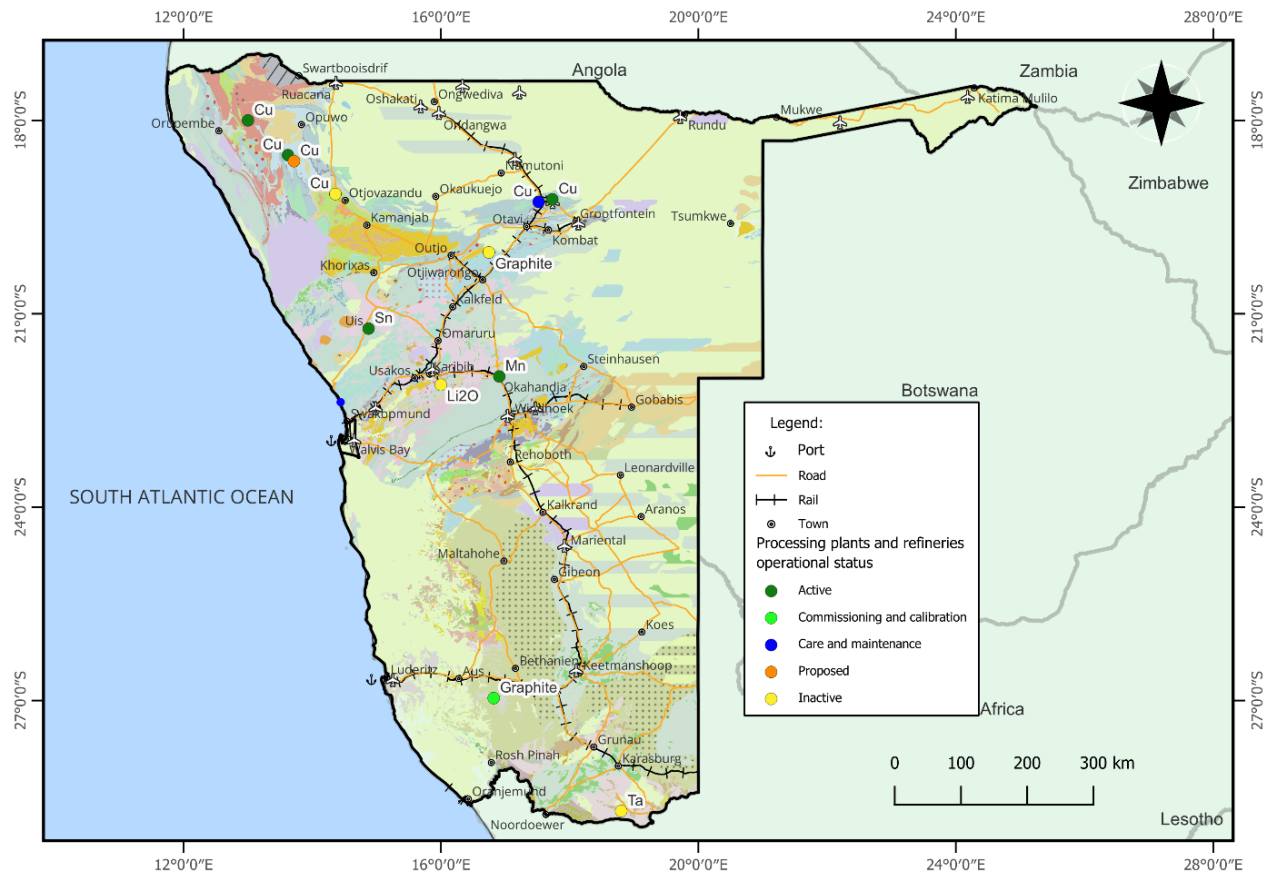


Figure 6: Location and operational status of processing facilities and refineries in Namibia.

Refining

The majority of the local mining industry in Namibia focuses solely on extraction without significant value addition occurring within the country, resulting in limited capture of the upstream value chain. However, there is a potential for this situation to change following a recent Cabinet decision on June 7, 2023. The decision, issued by the Namibian Minister of Information, approved a ban on exporting specific critical minerals in their unprocessed form. These minerals include crushed lithium ore, cobalt, manganese, graphite, and rare earth elements. The aim of this ban is to encourage value addition and promote the establishment of processing facilities within the country.

By implementing this prohibition, the Namibian government intends to stimulate local industrial development and enhance the economic benefits derived from the mining sector. Mining companies will be required to process these minerals locally before export, fostering the growth of downstream industries and creating more employment opportunities.

Furthermore, the Cabinet decision grants the Minister of Mines and Energy discretionary authority to permit limited quantities of the aforementioned minerals for export, subject to endorsement by the Cabinet. This provision allows for flexibility in cases where restricted export of these minerals may still be necessary or beneficial.

In Namibia, the refining of ECRM is primarily focused on copper. The country has facilities for producing copper cathodes and blister copper through refining processes.



2. Assessment of the ECRM value chain

2.1. Characterization of the value chain for primary and secondary raw materials

Namibia's ECRM deposits are primarily at the exploration phase and include copper, graphite, lithium, tin, tantalum and REE. In terms of ECRM production, Namibia primarily produces tin and manganese at present. Titanium, tantalum, vanadium, and other minerals are predominantly by-products, while copper, lithium and fluorite are produced through small-scale mining. The Namibian ECRM value extraction is focussed on mining with limited value addition, resulting in less capture of the upstream value chain. However, a recent Cabinet decision aims to change this by banning the export of specific critical minerals in unprocessed form, encouraging local value addition. There is no manufacturing of end-use products in Namibia. The Annex Value Chain and Economic Framework Evaluation (**Appendix_2.1.1_RECYCLING**) lists ECRM related recycling organisations.

2.1.1 List of the mining and recycling projects

Mining and production

As of June 2023, large-scale mining licenses accounted for 3 percent (188) of the total active and pending mineral rights in Namibia. Among these licenses, 24 percent have been granted specifically for extracting ECRM such as copper, tin, manganese, graphite, fluorite, rare earth elements, lithium, and marine phosphate. However, it is worth noting that a significant number of licensed properties are currently not operational or in production.

Regarding ECRM production, Namibia primarily focuses on tin (855 tonnes of tin concentrate for 2022) and manganese (30 thousand tonnes of ore in 2022). Titanium, tantalum and vanadium are predominantly obtained as by-products, and the country also produces copper and fluorite, primarily through the small-scale mining sector. Since around 2020, there has been an increased interest in lithium by small-scale miners.

Recycling

Recycling plays a crucial role in establishing a circular economy within the mining sector, aiming to minimize waste and environmental contamination by extracting value from discarded mining materials. In Namibia, mining-associated waste materials encompass tailings, slag, mining machinery, and infrastructure like plants and structures.

Namibia has a documented 167 historical abandoned mine sites (GSN, 2011), out of which a hundred had previously produced ECRM including copper, tin, graphite, vanadium, and lithium. The resource potential of most of these sites is currently being investigated either in the historical tailings or in the remaining insitu ore. Tailings with potential to recover ECRM through reprocessing include graphite at the Aukam mine and lithium from the Uis Tin Mine. Slag from the Tsumeb mine has been documented to contain significant Gallium and Germanium.

In addition to tailings reprocessing, Namibia's mining waste recycling landscape is mainly made up of locally owned enterprises, with a primary focus on utilizing mine tailings for purposes such as aggregates, collection of scrap metal during demolition of mine infrastructure, and scrap metal reclamation. The Uis Tin Mine's slag and fine tailings, for instance, are currently employed in brick production. Various companies like Rent-a-Drum offer services encompassing a wide array of waste management tasks, including the dismantling of mine infrastructure and collection of scrap metals. Others, like Scrap Salvage and SA Metals Namibia, specialize in specific waste categories, primarily scrap metal. Notably, NamiGreen stands as the sole Namibian enterprise engaged in electronic waste collection.

At least 80 percent of all waste generated in Namibia is sent to South Africa and Asia for recycling. In 2011, the Recycle Namibia Forum (RNF) was established as a non-profit membership organisation with the purpose of coordinating projects to promote recycling, and the reduction and reuse of so-called waste in Namibia. The recycling industry has been steadily growing in Namibia with new entrants supported by loans through the Development Bank of Namibia for acquiring trucks for waste transport to South Africa.

For more information, see the list of companies and projects in the Namibian recycling sector related to ECRM (**Appendix_2.1.1_RECYCLING**).

2.1.2 Status of economic links between the formal and informal sectors

The small-scale mining sector plays a crucial role in Namibia's Minerals Policy of 2002 and is governed by the Minerals Act 33 of 1992 ("Minerals Act"). The Minerals Act regulates the prospecting, exploration, and exploitation of solid minerals throughout Namibia. It encompasses various licenses, approvals, and restrictions that are applicable to the mining sector as a whole, with specific relevance to the Artisanal and Small-Scale Mining (ASM). The Ministry of Mines and Energy (MME) serves as the regulatory authority for mining activities and has a dedicated division to support SSM operators in all aspects of the mining process. This includes assisting with license acquisition, conducting sample testing, and facilitating mineral export procedures. To address any disputes that may arise, the MME has established the Minerals Ancillary Rights Commission (MARC) as a mechanism for conflict resolution within the SSM sector. MARC focuses on mediating conflicts related to land access between SSM miners and private landowners, particularly when a mineral license area overlaps with privately owned properties. MARC's primary objective is to facilitate agreements that ensure both access to land for SSM miners and appropriate compensation for landowners.

A few large-scale mining operators have implemented structured purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems ensure that the miners can sell their products and receive regular payments, providing them with a stable income to support their mining activities. The involvement of large-scale mining operators in purchasing ore from small-scale miners not only contributes to the local economy but also helps formalize and regulate mining operations in specific areas.

Centralized processing facilities are also widespread in Namibia's small-scale mining sector, particularly for copper, where they serve as key hubs for receiving bulk ore from multiple small-scale mining sites. Centralized processing facilities in the small-scale mining sector play a crucial role in enabling small-scale

miners to access processing capabilities that would otherwise be economically unfeasible for individual operations.

The Kaokoveld mining district in the Kunene region is a hub for small-scale miners, housing multiple mining operations, and it is supported by at least two processing facilities that receive the miners' products. These processing facilities, in turn, sell their copper concentrate to the Dundee Precious Metals Smelter located in northern Namibia. By consolidating ore from multiple mining sites, these facilities increase efficiency and reduce costs for small-scale miners. The processing facilities include:

1. Dundee Precious Metal Tsumeb with a capacity of 180,000tpa
2. Tschudi Copper mine with a capacity of 17,000tpa
3. Otjozondou Mining Project with a manganese processing capacity of 38, 000tpm
4. Kunene Crushers Copper Concentrate with a capacity of 62tpm concentrate
5. Uis Tin with a capacity of 1,200tpm concentrate
6. Okandjande Graphite with a capacity of 31,877tpa graphite concentrate.
7. Omao Copper Processing with a capacity of 200tpm.

In certain instances, large-scale mining operators have established purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems are designed to procure the necessary raw materials from small-scale miners to supply their own processing plants.

For Lithium, small-scale miners in the Erongo region have started mining lithium and stockpiling in order to sell the stockpiles to mostly Chinese buyers, who export the ore for further processing to China.

Between 1990 and 2019, Namibia's tin production is attributed to small scale miners who exploit cassiterite rich pegmatites in central Namibia. In 2019, the Uis Tin Mine was re-opened and the first tin concentrate since 1990 was produced. The mine has a resource of 81 million tonnes at a grade of 0.15% Sn and 86ppm Ta supporting a 14-year life of mine.

Tin is currently not mined by small-scale miners, but the Namibian government possesses a 15% interest in the Uis Tin Mine (Andrada Mining) through the Uis Tin Small Miners Association.

2.2. Identification of the bottlenecks along the value chain

Bottlenecks in Namibia's ECRM mineral value chain includes skill scarcity, small-sized deposits and limited water and power supply. The industry faces a scarcity of critical skills essential for both the upstream and downstream segments of the mineral value chains including geoscientists, mining engineers, minerals processing experts and digitally and technically experienced workers. This skills gap is exacerbated by insufficient graduates entering the sector, limited exposure to specialized training, and a nascent downstream industry. Namibia's ECRM deposits tend to be of low to medium tonnage and insufficient infrastructure, often difficult to sustain complete value chains independently. Varying project advancement within the upstream sector, from early exploration to development phases, underscores the need to expedite projects for economies of scale, ensuring adequate feedstock for downstream

activities. Processing complex ores for ECRM minerals demands substantial water and energy. Namibia's aridity, persistent drought, and limited water supply pose challenges. Only a third of the country's power needs are met by domestic production, with Namibia heavily reliant on South Africa's state-owned power company, ESKOM. The reliance on external power and the high costs of energy and fuel hinders the full development of the ECRM mineral value chains in Namibia.

2.2.1 List of the main bottlenecks and the links between them

Namibia has a combined "Worldwide Governance Indicators (WGI)" (World Bank 2023) of +0.35. This is lower compared to Botswana (+0.75), but higher compared to other countries in the region like South Africa (-0.13), Angola (-0.94), Zambia (-0.44) and Zimbabwe (-1.43). In the Logistics Performance Index (LPI) Namibia is ranked 66th (score of 2.9), from 139 countries. Clearly below South Africa (19th, 3.7) but within a range of Botswana (57th, 3.1). Zimbabwe for comparison is ranked 97th with a score of 2.5 Angola is ranked 134th (2.1). In the Investment Attractiveness Index from Fraser Institute (2023) Namibia gets a score of around 60 (out of 100) and is ranked 38th of 62 investigated mining legislations. It is ranked 26th for the Policy Perception Index (69 of 100). In the Investment Attractiveness Index it is 6th out of 16 evaluated African countries. 'Sheimin.Abdul@BCI.CO.MZ'

The national consultant in Namibia (Odikwa Geoservices) found the following issues the main bottlenecks:

- Skill scarcity leads to reduced ability to increase the value chain
- Small-sized deposits leading to high investment for infrastructure in relation to the size of the deposit
- Water and power scarcity lead to high costs for ore processing and further processing of concentrated minerals. Combined with skill scarcity this discourages investment into prolonged value chain.

Namibia has adopted the "Growth at Home" strategy, initiated in 2015, along with the mineral beneficiation strategy introduced in 2021. These strategies collectively lay out a comprehensive roadmap for the country's Industrial Policy. Key policies within these strategies encompass the enhancement of manufacturing incentive schemes, the facilitation of skills development and knowledge transfer, the promotion of local engagement in research and development, and the safeguarding of infant industries. Nevertheless, the overall progress in implementing these strategies could be speeded up. Issues have been the resistance from industry stakeholders, lack of support for infant industries and a lack of political will, as noted by Hope in 2019. As an illustrative case, in 2015, a local drum manufacturing company was forced to shut down its operations as a result of local mines choosing to import drums for transporting their mining products and inputs. It is important to highlight that, at present, Namibia does not offer any incentives for the mining industry or for beneficiation.

3. Investment/financing prospects for ECRM projects in Namibia

3.1. Fiscal, legislative and regulatory context for in-country financings

Legal form of different types of activities to the exploitation of mineral raw materials

The Legal Position of Natural Resources in Namibia

Article 100 of the Namibian Constitution states that “Land, water and natural resources below and above the surface of the land and in the continental shelf and within the territorial waters and the exclusive economic zone of Namibia shall belong to the State”. The mineral law system in Namibia rests on the idea that all minerals belong to the State and the State grants rights to certain parties to exploit such minerals. The only exception to the aforementioned rule is where a natural resource is lawfully owned by a party, which has registered such ownership against the title deed of a property – which was only possible prior to the commencement of the Namibian Constitution in 1990.

The Minerals (Prospecting and Mining) Act 33 of 1992 (“Minerals Act”) (as amended by Minerals (Prospecting and Mining) Amendment Act 8 of 2008) comprehensively governs the prospecting, exploration, and exploitation of solid minerals in Namibia. The Ministry of Mines and Energy (MME) serves as the regulatory authority overseeing these activities on behalf of the government. Part II of the Minerals Act outlines the rights and restrictions related to minerals, specifically:

Rights in relation to minerals: The rights to explore, prospect, mine, sell or dispose of, and exercise control over any mineral in Namibia are vested in the State, regardless of any ownership rights to the land where the minerals are found unless otherwise provided for in the Act or other laws.

Prohibition on certain operations without a license, and transfer of licenses or interests: No person is allowed to carry out reconnaissance operations, prospecting operations, or mining operations in Namibia without a valid non-exclusive prospecting license, mining claim, exclusive prospecting licences, reconnaissance licences, exclusive reconnaissance licences, mining licences or mineral deposit retention licences, as applicable. Additionally, the transfer, grant, cession, or assignment of the aforementioned licences and claims or the joining of persons as joint holders of such licenses or interests, must be done in writing and with the written approval of the Minister of Mines and Energy.

The different types of licences, including application fees and annual fees can be found in the following tables. There are six types of licences that can be applied for and obtained under the Minerals Act. These licences fall into two main categories of licences relating to minerals in terms of the Minerals Act, namely category 1, which are licences available only to Namibian entities for the development of small-scale mining and category 2, which are licences available to Namibian and Foreign entities.

Mineral Licence Holders have different rights, depending on their license, which are all described in the Minerals Act.

Mineral licences have a limited period of validity and an application for renewal must be lodged to the Minister to extend the period of validity. An application to renew a mining claim, exclusive prospecting licence and mineral deposit retention licence must be made no later than 90 days before the expiry of such licence or claim. An application for the renewal of a mining licence must be made no later than 12 months before the expiry of such mining licence. Section 38, section 72, section 84 and section 96 regulate the renewal of licences in the Minerals Act. Table 2 below illustrates, for each mineral licence, the duration for which licences remain valid upon issue and the periods for which the licences can remain valid after renewal.

Table 2. Duration of licence and Renewal Periods

| Type of Licence | Duration | Renewal | Section in the Minerals Act |
|------------------------------------|-----------|---|-----------------------------|
| Mining Claim | 3 years | 2 years | Section 37 |
| Non-Exclusive Prospecting Licence | 12 months | May not be renewed | Section 22 |
| Reconnaissance Licences | 6 months | May not be renewed, however, can be extended once for a period of 6 months | Section 63 |
| Exclusive Prospecting Licences | 3 years | May be renewed for a period of 2 years per renewal (multiple renewals allowed at Ministers' discretion) | Section 71 |
| Mineral Deposit Retention Licences | 5 years | 1 year | Section 82 |
| Mining Licences | 25 years | 15 years | Section 94 |

Fees (Tables 3 and 4) are payable to the MME upon application for, and maintenance of, various types of licences and permits. In terms of section 47 (1) of the Minerals Act, an application for a mineral licence or mineral licence renewal shall be accompanied by a fee. There are also fees payable for the amendment of a mineral licence, the approval for the transfer interest in a mineral licence.

Table 3. Licence Application Fees

| Nature Of Application | Once-Off Fee |
|--|--------------|
| Application for reconnaissance licence per quarter degree square | N\$ 1 200 |
| Application for exclusive reconnaissance licence per quarter degree square | N\$ 2 500 |
| Application for a mining claim registration | N\$ 250 |
| Application for a mining claim transfer | N\$ 150 |

| | |
|--|------------|
| Application for a mineral licence amendment | N\$ 1 200 |
| Application for mineral deposit retention licence | N\$ 25 000 |
| Application for a mining licence for a project with below N\$ 10 million projected gross revenue | N\$ 5 000 |
| Application for a mining licence for a project with above N\$ 10 million projected gross revenue | N\$ 25 000 |
| Application for a mineral licence transfer | N\$ 1 200 |
| Application in respect of an exclusive prospecting licence for 0– 20 000 hectares | N\$ 10 000 |
| Application in respect of an exclusive prospecting licence for 20 001–30 000 hectares | N\$ 15 000 |
| Application in respect of an exclusive prospecting licence for 30 001–40 000 hectares | N\$ 20 000 |
| Application in respect of an exclusive prospecting licence for 40 001–50 000 hectares | N\$ 25 000 |
| Application in respect of an exclusive prospecting licence for 50 001–60 000 hectares | N\$ 30 000 |
| Application in respect of an exclusive prospecting licence for 60 001–70 000 hectares | N\$ 35 000 |
| Application in respect of an exclusive prospecting licence for 70 001–80 000 hectares | N\$ 40 000 |
| Application in respect of an exclusive prospecting licence for 80 001–90 000 hectares | N\$ 45 000 |
| Application in respect of exclusive prospecting licence for 90 001–100 000 hectares | N\$ 50 000 |

Table 4. Annual Licence Fees

| Nature of Licence | Annual Fee |
|---|------------|
| Licence fee in respect of non-exclusive prospecting licence | N\$ 250 |
| Reconnaissance licence fee per quarter degree square | N\$ 0 |
| Exclusive Reconnaissance licence fee per quarter degree square | N\$ 0 |
| Licence fee in respect of an exclusive prospecting licence for 0– 20 000 hectares | N\$ 10 000 |

| | |
|--|------------|
| Licence fee in respect of an exclusive prospecting licence for 20 001– 30 000 hectares | N\$ 15 000 |
| Licence fee in respect of an exclusive prospecting licence for 30 001– 40 000 hectares | N\$ 20 000 |
| Licence fee in respect of an exclusive prospecting licence for 40 001– 50 000 hectares | N\$ 25 000 |
| Licence fee in respect of an exclusive prospecting licence for 50 001– 60 000 hectares | N\$ 30 000 |
| Licence fee in respect of an exclusive prospecting licence for 60 001– 70 000 hectares | N\$ 35 000 |
| Licence fee in respect of an exclusive prospecting licence for 70 001– 80 000 hectares | N\$ 40 000 |
| Licence fee in respect of an exclusive prospecting licence for 80 001– 90 000 hectares | N\$ 45 000 |
| Licence fee in respect of exclusive prospecting licence for 90 001– 100 000 hectares | N\$ 50 000 |
| Mining claim fee | N\$ 250 |
| Licence fee in respect of mineral deposit retention licence | N\$ 25 000 |
| Licence fee in respect of a mining licence for a project with below N\$ 10 million projected gross revenue | N\$ 5 000 |
| Licence fee in respect of a mining licence for a project with above N\$ 10 million projected gross revenue | N\$ 25 000 |

Namibia was once considered one of the top investment-friendly destinations. For instance, in 2015, the Fraser Institute ranked Namibia as the second-most attractive African country for investment. However, in recent years, a combination of external and internal factors has led to Namibia losing its favourable position. According to the 2022 Fraser Institute Survey of Mining Companies, Namibia now ranks sixth out of sixteen African jurisdictions in terms of overall investment appeal. On a global scale, it stands at the thirty-eighth position out of sixty-two jurisdictions surveyed, a notable shift from fifty-ninth out of eighty-four in 2021. These rankings signify a decrease in Namibia's attractiveness to investors. Within this survey, there are subchapters, as e.g. the Policy Perception Index, in which Namibia is ranked 26th out of 62 (26/62). According to the Fraser Index the Policy Perception Index provides a comprehensive assessment of the attractiveness of mining policies in a jurisdiction, and can serve as a report card to governments on how attractive their policies are from the point of view of an exploration manager. When it comes to attracting exploration, Namibia only scores 43/47. In this subchapter it is measured whether a country encourages exploration investment or is at least not a deterrent to investment.

Comments from consulting and exploration companies in the annual survey of mining companies compiled by the Fraser Institute vary between “There are good foreign investment policies for mining”, to “There is a lack of mineral rights security” and “Unilateral powers to the Minister of Mines to make various determinations, like royalty levels, hurts Namibia’s competitiveness”. Other topics like “Uncertainty Concerning Environmental Regulations”, “Uncertainty Concerning the Administration, Interpretation and Enforcement of Existing Regulations” and “Geological Database” are ranked relatively good (11/62 to 21/62). The majority of topics is evaluated as average (26/62 to 35/62). These include “Uncertainty Concerning Disputed Land Claims”, “Legal System”, “Availability of Labor/Skills”, “Political Stability”, “Regulatory Duplication and Inconsistencies”, “Quality of Infrastructure”, “Security” and “Socioeconomic Agreements/Community Development Conditions”. In four sectors (“Labour Regulations/Employment Agreements and Labour Militancy/Work Disruptions”, “Taxation Regime”, “Trade Barriers” and “Uncertainty Concerning Protected Areas”) Namibia only scores below the average of the 62 investigated mining jurisdictions between 41/62 and 46/62.

3.2. Macroeconomic context for in-country financings

Gross Domestic Product (GDP)

Namibia's economy, which is classed as a developing, middle-income country with a mixed economy, has grown significantly during the last 30 years. During the first few years of Independence from 1990 to 1994, around 60% of Namibia’s GDP was generated by: agriculture, mining, manufacturing and government. After 1995, the contribution of those four sectors (agriculture, mining, manufacturing and government) dropped to roughly 50% of Namibia’s GDP as the country started to diversify into other sectors. The mining sector’s share was between 8 and 10 % from 2016 – 2021 and around 12 % in 2022.

The GDP of Namibia has fluctuated significantly over the years (Figure 7), sometimes being characterised by fast expansion and other times by economic stagnation. Namibia has made considerable strides in improving its economy since obtaining independence in 1990, diversifying away from dependency on mining and agriculture.

According to World Bank data, Namibia's GDP grew from \$2.5 billion in 1990 to \$13.4 billion in 2019, representing an average annual growth rate of 4.7%. The country's highest GDP growth rate was recorded in 2015, at 5.2%, while the lowest was in 2009, at -0.9%. However, the COVID-19 pandemic had a significant impact on the Namibian economy, resulting in a contraction of -7.3% in 2020.

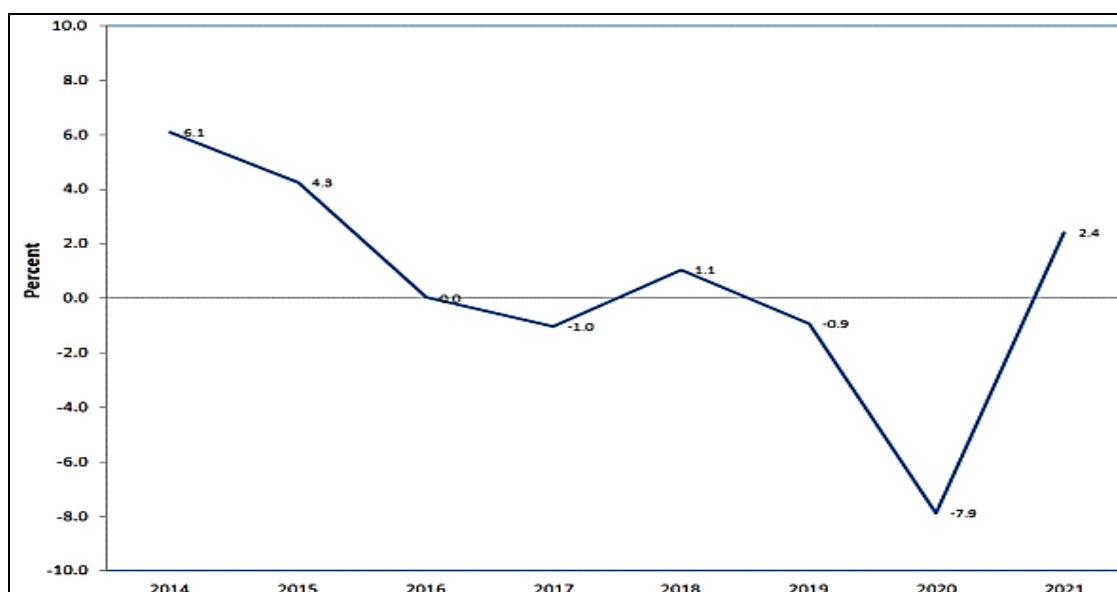


Figure 7: Gross Domestic Product Growth Rates, in percentage²

The mining sector plays a vital role in the economic development of many countries. In Namibia, mining contributed the highest in activity for the year 2022 as illustrated in Figure 7, Mining has been the backbone of the economy having a positive impact measured through job creation and income generation, among others (Figure 8). Total job creation in the sector has been volatile due to fluctuations in commodity prices and technological advancement.

Today, worldwide real GDP growth has slowed in the fourth quarter of 2022, and Namibia has experienced the same, owing to soaring inflation, higher interest rates, less investment, and disruptions caused by Russia's invasion of Ukraine. Global economic activity continued to slow in the last quarter of 2022 compared to the previous quarter. On a full-year basis, the global GDP growth rate dwindled as the Russia-Ukraine war disrupted the global supply chains, exacerbating the increases in food and oil prices and feeding into high inflation rates globally. Inflation remained high and broad-based, although recent declines in commodity prices and easing supply challenges have started to moderate the pace of price increases.

² Source: Namibia Statistics Agency

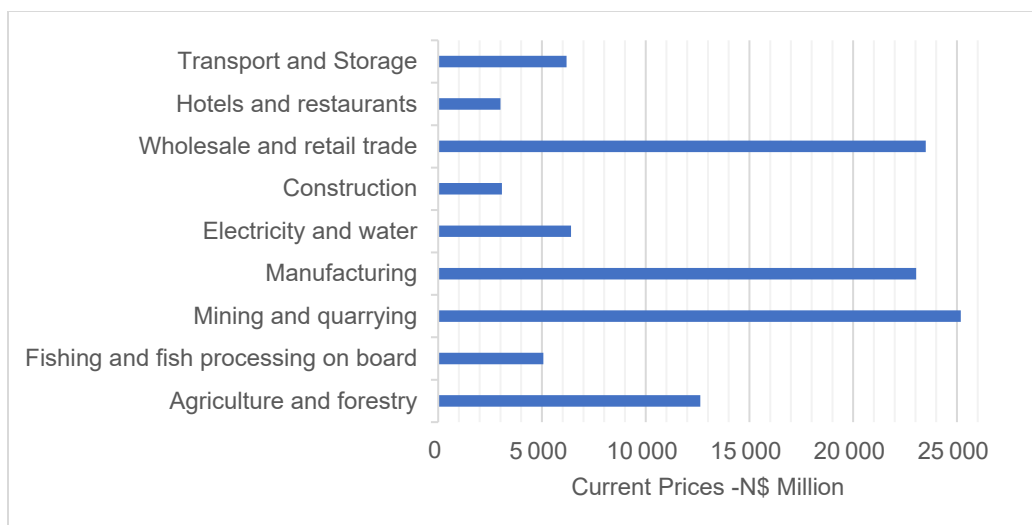


Figure 8: Gross domestic product by activity 2022³

Level of Expenditure vs GDP Levels

Over the years, Namibia has consistently maintained a relatively stable level of expenditure as a percentage of GDP, with a peak of 126.5% being recorded in 2015 (Figure 9). However, due to the outbreak of the Covid-19 pandemic in 2020/2021, the level of expenditure has experienced a significant increase, resulting in a departure from the previous trend. The pandemic has caused unprecedented disruptions to the country's economic activities, necessitating a significant increase in government spending to mitigate its impact on the population and the economy. The government has implemented various measures, including fiscal stimulus packages, social welfare programs, and healthcare interventions, to address the multifaceted challenges posed by the pandemic. This therefore resulted in increased spending of 7.6% from the year 2020 to 2021. As a result, the level of expenditure as a percentage of GDP in Namibia has risen sharply, reflecting the government's commitment to protecting its citizens and supporting the country's economy during these challenging times.

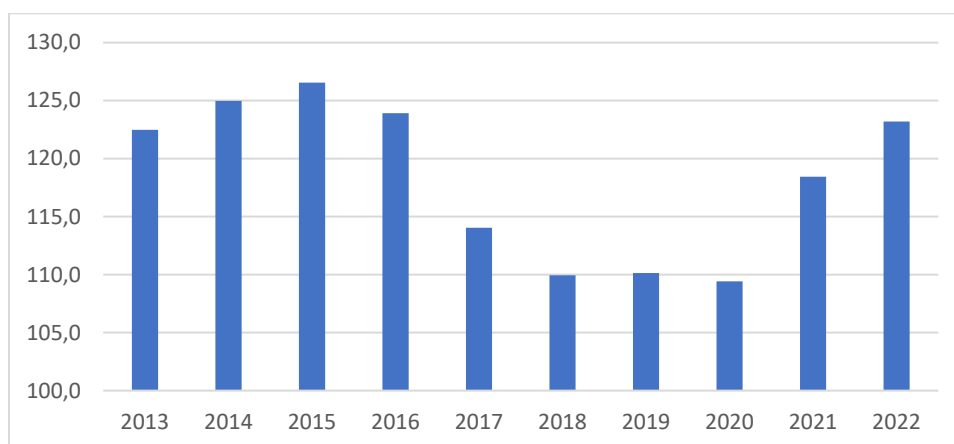


Figure 9: Gross Domestic Expenditure as a percentage of GDP⁴

³ Source: Namibia Statistics Agency

⁴ Source: Namibia Statistics Agency

Fitch Rating Agency Rating and World Bank Economic Classification

The World Bank classification is a system used by the World Bank to classify countries depending on their level of income. According to the bank, Namibia is classified as an upper-middle-income country. Namibia has been able to achieve upper-middle-income status by reducing poverty with the aid of political stability and prudent economic management. However, the COVID-19 pandemic aggravated already high levels of socioeconomic inequality, which are a legacy of previous governments' use of apartheid.

Despite being categorised in the BB- with a stable economic outlook by the Fitch rating agency, Namibia faces significant challenges due to its elevated fiscal deficits, high-rising debt, and weak growth prospects, which could potentially lead to further economic instability if not addressed in a timely and effective manner. These factors could also harm the country's ability to attract foreign investment and maintain a competitive position in the global market, making it essential for the government to implement appropriate policies and strategies to mitigate these risks and foster sustainable economic growth.

Foreign Direct Investment (FDI): FDI Profitability and Factors Contributing to FDI Profitability

From the year 1998 to 2008 FDI inflows into Namibia constituted about 25.6% of the Gross Fixed Capital, mainly flowing into the manufacturing sector; into companies such as the Scorpion Zinc Refinery, Ramatex Textiles and Namdeb Diamonds (Figure 10). Reinvestments of earnings into the domestic economy increased as a result of the sector's continuing upward trajectory in Namibia. However, over the past ten years, there has been a movement in big investments from the manufacturing sector to the mining industry, which has resulted in a sustained inflow of FDI.

Since its independence in 1990, Namibia has done well in setting up an environment favourable to attracting foreign direct investment. At the outset, the country adopted the Foreign Investment Act 27 of 1990 intending to attract foreign investments through a favourable investment climate and various tax incentives. The favourable investment climate and the sophisticated financial system allowed foreign direct investment enterprises (FDIEs) to easily remit capital and profits abroad. The main sources of FDI being mainly intercompany borrowings and reinvested earnings equity capital as illustrated below.

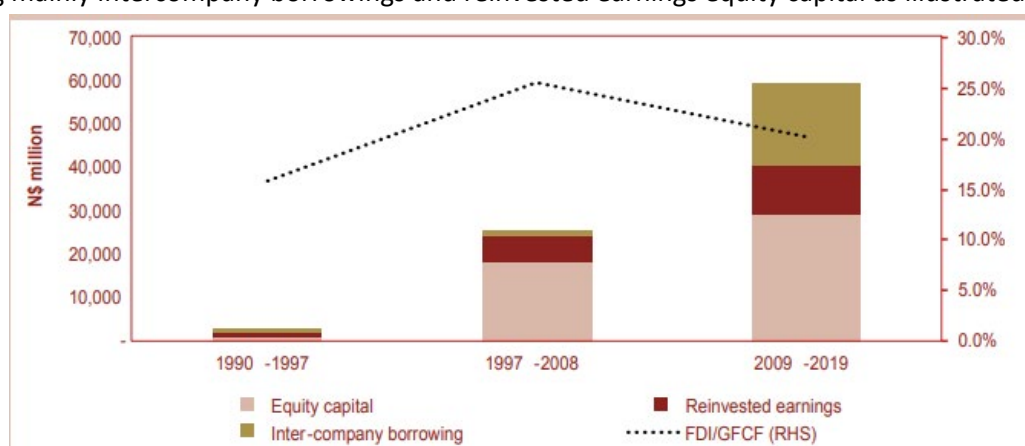


Figure 10: Foreign Direct Investment inflows into Namibia⁵

⁵ Source: Bank of Namibia Note on FDI

As defined by the Bank of Namibia, FDI profitability is commonly proxied by the return on equity (ROE) of foreign direct investment affiliates. Foreign direct investment in the mining sector remained nearly stable between 2015 and 2019, ranging between N\$53 million and N\$50 million per year. The mining sector's profitability was primarily influenced by changes in international commodity prices. The high reliance on commodity prices is attributable to Namibia's huge number of marginal mines with poor ore concentrations. Between 2009 and 2019, the mining sector had an average Return-on-equity (ROE) of 1.0 percent per year. The poor ROE was caused by high net losses on occasion, as the industry faced several obstacles throughout the years. These obstacles include the worldwide recession of 2009, which harmed the sector, as both the diamond and copper industries suffered significant losses in 2009. Copper prices fell to their lowest levels in 2009, forcing Namibia's largest copper mine to go into care and maintenance. Over the review period, the uranium business faced headwinds for the last decade as uranium prices never returned to pre-2007 levels following the 2011 Fukushima Daiichi nuclear disaster and so stayed chronically low. As a result, various uranium mines have been care and maintenance over the years. The high operating costs continued to have an impact on the industry's profitability. According to the available literature on the financial life cycle of FDI, the recent massive investments in the uranium business were accompanied by large initial losses. The main investors in the mining sector in Namibia are South Africa, the United Kingdom, the United States and Germany.

Historical Inflation Levels

The Namibian dollar is pegged to the South African Rand, thus the Namibian Central Bank's monetary policy decisions are highly influenced by the inflation changes in South Africa. As such, the Namibian Central Bank closely monitors inflation trends in South Africa and considers them when making monetary policy decisions to ensure a stable and predictable inflationary environment in Namibia (discussed further below).

As illustrated in Figure 11, in 2020, Namibia's inflation rate reached its lowest point, with an annual average of 2.9%, which can be attributed to the economic impact of the COVID-19 pandemic. However, in 2022, the inflation rate reached its peak, with an annual average of 8.3%, due to various factors, including rising fuel and food prices, as well as external economic conditions.

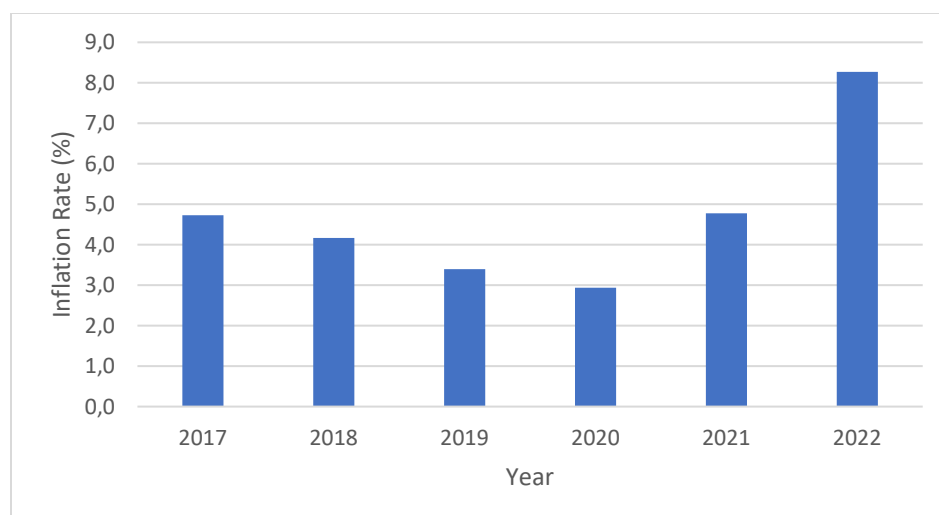


Figure 11: Annual Average Inflation Rate 2017-2022⁶

Impact of Inflation on Namibia's Economy and Mining Sector

The Namibian mining industry is primarily affected by variations in the prices of the commodities extracted, which have been volatile; however, inflation has little impact on the sector.

The sector contracted by 4.7% on average between 2014 and 2016 mainly due to a decreased demand for mining products and low commodity prices for minerals that Namibia exports. However, the growth rate for 2018 was positive at 22% from 13.3% in 2017.

In 2018, Namibia was ranked as the fifth biggest Uranium producer in the world by the World Nuclear Association (WNA). However, growth in the Uranium sector has been very slow due to weak international uranium prices and weak global demand, which has led to slow production and the closure of some mines. According to the Chamber of Mines South Africa (2018). Consequently, the mining sector suffered 822 retrenchments comprising permanent, temporary and contract workers attributable to volatile mineral commodity markets in the second half of 2018 and a stagnantly low uranium price in the last nine years.

Some of Namibia's peers within the Southern African Development Community (SADC) region have been experiencing similar mining sector growth and contribution to GDP declines. For example, in Botswana, the mining sector growth contracted by 9.6 and 3.7% in 2015 and 2016, respectively. According to StatsBots (2017), the decline in 2016 was due to the closure of the copper/nickel mines during the fourth quarter of 2016 and therefore the sector contributed 20% to Gross National Output in 2016 up from 17.7% in 2015.

Namibian Dollar and South African Rand Dynamics

In 1990, Namibia became a formal member of the Southern African Customs Union. Namibia later implemented the Namibian dollar currency and remained pegged to the South African Rand on a 1 to 1 basis to maintain its membership status with the Common Monetary Area (CMA).

⁶ Source: Namibia Statistics Agency

This means that the exchange rate between the two currencies is fixed, and changes in the value of the South African rand will affect the value of the Namibian dollar as well. While the peg has provided stability to Namibia's economy, it also means that the country is vulnerable to economic shocks in South Africa.

Overall, the dynamics between the Namibian dollar and the South African rand are closely linked due to the peg, and any fluctuations on the South African Rand will have a direct impact on the Namibian Dollar.

Historic Debt Levels of the Country and Factors Contributing to the Country's Debt Levels

Until 2011, Namibia had very little public debt. At just 16% of GDP, the country had one of the lowest debt-to-GDP ratios in the world. However, in 2017, the country was downgraded by both of the international rating agencies that cover it, to a sub-investment or “junk” rating, citing amongst others, the rapid rise in public debt.

Over the first five years of this period, the country went through one of its longest and largest boom periods, with the strongest and most sustained growth levels seen since 1990. However, much of this growth was driven by debt, both public and private. As a result, between early 2011 and the end of 2017, Government debt levels rose from N\$13.8 billion (16.4% of GDP) to N\$72.8 billion (40.6% of GDP).

To repay debt, the Ministry of Finance started a Debt Redemption Strategy, which aims to ensure prudent credit risk management to avoid default events. Namibia has so far never defaulted on any public debt.

Current Status of Its External and Domestic Debt and the Impact of Debt on the Country's Economy and Society

The current debt levels in Namibia have been mainly attributed to several factors, including the depreciation of the Namibian Dollar, external loans obtained to support the country's economic recovery from the COVID-19 pandemic and high levels of government spending. The depreciation of the Namibian Dollar has increased the cost of servicing foreign debt, while the external loans taken to mitigate the impact of the pandemic have added to the country's overall debt burden. In addition, high levels of government spending on infrastructure development, social programs, and defence have contributed to the rising debt levels. These factors have combined to create a challenging debt situation for Namibia, which will require careful management and strategic policy decisions to address in the coming years.

The stock of external debt rose over the year to the end of December 2022, mainly owing to exchange rate depreciation, coupled with the disbursement of the Africa Development Bank (“AfDB”) loan. According to the Bank of Namibia (2023), the central government’s external debt stock rose, year-on-year, by 4.9 percent to N\$34.1 billion in the third quarter of FY2022/23. The yearly rise was due to the disbursement of a N\$2.3 billion AfDB loan during December 2022, coupled with the depreciation of the Namibia Dollar against other major trading currencies. Quarterly, the external debt stock declined by 0.2 percent, from N\$34.2 billion, owing to the significant appreciation of the Namibia Dollar against the US Dollar every quarter. As a ratio of GDP, external debt declined by 0.8 percentage points to 16.4 percent at the end of December 2022. This was owing to a higher fiscal GDP for the FY2022/23, compared to the previous year.

These increases in debt levels, coupled with a challenging economic climate, have brought about notable changes in the Namibian fixed-interest (corporate, government and quasi-government debt) space. The growth of this sector has had a noticeable impact on the economy, as seen in the changes in capital availability and pricing for households and businesses since 2016.

Balance of Payments Levels

Namibia's persistent trade deficit can be examined more closely by looking at the external transactions section of its national accounts. The balance of payments, which summarizes and categorizes Namibia's transactions with the rest of the world, is divided into the current and the capital account.

Namibia has run an overall negative balance of trade almost every year since 1990 with exceptions only in 2005 and 2006. While the balance of trade in services was mainly negative throughout the 1990s, it has fluctuated from positive to negative since 2000, a possible reflection of the growing importance of Namibia's tourism industry, Namibia's major service export. However, because trade in goods dwarfs trade in services, the overall balance of trade has been determined primarily by the huge deficits in goods, which have taken place over the past decade and more.

According to the Namibia Statistics Agency's database on export percentage, it is evident that the manufacturing sector in Namibia is a significant contributor to the country's overall export earnings, accounting for 56.8% of the total export value (Figure 12). In comparison, the mining and quarrying sector makes up 36.5% of the export value. This suggests that the manufacturing sector is a vital component of the Namibian economy, and its performance has a significant impact on the country's economic growth and development. The manufacturing sector also comprises outputs from copper smelting. Adding this to the mining and quarrying sector, the minerals sector has a contribution of 57 % to the exports of Namibia.

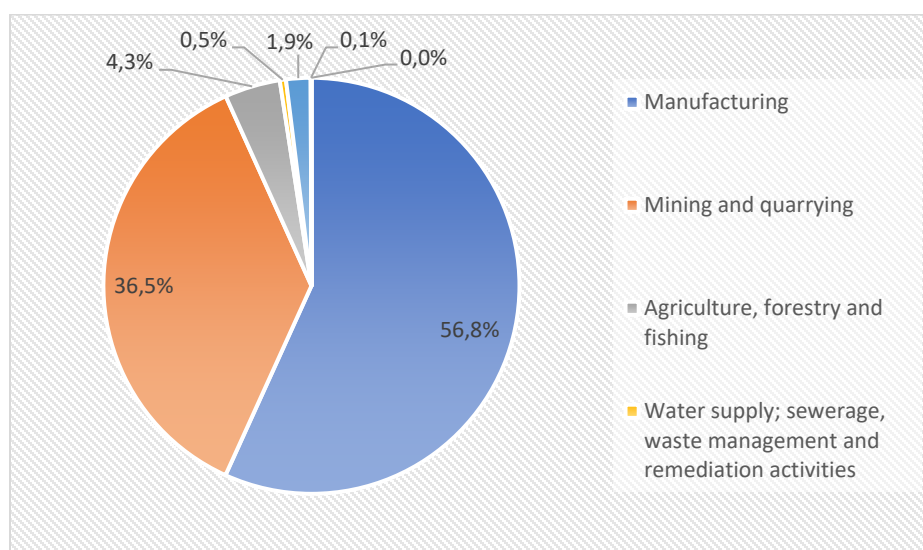


Figure 12: Namibian Exports in Percentage Shares by Value - N\$ million (2023)⁷

⁷ Source: Namibia Trade Statistics

3.3. Political context for in-country financings

Companies investing in Namibia are focused on developing the supply side of the value chain to supply mineral concentrates mostly to China and the Western world. Copper is the only commodity, whose value chain has developed into metal production in the form blister copper. No commodity in Namibia has a full value chain set up. Although Namibia has a variety of critical mineral deposits and commodities, individual deposits might be too small for localized value chains to be established. Opportunities exist to develop in-country scale, regional scale and continent scale value chains for commodities such as copper, lithium and rare earths. In general, developing Namibia's value chains will require large capital to build infrastructure such as processing facilities, roads, water pipelines and power generation.

Traditionally, mining companies have followed an enclave approach for infrastructure development, often constructing infrastructure exclusively for their operations. At a local level, shared and common infrastructure corridors both among mining industry players and with other sectors such as green hydrogen, green energy and roads authorities to increase the economy of scale. Because many ECRM mining projects are still at the early to intermediate exploration phase, Namibia is in a favourable position to evaluate, strategize and plan the utilization and locations of shared-use infrastructure. Namibia's Public Private Partnership (PPP) Act 2017 provides a framework under which private companies can partner with the government to establish shared infrastructure.

Existing policies and agreements to facilitate collaborative efforts to development value chains in Africa and Southern Africa in particular include the Africa Mining Vision, African Continental Free Trade Agreement (AfCFTA) and SADC Regional Mining Vision.

No expropriation of Property without just compensation

In terms of section 11 of the *Foreign Investment Act, 1990*, no enterprise or part of an undertaking carried on by an enterprise, or interest in or right over any property forming part of such undertaking shall be expropriated, save in accordance with provisions of Article 16 (2) of the Constitution. Furthermore, where an enterprise is so expropriated, the Government shall pay to the holder of the Certificate of Status Investment just compensation for such expropriation without undue delay and in freely convertible currency.

Furthermore, in terms of section 13 of the *Foreign Investment Act, 1990*, if a person to whom a Certificate of Status Investment has been issued so elects, such Certificate of Status Investment shall provide that any dispute between the holder and the Government in relation to any issue relating to the amount of compensation payable for an expropriation or the validity of the Certificate of Status Investment shall be referred for settlement by international arbitration under the Arbitration Rules of the United Nations Commission on International Trade Law.

However, section 13 does not prohibit the right of the holder to seek remedies in a competent court in Namibia if the Certificate does not provide for arbitration, nor does it prevent the holder and the Minister from agreeing to resolve a dispute through a competent court in Namibia if the Certificate provides for arbitration.

Developments regarding ECRM investment incentives

There are no policy developments in regard to ECRM investment incentives that can be reported on presently. However, as discussed above, the Namibia Investment Promotion Act, 2016 (“NIPA”), presents a legal development that is yet to come into force.

NIPA would repeal the Foreign Investment Act, 1990 and present additional criteria for the Minister of Trade and Investment to consider before awarding a Certificate of Status Investment. When considering an investment proposal to the Minister of Trade and Investment, the Minister must satisfy himself that the value addition to the natural resources and manufacturing sector and procurement of local goods and services is likely to occur as a result of the investment. NIPA further sets out that investment proposals must consider the development of managerial skills and the transfer of technological skills. NIPA further sets out those investors are mandated to absorb all available skills in Namibia and invest in human capacity development to ensure a national transfer of skills.

Many of the protections awarded to investors under the Foreign Investment Act remain unchanged under NIPA i.e. equal treatment between foreign and local entities, compensation for expropriation, ability to employ foreign personnel, assistance for visa and residence processes, and the ability to transfer funds into and out of Namibia in a freely convertible currency without undue delay.

Despite the development and drafting of NIPA, it is not promulgated yet and does not have the force of law. It is unclear when it may come into force.

Local Content: Requirements, Reporting and License conditions

Namibia does not have explicit local content legislation nor is local content defined within the Minerals Act. However, there are general licence conditions housed in section 50 of the Minerals Act which outline local content requirements (and which are applicable to all mineral licences). Section 50 of the Minerals Act states that:

- in the employment of employees, give preference to Namibian citizens who possess appropriate qualifications, expertise and experience for purposes of the operations to be carried on in terms of such mineral licence;
- carry out training programmes in order to encourage and promote the development of Namibian citizens employed by such holder;
- with due regard to the need to ensure technical and economic efficiency, make use of products or equipment manufactured or produced, and services available, within Namibia;
- co-operate with other persons involved in the mining industry in order to enable such citizens to develop skills and technology to render services in the interest of that industry in Namibia”

The above conditions together with the additional conditions that may be imposed by the Minister on licences in terms of section 48 (4) of the Minerals Act form the legal basis of Local Content Policies in Namibia.

Namibia's local content policies are characterised as more qualitative as opposed to quantitative. For example in terms of section 50 of the Minerals Act, it states that *"in the employment of employees, give preference to Namibian citizens."* It does not state how many Namibians must be employed. Another example in terms of section 50 of the Minerals Act, is that *"make use of products or equipment manufactured or produced, and services available, within Namibia"*. Again, it does not state what goods and services or the quantities of goods and services that must be procured locally. There is a lack of quantitative local content requirements, which contain more prescriptive local content targets in terms of volume or value, i.e. the number of local employees to be employed and the number of local suppliers to procure from. Due to this lack of quantitative and explicit targets, local content requirements are relatively easy to satisfy.

The one exception to the above circumstance is that the Minister does, on occasion, impose quantitative restrictions regarding control of a mineral licence. For example, some licences contain conditions stating that *"20% of the management structure (including the board) [...] and 5% of the voting shares must be held by historically disadvantaged Namibians"* or the Minister may prohibit the Namibian ownership in a majority Namibian-owned licence to drop below 15%. These conditions or prohibitions mandate the involvement of Namibian parties, however, they do not specify particular individuals and thus a foreign company has sole discretion in selecting who to involve in their operations – which makes these condition easily satisfied.

Some licences may also contain conditions stating that *"all funds raised in relation to the mineral licence be banked with a Namibian financial institution"*, which mandates the use of local banks for transacting on Namibian mining projects. This condition is also easily satisfied and further details on moving such funds into Namibia are discussed in Chapter 4 on 'Foreign Investment Related Issues'.

With regard to reporting on local content requirements, Namibia ascribes to (1) a geographical component and an (2) ownership component to local content reporting:

The geographical component means that the use of a company registered in Namibian proves to be sufficient in satisfying the general licence condition relating to the use of products, or equipment manufactured in, or services available within Namibia – even if that company supplies goods from a foreign country or uses foreign inputs. The ownership component means that any requirement to provide equity or voting rights to a Namibian citizen is limited to such equity or voting right – other conditions such as the terms upon which the equity is acquired and whether or not such equity pays dividends etc. is up to the company.

Namibia has not joined the Extractive Industries Transparency Initiative (EITI) to improve transparency in the mineral industry. However, the country is in the process of establishing a position on joining it.

4. Assessment of social, environmental, and governance challenges

The major input in this chapter is taken from AWIMA's deliverable 4.1: "Report on mining regimes with respect to the ESG objectives". One exception is chapter 4.2 of this country case study. The information concerning "what would be best practices for a responsible mining?" and "environmental challenges" were compiled by Odikwa Geoservices as part of their contract as a national consultant for this country case study.

4.1. Country-level assessment and context

4.1.1 Context

Best Practice in governance in Namibia has been identified as a priority by the Namibian government. The Harambee Prosperity Plan (HPP) is a targeted Action Plan to accelerate development in clearly defined priority areas, which lay the basis for attaining prosperity in Namibia. The Harambee Prosperity Plan II (2021-2025), aims at implementing policy programmes that enhance service delivery and economic recovery to strengthen Namibia in terms of socioeconomic challenges and preparing it for global opportunities in relation with the Covid-19 pandemic. The HPP2 is based on 4 pillars and the first pillar, Effective Governance, focusses on continuously improving accountability and transparency in order to strengthen the national anti-corruption mechanisms.

The **Corporate Governance Code for Namibia (NamCode, Namibian Stock Exchange, 2023)** is a corporate governance manifesto for companies incorporated under the Companies Act 28 (Legal Assistance Centre of Namibia 2004) as well as entities incorporated by statute (i.e., so called incorporation by act of parliament). The code was prepared and drafted by the Namibian Stock Exchange with support from FNB Namibia Holdings Limited. The principles of this NamCode apply to Namibian entities (large private and listed companies across all industries) on a 'apply or explain' basis and that the best practice recommendations are provided as guidance for the application of the principles of this NamCode.

Namibia has the **Anticorruption Act 8 of 2003** (Legal Assistance Centre of Namibia 2003) to lead the fight against corruption through effective law enforcement and preventative measures. In addition to this, the Anti-Corruption Commission has set out the National Anti-Corruption Strategy and Action Plan (NACSAP) that serves as a tool for fostering cooperation and continued synergy across all sectors and spheres of society in Namibia in attaining the national vision for a corruption-free Namibia.

The following sections in the **Mineral (Prospecting and Mining) Act of 1992** make specific regulatory provisions for transparency in the mining industry of Namibia: 45, 66, 76, 89 and 101. According to these sections, the following disclosures are mandatory: production records, productions plans, records and financial statements and reports. These disclosures are to be submitted to the MME by the holders of mining claims, reconnaissance licences, exclusive prospecting licences, mineral deposit retention licences and mining licences. Although Mineral (Prospecting and Mining) Act of 1992 make provision for transparency, there is no monitoring body to monitor the implementation of this legislation.

Namibia has not joined the Extractive Industries Transparency Initiative (EITI) to improve transparency in the mineral industry. However, the country is in the process of establishing a position on joining it.

4.1.2. Mineral/mining policies, industry policies

The **Minerals (Prospecting and Mining) Act 33 of 1992** is the main legal mechanism controlling the allocation of mineral rights in Namibia. The act outlines the mineral rights in the country, describes how the industry will be administered, and lays out the processes, procedures, rights, and obligations relating to the various mining claims and licences available in Namibia. It also includes information on royalty rates and penalties for any infractions, sets mine closure requirements, and establishes a Minerals Ancillary Rights Commission to help those licence holders who cannot exercise their rights due to land disputes. Minerals (Prospecting and Mining) Act, 1992 provides for the reconnaissance, prospecting, and mining for, and disposal of, and exercising control over, minerals.

The **Minerals Policy of Namibia (2003)** sets out guiding principles and directions while communicating the values of the Namibian people in pursuit of the development of the mining sector. The Minerals Policy of Namibia (2003) was developed to achieve a high level of responsible development of national resources in which Namibia becomes a significant producer of mineral products while ensuring maximum sustainable contribution to the country's socio-economic development.

Both, the Minerals (Prospecting and Mining) Act and Mining Policy are currently under review to incorporate changing knowledge and best practice.

The **Mineral Beneficiation Strategy for Namibia (2021)** was developed as an inclusive long-term modernisation and economic transformation programme that enables substantive and sustained raising of living standards, intensifying structural change and accelerating Namibia's industrialisation. The strategy seeks to complement key national development initiatives by creating a conducive environment for investment and value-addition through the provision of mineral-based feedstock for a competitive manufacturing sector in an environmentally sustainable way. It aims to address critical intervention areas in order to direct Namibia's mineral endowment and outputs towards enhanced economic development and social progression. The mineral beneficiation strategy provides a blueprint for Namibia to improve competitiveness as an investment destination. This competitiveness, coupled with considerable natural endowment in mineral resources, provides a platform for increased beneficiation, leading to the realisation of more economic value from the various mineral commodities in the country. The Namibian government has unquestionable commitment to working with the role players in the minerals industry to create the investment in infrastructure that is necessary for beneficiation to reach its full potential and contribute to the industrialisation of the country as outlined in Vision 2030 and the National Development Plans (NDP5 and beyond, (Ministry of Industrialization and Trade, 2021).

4.1.3. Mining regulations

The Minerals (Prospecting and Mining) Act stipulates a fair and transparent process for licencing. The Act clarifies data and reporting requirements for permits and mining claim applicants. According to the Minerals (Prospecting and Mining) Act, 1992, section 47, with the approval of the minister, mineral licence can be amended or transferred upon cession or assignment of any interest in any mineral licence or to be joined as a joint holder of a mineral licence and if the applicants are not satisfied with the outcome, they can appeal to Mining Minister and up to the level of the High Court of Namibia. The Chief Inspector is

responsible for compliance audits and mine visits. If the companies are in non-compliance with the mineral act, the Mining Commissioner has the right to issue a notice of intention to cancel the licence.

The Mining Commissioner, through the Division of Mineral Rights and Resource Development at the MEM is responsible for issuing licences. The application forms are located on the MEM's website (MME 2023) and contains all the information needed for the application. The following information about the application is available on the website for the Mining Cadastre Portal (2023):

- Licence type
- Name of the applicant
- Date of application
- Date of issuance
- Date of Expiry
- Commodities
- Size of the license area

The information is typically updated on each business day. The various licence and claims types for the mining sector of Namibia are listed and summarised in Table 5.

Table 5: The various licence and claims types available for the mining sector of Namibia

| Licence type | Description | Duration | Renewable | Restrictions |
|--|--|--------------------------|--|---|
| Non-exclusive prospecting licence (NEPL) | Gives the right to prospect on any land for any mineral or group of minerals. | 12 months | No | Anyone over the age of 18 can apply; non-transferable. |
| Mining claims | For Namibians, mining on a small scale. | 3 years | 2-year extension, unlimited (Providing the claim is being worked on) | A maximum of 10 claims can be held at any one time. Available to Namibian citizens only. |
| Reconnaissance licence | Regional, mainly remote sensing exploration for identification of exploration targets. | 6 months | No | Not transferable. |
| Exclusive prospecting licence (EPL) | For an area of up to 1,000 km ² (100,000 ha). Granted for a specific mineral or group of minerals. | 3 years | Twice for 2-year periods, with the area decreasing by 25 percent with each renewal | Exclusive exploration rights to the land. (Renewals beyond seven years require special approval by the Minister). |
| Mineral deposit retention licence | Allows exploration company to retain tenure on exclusive prospecting licence, mining licence or mining claim without any mining obligations. | 5 years | 2-year periods | Must meet work and expenditure obligations and submit regular project reviews. |
| Mining licence (ML) | Exclusive rights to the mining area. | 25 years or life of Mine | 15-year periods | Must demonstrate financial and technical ability to develop and operate a mine. |

Key pieces of legislation and Policy, including the Minerals (Prospecting and Mining) Act, the Minerals Policy, and the Water Act, require revision or are in the process of revision that is often seen as too lengthy and opaque (IGF, 2018).

It is a requirement for foreign investors in mining that the company has at least 5% of Namibian ownership and 20% of the management structure consists of Namibians. Foreign investors cannot own mining claims; however, they can enter into a joint venture with Namibians.

4.1.4. Taxation and royalties

Namibia operates a modern system of taxation that is reasonably competitive by international standards and is modified and updated on a regular basis usually, but not always, following announcements in the national budget speech. The basic system has remained fairly simple and satisfies a vital governance aspect in that the policies and regulations are stable, predictable, and transparently implemented. Tax administration is carried out primarily by the Directorates of Inland Revenue and Customs and Excise within the Ministry of Finance, which administer the Income Tax Act, Value Added Tax Act, Stamp Duty Act, Transfer Duty Act, as well as parts of the Petroleum Taxation Act. Some mining taxes, however, are the responsibility of the Ministry of Mines and Energy. Taxation for mining and quarrying, as well as that for oil and gas companies is different to other companies.

The mining sector generates significant revenue for Namibia through various mechanisms (including taxes, royalties, equity, fees, and levies). The rates are generally fair, regionally competitive, and equitably applied across the sector (Table 6). The Ministry of Finance has divisions investigating large taxpayers and combatting transfer pricing. Policies on taxation and royalties can be decisive elements to attract or deter foreign investment but are also essential instruments to ensure that a fair share of the wealth generated by extraction remains in the source country. Mining companies pay royalties to the government. That said, local communities do not directly get a share of the royalties paid by the mining companies. Royalty rates differ according to metal or mineral type as shown in Table 6.

Table 6: Royalty rates per mineral category

| Mineral | Royalty rate (%) |
|----------------------|------------------|
| Semi-precious stones | 2 |
| Dimension stones | 5 |
| Base and rare metals | 3 |
| Precious metals | 3 |
| Diamonds | 10 |
| Industrial minerals | 2 |
| Non-nuclear fuels | 2 |
| Nuclear fuels | 2 |

Taxation for the income from exploration and mining companies is done according to the **Income Tax Act, 1981 (Act 24 of 1981)**. There is no restriction on repatriating profits for foreign investors. Namibia Revenue Agency (NamRA) is the nation's tax-collecting authority, while MME is the Royalty collecting authority.

The **Export Levy Act 2 of 2016** to provide for the imposition of an export levy on certain goods to improve Namibia's value share in its resource base, to encourage further processing or beneficiation of or value addition to such goods, to support national or regional industrial development, to promote the

development of regional value chains and to meet revenue needs; and to provide for incidental matters. The export levy is higher for raw minerals than for processed or finished goods.

There are laws in place that allow for adequate protection of the rights of investors. The state may lawfully expropriate property owned by foreign national in the public interest, provided that it is done in accordance with the law. Findings show that value addition plays a huge role even in cases of expropriation, as people who add value to their property are well compensated.

Namibia's **National Special Economic Zone Policy (SEZ)** expands and subsumes the existing **Export Processing Regime (EPZ)** by strengthening key provisions, such as expanded sectoral focus and a transparent monitoring and evaluation framework. The SEZ policy was finalised and adopted in August 2022 but the SEZ Act will only be enacted in 2023. The expected outcome of the National Special Economic Zone Policy is to bring about successful industrialisation. The Ministry of Industrialization and Trade (MIT) will review the SEZ policy every five years to incorporate new market dynamics and developments. The SEZ expects to yield the following outcomes: A regulatory framework that optimises the development and attainment of an inclusive SEZ regime in Namibia; a regionally balanced operation of SEZ across Namibia; attraction of both, qualitative and quantitative investments into the SEZ across industrial and services sectors; fostering key cross-border regional and bilateral value chains development through SEZ; creation of industrial hubs and technical skills development, and enhanced developmental impact of the SEZ regime. The SEZ policy has made a provision for both fiscal and non-fiscal investment incentives for various investment categories among others, exporters and manufacturers. Some of the identified, but not limited to, incentives are: lower Corporate Income Tax rates; reduced import duties/customs tariffs; Capital Deductions Allowance; Research and Development Allowance; establishment of One-Stop Shop to support the facilitation of incentives for investors in the SEZ; Competitive Utility Tariffs; and supportive and directed approach to provision of visa for non-resident foreign investors.

The Income Tax Amendment Act, 2020 repealed the provisions relating to **tax incentives** for manufacturers. These special income tax incentives granted to registered manufacturers by the time of the amendment in 2020, in relation to the above will continue to apply until the end of the 2025 tax year in respect of each registered manufacturer. The Ministry of Industrialisation and Trade, the Ministry of Finance and Namibia Investment Promotion and Development Board (NIPDB) are in the process of developing new incentives schemes for various investments outside the Special Economic Zones. The new incentives scheme is expected to be in place together with the **Special Economic Zones Incentives Scheme** by mid-year 2023.

4.1.5. Land-use and mineral rights

There are four main categories of land in Namibia, namely:

- State land (land owned by the State and used for nature conservation or military bases;
- Urban land (this land can be owned by the State, by a local authority or by private individuals inside the boundaries of local and regional authorities;
- Commercial farmland (this is agricultural land held under a freehold title) and
- Communal land (land held in trust by the State for the benefit of the communities living on it).

Mineral explorers have to negotiate a contract with landowners to gain access for exploration or mining purposes. Communities have also expressed a desire to have a share of the fees paid to the Government regarding communal land used for mining purposes.

If disputes arise, the **Minerals Ancillary Rights Commission (MARC)** offers an opportunity to implement a cooperative and consultative process between mineral explorers and landowners (MME 2023). The MARC is regulated by the Minerals (Prospecting and Mining) Act and makes provisions for agreement between landowners and mineral explorers. To further empower the MARC, there is a need to develop guidelines to assist in settlement of land disputes.

Public protests against extractive operations are allowed in Namibia, but relatively scarce. In cases where these protests have occurred, it was mostly due to water use conflicts (e.g., impacts on water availability and quality) or labour disputes (e.g., strikes, wages, health and safety).

4.1.6. Environment

Namibia is one of the few countries incorporating environmental sustainability in her constitution. The government institution responsible for the protection and management of Namibia's natural environment is the **Ministry of Environment and Tourism (MET)**. The **Department of Environmental Affairs (DEA)** is responsible for granting Environmental Clearance Certificates (ECC), the administration of Environmental Impact Assessments (EIA), and enforcement of regulations such as on pollution control and waste management). A valid ECC is required for the application for various mining licences and licence renewals. The DEA is also responsible for ensuring that mining companies comply with the EIA-related obligations that allow them to maintain their exploration or mining licence, through regular monitoring and inspection.

The environmental aspects of the mining life-cycle are governed by the **Environmental Management Act No 7, 2007 (EMA)** and the **Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (EIA)**. This includes exploration, construction, production, closure and post-closure.

In addition to the EMA and EIA Regulations, the following key laws and policies play an important role in the environmental aspects of the mining cycle:

- Environmental Assessment Policy, 1995
- The National Drought Policy and Strategy, 1997
- Namibia's Climate Change Policy, 2011
- Nature Conservation Ordinance, 1975

The EMA and its regulations are vital to the environmental management of Namibia's natural resources and the MET proactively continues to try to improve upon it. These regulations include the requirements around the development of Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs), as well as The Environmental Clearance Certificate (ECC) process. Special and stringent conditions are placed on ECCs for projects with high or significant social or environmental risks. The EMP should include measures to be taken to eliminate, offset, or reduce to acceptable levels adverse environmental impacts of mining across the mine life-cycle (EMA, 2007).

Through the EIA process, the EMA requires that mining companies identify and minimise their operations' local and transboundary impacts. Continued pressure from the public and interested and affected parties

helps reinforce the importance of companies consistently working to prevent adverse environmental impacts beyond their mines' boundaries. The effluent permitting process for mining entities is inconsistently applied; some companies have the permits required to ensure that the quality and quantity of mine effluent discharged into the environment is managed and treated to meet established effluent discharge guideline values. In contrast, others can operate without these permits.

Depending on the size of the operation, the following mining activities require an EIA: mineral exploration, mine development and exploitation, landfilling and mine closure/reclamation. The EMA empowers the Environmental Commissioner to monitor compliance with the act and conditions stipulated in ECCs. An EMP must be developed and submitted as part of the ECC application and reviewed and resubmitted every three years for the renewal of the ECC. The monitoring of the environmental performance and the enforcement of environmental provisions is fairly good. However, this is not the case in the case of ASM. The legislation dealing with environmental issues in terms of ASM is fragmented (Leonard et al, 2011).

There are a number of no-go areas for mining in Namibia. Namibia's mineral endowment implies that mining and the environment will continue to interact and hence the need to work together to achieve prosperity in a sustainable manner. The legislation does not offer adequate protections for biodiversity in the face of mine construction and operation. The **Forestry Act No. 12, 2001** provides provisions for removing vegetation and protected trees. At the same time, the draft **Parks and Wildlife Bill** would address biodiversity holistically but has yet to be adopted.

4.1.7. Societal and community aspects, cultural heritage

The Environmental Management Act, through the EIA regulations, caters to what to do should archaeological or fossil remains be encountered during mining activities. Extraction projects may affect tangible or intangible cultural heritage sites, such as archaeological sites or sites of spiritual value. The EIA addresses the protection of cultural heritage and national monuments in the permit application process. The **National Heritage Act No. 27, 2004**, is the law dealing with protecting such cultural heritage.

The **National Policy on Prospecting and Mining in Protected Areas (2018)** aims to ensure that exploration and mining within protected areas are undertaken within the environmental and economic regulatory framework that exists and that mineral development only commences in these protected areas once the impacts have been assessed. This policy also aims to develop integrated and sustainable prospecting and mining in Namibia to support economic growth, whilst maintaining the integrity of ecosystems and natural resources, and avoiding degradation of areas highly sensitive for their ecological, social and/or cultural heritage value. Based on the best available information, the Policy also establishes "no-go areas" where exploration and mining will not be permitted due to high conservation and/or aesthetic land tourism value. Mining activities are only allowed in these areas under conditions of strict environmental management and after the completion of a full EIA.

4.1.8. Public health and safety

Extractive operations can have significant off-site effects and impacts. To a great extent, these are covered by the relevant environmental legislation. Still, other bodies of legislation, such as the Labour Act for Namibia's case, may cover certain aspects. There is no legislation governing noise and dust pollution in

Namibia. The country relies on the South African National Standard (SANS) and South African guidelines without these laws.

Mining-related traffic on public roads is regulated under the Road Traffic and Transport Act 22 of 1999. Potentially affected stakeholders are consulted and involved in developing and maintaining emergency preparedness planning. There are set requirements for public disclosure and access to information, at least for the immediate communities, of the possible dangers or health impact in place (should there be, e.g., dam failure or a release of contaminated dust or water into the environment, etc.). Currently, community members are not monitored for potential long-term health impacts, but compensation schemes for road and workplace injuries or accidents are in place.

4.2. Mining practices vs. Environmental, Social and Governance (ESG) goals

4.2.1 Environmental challenges

On the strength side, Namibia boasts a robust legal framework that aligns with international laws, agreements, conventions, and standards in several key areas. These include the Environmental Management Act (EMA) No. 7 of 2007, Environmental Policies and Regulations of 2012, the Mineral Act (Prospecting and Mining) 33 of 1992, Mineral Policies and Regulations, the Corporate Governance Act (the Companies Act of 2004), and the NamCode (2014). Notably, Namibia's recent acceptance into the United Nations Water Convention marks a historic milestone as it becomes the first Southern African country to join. However, despite the commendable legal framework, there are significant challenges stemming from issues such as institutional capacity and coordination that pose obstacles to effective implementation. Regarding environmental management and protection, Namibia's comprehensive legal framework includes the Environmental Management Act (EMA) No. 7 of 2007 and its associated Environmental Impact Assessment (EIA) regulations, which are essential for safeguarding the environment.

Nonetheless, this study has identified various challenges and gaps within the mineral sector, particularly concerning ESG reporting and performance metrics. The most notable among these challenges, although not limited to, include the following:

Lack of Coordination among Oversight Institutions

In May 2023, the Namibian Parliamentary Committee on Natural Resources conducted an assessment and concluded that there is a notable lack of coordination between the Ministry of Environment, Forestry, and Tourism (MEFT) and the Ministry of Mines and Energy (MME) in fulfilling their respective duties and responsibilities. Furthermore, the monitoring of performance and compliance by companies with existing regulations and policies by state competent agencies and authorities is a rare occurrence and largely contingent upon the budgetary or financial constraints faced by the relevant institutions and authorities. This includes bodies such as the Environmental Commissioner and Environmental Inspectors, as well as the Mining Commissioner and Mine Inspector(s).

No Provision for Land Access to Environmental Assessment Studies

A critical component of the Environmental Impact Assessment (EIA) process involves independent environmental assessment practitioners who conduct EIA studies on behalf of project proponents. However, both the Environmental Management Act (EMA) and EIA Regulations do not include provisions that guarantee unrestricted land access for these independent assessment practitioners conducting assessments for project proponents, particularly mineral companies. Consequently, some environmental assessment firms or practitioners may face challenges in executing comprehensive EIA processes as mandated by the law.

These challenges primarily revolve around difficulties in gaining access to entire areas that need to be assessed and contacting all relevant interested and affected parties for proposed projects. Issues related to personal information (privacy) and the limitations posed by connectivity issues can hinder the full execution of these assessments. Consequently, such challenges can lead to conflicts and delays in project implementation, ultimately deterring investment, limiting job opportunities, and impeding economic growth.

4.2.2 Socio-economic issues

Communities are affected by extractive operations in a wide variety of ways. There can be both positive and negative impacts. Local communities are sometimes supported by mining companies once mining activities have ceased in their area.

The Environmental Impact Assessment regulations outline the processes for public participation. There are no requirements in the Minerals Policy for building the capacities of communities to understand the potential environmental and socio-economic impacts presented during the EIA process. Some stakeholders are generally well-informed, but while the main socio-economic focus of the mining sector tends to be job creation, there is often limited information on other socio-economic factors, such as gender inclusivity or the promotion of local content.

There are no specific regulations related to the involvement of local communities in perceiving economic benefits or incentives for mining activities. The Minister can impose special conditions before granting a mining licence or EPL, including provisions to improve Namibia's socio-economic context. Socio-economic planning is integrated into the EIA process but it is not reported regularly. Mining permits and licence applicants must also identify their mining project's socio-economic benefits and include them in their submissions.

Child labour is not prevalent in the ASM sector in Namibia. Before the start of the any mining activities on a specific land, local communities are often supported by specific measures or programmes. This however not the case in the case of ASM.

Namibia is a signatory to the following international regulations: Universal Declaration of Human Rights (1990), United Nations (UN) Convention on the Elimination of All Forms of Discrimination Against Women (ratified 1992), UN Convention on the Rights of the Child (ratified 1990), Freedom of Association and Protection of the Right to Organise Convention (1995), The Right to Organise and Collective Bargaining Convention (1995), The Forced Labour Convention (2000), The Abolition of Forced Labour Convention (2000), The Worst Forms of Child Labour Convention (2000), The Minimum Age Convention (2000), The

Discrimination (Employment and Occupation) Convention (2001), The Equal Remuneration Convention (2010).

Mining companies are also encouraged to engage in Corporate Social Responsibility/Investment (CSR/I) initiatives and programs on voluntary basis. CSR/I is also encouraged in the Minerals Policy of Namibia. According to the Chamber of Mines, between 2017 & 2022 mining, development and exploration companies contributed N\$837.9 million worth in the form of CSR activities (Chamber of Mines, Annual Reviews 2017-2021). Figure 2 shows the annual corporate social responsibility contribution by mining, development and exploration companies in Namibia.

The data on CSR is not available for the overall mining industry nor for ECRM alone but only for members of the Chamber of Mines. There are a number of companies such as Dundee Precious Metals Tsumeb (DPMT) and AfriTin Mining (Namibia) - Andrada Mining (Pty) Ltd that are part of the ECRM and whose CSR activities are documented.

4.2.3 What would be the best practices for a responsible mining?

The requirements for ESG in the mining sector of Namibia were formulated in accordance and in alignment with international standards and best practices of ESG. This was also done in line with Article 144 of the Constitution of Namibia, which provided for enabling mechanism to ensure that all international treaties and protocols are ratified.

Accordingly, Namibia signed and ratified numerous international agreements, protocols, conventions and commitments relevant to ESG principles and requirements with regards to its mining sector. These international laws, protocols and conventions include but are not limited to:

- The Southern Africa Development Community (SADC) Protocol on Mining, and Southern Africa Development Community (SADC) Protocol on Energy.
- The UN Framework Convention on Climate Change (ratified 1995).
- The Paris Accord (2016).
- The Convention on Biological Diversity (1997).
- The Ramsar Convention on Wetlands (1995),
- The UN Convention to Combat Desertification (1997).
- The Convention on the Illegal Trade in Endangered Species of Wild Fauna and Flora (1990, accession).
- The World Heritage Convention, 1972.
- The Vienna Convention for the Protection of the Ozone Layer, 1985.
- The Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.
- The Kyoto Protocol on the Framework Convention on Climate Change, 1998.
- The International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL) and its subsequent regulations relating to preventing pollution.
- The Minamata Convention on Mercury in 2017.

Namibia also supports several international Human Rights conventions and declarations. These include but are not limited to:

- The Universal Declaration of Human Rights (1990).
- United Nations (UN) Convention on the Elimination of All Forms of Discrimination against Women (ratified 1992).
- UN Convention on the Rights of the Child (ratified 1990).

Namibia is also committed to several international conventions, which include but are not limited to:

- The Basel Convention for Controlling Transboundary Movements of Hazardous Wastes and their Disposal (1995, accession).
- The Stockholm Convention on Protecting Human Health and the Environment from Persistent Organic Pollutants (2005, accession), and,
The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (2005, ratification).

Furthermore, Namibia is a member of the International Labour Organization (ILO) and it has ratified all the eight (8) ILO fundamental conventions: These include:

- The Freedom of Association and Protection of the Right to Organise Convention (1995).
- The Right to Organise and Collective Bargaining Convention (1995).
- The Forced Labour Convention (2000).
- The Abolition of Forced Labour Convention (2000).
- The Worst Forms of Child Labour Convention (2000).
- The Minimum Age Convention (2000).
- the Discrimination (Employment and Occupation) Convention (2001), and,
- The Equal Remuneration Convention (2010).

The Namibian Chamber of mines states, that it will be implementing an ESG strategy that seeks to achieve a common understanding of ESG principles and its objectives across industry. The Chamber believes that a central approach has become necessary to ensure that ESG strategies have the maximum beneficial impact on the socio, economic, and environmental spheres in which mining companies operate. An additional goal of pursuing a unified approach to ESG matters is to promote and rebuild the international brand of Namibian minerals, which seeks to represent sustainable and responsible mining practices.” - Veston Malango, CEO of the Chamber of Mines.

5. Business network between the European Union and Namibia

5.1. Assessment of the upstream and downstream business ecosystem

Since becoming a sovereign state, Namibia has had preferential access to the European market. Today all Namibian exports to the European Union enter the market duty-free and quota-free.

According to the European Union, Namibia's trade balance with the EU is positive. In 2013, Namibian exports to the EU had a value above 12 Billion Namibia Dollars and the value of imports from the EU was less than 10 Billion Namibia Dollars resulting in a surplus of export earnings of more than 2 Billion Namibia Dollars.

5.1.1 Context, formal and informal players

The Namibian mining sector is dominated by industrial mining. ASM is mostly carried out on coloured gemstones, but also on some lithium minerals, especially during the phase of extremely high lithium prices, starting in 2021-2022. As described in chapter 1.3, centralized processing facilities are also widespread in Namibia's small-scale mining sector, particularly for copper, where they serve as key hubs for receiving bulk ore from multiple small-scale mining sites. Centralized processing facilities in the small-scale mining sector play a crucial role in enabling small-scale miners to access processing capabilities that would otherwise be economically unfeasible for individual operations. By consolidating ore from multiple mining sites, these facilities increase efficiency and reduce costs for small-scale miners. Figure 2 shows the location and operational status of processing facilities and refineries in Namibia. In certain instances, large-scale mining operators have established purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems are designed to procure the necessary raw materials from small-scale miners to supply their own processing plants. In certain instances, large-scale mining operators have established purchasing systems to facilitate the acquisition of ECRM commodities from small-scale miners. These systems are designed to procure the necessary raw materials from small-scale miners to supply their own processing plants.

The key institution governing the mining sector of Namibia is the Ministry of Mines and Energy (MME). MME is responsible for:

- Attracting private investment in resource exploration and development through the provision of geological and geochemical information on minerals and energy resources, as well as through the management of an equitable and secure system of licences for the mining, energy and geothermal industries.
- Regulating the industries and ensuring that health, safety and environmental standards are in place and consistent with other Namibian legislation, policies and regulations
- The collection of royalties from the mining and energy sectors; upon collection, the royalties are transferred to the national treasury.

In addition to the MME, the following key government stakeholders in the management of the mining sector are: The Ministry of Environment and Tourism (MET), Ministry of Finance (MoF), Ministry of Industrialisation, Trade and Small and Medium Sized Enterprise Development (MITSMED), Ministry of Agriculture, Water and Forestry (MAWF), the Ministry of Fisheries and Marine Resources (MFMR), the Ministry of Gender Equality and Child Welfare, the Ministry of Health and Social Services, the Ministry of Labour and Social Welfare, and the Ministry of Justice and the National Planning Commission.

5.1.2 Relationships at local or regional levels

Since the early 2000 years, the EU has been promoting a new type of regional, multilateral trade arrangement, known as the Economic Partnership Agreements (EPAs). EPAs are comprehensive trade and development agreements and their objectives are to reduce poverty, diversify economies and create employment through enhanced intra-regional integration and a carefully managed opening towards the world economy. EPAs are compatible with the requirements of the World Trade Organization. They provide benefits for the EU's partner countries that are not matched by any other trade agreements worldwide.

Namibia has participated in EPA negotiations with the EU and other Members of the SADC- EPA Group, namely Lesotho, Mozambique, Botswana, South Africa and Swaziland. On July 6, 2016, the National Assembly of Namibia ratified the Economic Partnership Agreement. Within the framework of this Agreement Namibia will maintain its duty-free and quota-free access to the EU market, along with enhanced regulations on accumulation, protection for emerging industries, safeguards, and other measures that take into account Namibia's development stage and its goal of strengthening its economic integration within SADC and Africa. At the same time, the EU will benefit from improved access to the Namibian market, for the benefit of consumers and investors.

According to the European Commission (2023), Namibia and the EU signed a Memorandum of Understanding establishing a strategic partnership on Sustainable Raw Materials Value Chains and Renewable Hydrogen. The operational roadmap, launched and endorsed today and for the upcoming period 2023–2025, details the concrete actions in which the partnership will advance its goals, in close cooperation with EU and Namibia financial and private sector stakeholders.

Namibia's Economic Regional Organizations

Namibia's regional integration and bilateral trade agreements have aided in achieving the country's trade missions and economic goals. The following are some of the groups and organizations that are integrated with Namibia:

Southern African Customs Union (SACU)

The Southern African Customs Union is the world's oldest existing customs union with a history stretching back to 1910. When Namibia joined in 1990, SACU consisted of four members: Botswana, Lesotho, Switzerland, and South Africa.

The defining feature of the customs union is that all member countries apply the same customs tariff on all goods entering from outside the SACU region. This means that there are no variations in tariffs among

member countries and that any goods entering from outside the region are subject to the same tariffs regardless of which SACU country they enter first. Hence why most of Namibia's commodity exports are exported to South Africa.

In addition to the common external tariff, SACU member countries also impose no customs tariffs on goods entering from other SACU members. This means that goods produced within the SACU region can move freely between member countries without any additional taxes or fees imposed at the border. The customs union also includes provisions for the coordination of trade policies and the sharing of revenue generated from the common external tariff.

As a result of these policies, the regional market becomes more integrated, allowing enterprises to benefit from economies of scale, lower transaction costs, and better access to a wider consumer base. It also contributes to the promotion of economic cooperation and coordination among SACU member nations, as well as ensuring that the benefits of regional integration are shared by all member countries.

Southern African Development Community (SADC)

The Southern African Development Community (SADC) was formed out of the Southern African Development Coordination Conference (SADCC). Each country has export restrictions on specific commodities that benefit local communities, economies, and the environment. Namibia restricts certain mineral exports under its strategic mineral policy, aiming to promote sustainable exploitation, value addition, and protect strategic resources.

Many African countries depend on mining for economic growth and livelihood. In 1997, SADC launched the 'Protocol on Mining' whose aim was to develop the region's mineral resources through international collaboration, in turn improving the living standards of the people engaged with the mining industry. Likewise, the Protocol on Mining prompted several Member States to sign bilateral agreements with countries outside SADC, which has boosted investment. It is against this backdrop that Heads of State and Government of SADC countries decided to develop and harmonize the legislation in the mineral sector for the region as a whole, hence the development of the Protocol on Mining.

The Southern African Development Community Protocol on Mining was signed on September 8, 1997 and entered into force February 10, 2000. The protocol in terms of mining is to grow the mineral industry in Southern Africa, encourage private sector developments, including small-scale projects that promote economic empowerment of those who have been historically disadvantaged in the mining sector. The organization was established in an attempt to reduce the economic stranglehold of apartheid South Africa and one of the early goals achieved was creating infrastructure in all member countries – ports, roads and railways.

The Member States acknowledge that mining can lead to economic development, poverty alleviation and improvement of living standards. They agree to harmonize national and regional policies related to mining and bear their own costs of participation in the implementation of the Protocol. All decisions related to the Protocol will be made by consensus. The Member States will cooperate to develop human and technological capacity, encourage private sector participation in mining, and promote economic

empowerment of disadvantaged groups. They will also improve public information availability and observe international standards for health, safety, and environmental protection.

African Growth and Opportunity Act (AGOA) and the United States of America (U.S.)

The African Growth and Opportunity Act (AGOA) is a U.S. initiative to assist the economies of Sub-Saharan Africa and improve their trade relations with the U.S. AGOA builds on existing US trade programs by expanding the duty-free benefits previously available only under the Generalized System of Preference (GSP).

The Namibian sectors that are involved currently in exports to the U.S under the AGOA arrangement are the following: 'forest products', 'chemicals and related products', energy-related products, fisheries, textiles and apparel, minerals and metals, machinery, transportation equipment, electronic products, miscellaneous manufactures and special provisions. Namibia's exports were further enhanced by AGOA II, which allows Namibia to benefit from the 'lesser developed beneficiary Sub-Saharan African country' provision.

Overall, these trade restrictions aim to balance the benefits of the mining sector with the needs of the local population and the environment. While they may create some challenges for mining companies, they also provide opportunities for local businesses and job creation.

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5.2. Building new B2B relations

5.2.1 Promoting local content and enabling mining cluster actors

Relevant institutions for the development of a Namibia-focused critical minerals network

The most relevant "institutions" would be large/industrial scale exploration and mining companies, as they bring in, foster and demand well trained professionals in various fields of the mining industry.

These companies are usually members in the Chamber of mines, which has a committee dedicated identifying critical areas for skills development and training in the mining sector. This network can also carry the needs of mining and exploration companies to the state institutions and the public to show the needs of the mining industry, to demonstrate the importance and the potential of the mining industry to Namibia and also to build a network of companies and employees, to support each other and to learn from each other. Although there already is a relatively good network of Namibian professionals in the mining sector due to the size of Namibia and the limited number of institutions for higher education.

The mining industry is also an important factor for capacity building. In 2022, the Namibian mining industry spent N\$196 million on training and skills development. This included expenditure on:

- Internships
- Bursaries and scholarships
- Health and safety training
- Leadership, Management and Supervisory Development

- Machine operation competency
- Supply chain
- Compliance training
- Water resource management training
- First aid training

Academic institutions and other training establishments in the field of geosciences and mining

The key Higher Education Institutions and vocational centres are:

- **Namibia University of Science and Technology (NUST):** NUST offers undergraduate and postgraduate programs in mining-related disciplines, including mining engineering, metallurgy, geomatics (NUST, 2023).
- **University of Namibia (UNAM):** The University of Namibia's school of science offers various science, technology, engineering and math (STEM) programs relevant to the mining industry. The programs offered include mining engineering, geology, environmental management science and geo-information science (UNAM, 2023).
- **International University of Management (IUM):** IUM offers undergraduate and postgraduate programs in Environmental management-related disciplines, including environment management and sustainable development (IUM, 2023).
- **Vocational training Centres:** Vocational training centres in Namibia provide an opportunity for individuals to gain skills for employment in the formal market. The programmes offered include boiler making, electrical engineering, welding and metal fabrication. Namibia has seven vocational training centres in different regions under the NTA (Public) offering fulltime, distance, part time and special training. In addition, Namibia has 56 private vocational training institutes. The Namibia Institute for Mining and Technology (NIMT) is a vocational training institution offering courses and programs in mining-related disciplines, including autotronics, boiler maker, diesel mechanic electrical & fitting and tuner. Its key object is to provide skilled manpower for the mining industry (NIMT, 2023). NMT offers both fulltime and special training courses.

6. Energy and digital transition: develop a strategy for the EU and Africa Partnership

In November 2022, Namibia launched the “Green Hydrogen and Derivatives Strategy” which sets out Namibia’s action plan in establishing itself as a major global hydrogen producer. The strategy foresees the creation of three hydrogen valleys in the southern region of ||Karas, the central region (which includes the port of Walvis Bay and the capital Windhoek), and the northern region of Kunene. These regions and locations coincide with the regions of high ECRM mining activity. Namibia’s potential to produce green hydrogen and derivatives is estimated at 10-15 million tonnes per annum by 2050. The strategy also envisions the creation of common user infrastructure (CUI) which includes overland transmission lines, water infrastructure, hydrogen pipelines, ancillary infrastructure and an industrial port complex. Consequently, an opportunity exists for the ECRM mining sector to utilize the CUI to its advantage. Furthermore, green hydrogen presents a substitute for fossil fuels by enabling the transition to hydrogen-powered mining fleets. Hyphen (a German – British consortium) won a government-hosted competitive tender to build the project, but will not officially be given the rights until it concludes a feasibility study and signs a construction contract with the government. The first phase, which is expected to enter production in 2026, will see the creation of 2GW of renewable electricity generation capacity to produce green hydrogen for conversion into green ammonia, at an estimated capital cost of US\$4.4bn (Hyphen 2023). Further expansion phases in the late 2020s will expand combined renewable generation capacity to 5GW and 3GW of electrolyser capacity, increasing the combined total investment to US\$9.4bn.

EU-Namibia strategy on green hydrogen

For the EU, raw materials and renewable hydrogen value chains are critical to the green and digital transitions. They are essential for the deployment of critical technologies like wind turbines (with rare earth magnets) and semiconductors (polysilicon). Similarly, renewable hydrogen technology supports the decarbonisation of hard to abate sectors and energy intensive industries.

The EU needs to secure a sustainable supply of raw materials, especially critical raw materials, as an essential prerequisite for delivering on green and clean energy objectives. As part of the Action Plan on Critical Raw Materials, the Commission has already started working to build partnerships with resource-rich third countries, making use of all external policy instruments and respecting its international obligations. In the margins of the EU-Africa Summit in February 2022, President von der Leyen and Mr Hage Geingob, President of Namibia, discussed the establishment of a partnership on sustainable raw materials value chains and renewable hydrogen, as one of the key flagships of the Global Gateway strategy. The partnership aims to ensure the development of a secure and sustainable supply of raw materials, refined materials and renewable hydrogen to support the green and digital transformation of the partners' economies. It deepens the cooperation in areas with mutual benefits for both parties. The partnership will promote local value addition in Namibia by supporting the development of the mining and renewable hydrogen value chains. It will support sustainable raw materials value chains and facilitate investment and funding opportunities to modernise the Namibian industries and drive economic and social development.

The partnership contains six main pillars:

- Integration, where feasible, of raw materials and renewable hydrogen value chains, including networking, new business models and promotion and facilitation of trade and investment linkages;
- Cooperation to leverage Environmental, Social, and Governance (ESG) Criteria and align with international standards;
- Mobilisation of funding for the development of soft and hard infrastructure required for projects development and for leveraging private sector funding through cooperation to address trade matters, including inclusiveness, and improving investments on climate action;
- Capacity building, training and skills development along raw materials and renewable hydrogen value chains;
- Co-operation on research and innovation along the raw materials value chain, including on mineral knowledge and circularity, hydrogen technologies and skills;
- Regulatory alignment, standards and certification.

Risks

A main risk may be to hire the estimated 3000 people, who will work in the facility, due to the limited workforce in Namibia with its below 3 million inhabitants. Another risk in terms of hydrogen production is the capital expenditure and operating costs. Industrial production in such a scale, as envisaged has never been done before and although the process should be scaleable, it is not clear, whether the production of wind energy during the nights is sufficient to compensate the solar energy, which cannot be produced during the night. This could probably lead to higher than expected costs and lower than expected production.

National strategy

Namibia uses a Modified Single Buyer model which allows transmission electricity consumers to directly procure up to 30% of their energy requirements from Independent Power Producers (IPPs). Mining companies have an opportunity to reduce their carbon footprint by shifting to renewable energy either through purchase agreements with green energy producers or by setting up their own green energy schemes. In Namibia, non-ECRM mining companies such as B2Gold and Rosh Pinah Zinc Corporation have initiated solar parks to meet their power needs.

The rising use of renewable energy sources is one significant development in Namibia's mining industry. Solar and wind energy are gaining prominence as viable alternatives to reduce dependence on fossil fuels and mitigate greenhouse gas emissions, leveraging Namibia's abundant sunshine and strong winds. Namibia uses a Modified Single Buyer model, which allows transmission electricity consumers to directly procure up to 30% of their energy requirements from Independent Power Producers (IPPs). A few mining companies in Namibia have already embarked on renewable energy initiatives. In addition, the government of Namibia also intends on expanding its power generation capacity with renewables. All

these initiatives involve the installation of solar panels and wind turbines to power their operations. Some of the operations with existing or planned green energy plants include:

- Tshudi Copper Mine: The Tschudi copper mine owned by Weatherly international corporation, has constructed a 1.5MW solar power plant to supply electricity to the mine.
- Lofdal Heavy Rare Earth Project: The project is being undertaken by Namibia Critical Metals and aims to integrate both solar and wind energy sources to supply the envisioned mine with electricity.
- Rosh Pinah Zinc Mine: The Rosh Pinah Zinc Mine has constructed a solar power facility with a capacity of 1.2 MW.
- Otjikoto Gold: The Otjikoto gold mine, owned by B2Gold has constructed 2.5 MW wind farm for electricity supply.
- Southern Coastal Mines: Namibia's biggest land diamond operator, Namdeb, intends on establishing a 34MW wind energy facility to replace up to 50% of its current high-carbon electricity footprint.
- Rossing Uranium Mine: The company plans to construct a 15MW Solar power plant.
- Namibian government: Namibia plans on expanding its power plant capacities to 1,677 MW by 2035. 42% (708.5 MW) of these planned capacities will be derived from renewables with a mix of wind, photo-voltaic, biomass and concentrated solar power. To date a total of 199MW renewable energy plants have been built.

Mining Sector Specialized Institutions (MSFI) can be specialized in raising green and sustainability bonds that are specifically focused on the mining sector. These bonds can attract environmentally conscious investors and fund projects with a strong sustainability focus. The green revolution and the shift toward a low-carbon economy necessitate the use of metals and minerals. However, to ensure the success of this transition, it is crucial that these resources are extracted, processed, and recycled in an environmentally sustainable manner.

Investors and financiers are increasingly interested in green and sustainable investments. The pressing issues of climate change and environmental concerns like air and water pollution are now seen as systemic risks. Governments, regulatory bodies, central banks, and insurers are acknowledging these risks, which may lead to higher financing costs for unsustainable ventures.

The green bond market, though still a relatively small segment of global bond markets, is experiencing rapid growth. In the first half of 2019, more than \$100 billion worth of green bonds were issued. However, there's a growing recognition that for this sector to continue expanding and, more importantly, to support and facilitate the transition to a greener economy, traditionally "brown" industries like mining must be able to access green and sustainability-linked financing.

Mining investors and financiers now demand adherence to global standards like the Equator Principles and IFC Performance Standards, irrespective of local regulations. Rather than viewing enhanced transparency and reporting as a hindrance, increased ESG (Environmental, Social, and Governance) reporting can open doors to "sustainability-linked" financing. This can involve loan facilities where the interest rate is tied to the achievement of specific ESG key performance indicators (KPIs), verified by an independent third party.

Instances of this approach being employed in the mining sector include Rusal's recent \$1 billion sustainability-linked syndicated pre-export finance facility and Polymetal's sustainability-linked loans signed in partnership with ING in 2018 and Société Générale in 2019. To engage in such financing, third-party evaluators and sustainability ratings agencies require transparency and disclosure to effectively assess performance against ESG criteria. Sustainability-linked lending is recognized as one of the fastest-growing debt asset classes in 2019, according to Bloomberg. This presents an opportunity for Namibian mining companies to access such top-tier financing through the establishment of a dedicated Namibian MSFI.

7. Opportunities for responsible investments

The biggest investment opportunities in the ECRM value chain might be given in the further processing of concentrates of ECRMs, which should be focussed on lithium (close to production start at Andrada Mining's operation) to lithium carbonate and to produce mixed rare earth oxides from concentrates from the planned rare earth mine of Namibia Critical Metals (Lofdal Project). Tin from the Uis Mine could also be smelted in the country, but this process step consumes relatively much electrical energy. There is no single investment opportunity in Namibia like a planned smelter or processing facility for ECRMs with direct investment need, except the mining and processing project of the Lofdal rare earth project, which is financed by the Japanese state owned company JOGMEC, which would also take off the produced rare earth mixed oxides – meaning that it already got founding. In general the biggest value addition in mining is coming from the mining and concentration at the mine itself. The net smelter return (NSR) for base metals – the percentage of money a mining company receives from a smelter minus transport and fees – is usually above 60 %, reaching values of up to 80-90 % (for copper and nickel concentrates with a short or cheap transport route). This does not mean that a country should concentrate on mining only, although this is the single biggest value addition in the value chain. Further processing usually includes higher educated workers and more employment. Additionally, it is opening the doors for a downstream industry.

7.1. Identification of individual exploration, mining and refining projects

At the level of individual exploration, mining or refining projects, the BGR will prepare the following fact sheets for Namibia as potential investment opportunities. These fact sheets are presented in Task 7.2 (Work Package 7):

1. Uis (Li, Sn, Ta)
2. Eureka (REE)
3. Karibib (Li, Sn, Ta)
4. Tsumeb (Ge recovery from copper slag)

In addition, Odikwa Geoservices has prepared fact sheets for the following projects as a contribution to this country case study:

Opuwo Co-Cu-Zn Project. The Opuwo Cobalt Project is the first significant cobalt discovery in Namibia. Rio Tinto (RTZ) worked in the area around 1992/1993 and identified the “SD copper-zinc target”. RTZ drilled five boreholes into the unit of which four boreholes were assayed for copper, zinc, and lead only. The economic potential of cobalt mineralisation was first recognized by Kunene Resources (Rainer Ellmies) during reconnaissance in 2012.

Tsongoari Pb-Zn-Cu-Ag-Ba Deposit. The Tsongoari SEDEX deposit was discovered in 1973 by Sarusas Development Corporation, who, together with General Mining and Finance Corporation Limited, conducted the initial mineral exploration in the area until mid-1975. Work in the area has since been undertaken by different companies including Rand Mines Limited and Rio Tinto Namibia Limited from the 1980's to early 1990's. The most recent article on the deposit is by Professor Christoph Gauert (2005), which is focused on the geology, versus additional resource work.

Eureka LREE Deposit. The Eureka Light Rare Earth Elements (LREE) deposit occurs in several medium to coarse-grained dolomitic (beforsite) carbonatite dykes with an average thickness of 1-2 m (maximum 7m). The dykes intrude feldspathic quartzites of the Etusis Formation, interfingering with calc-silicate layers of the Khan Formation and are intersected by a tourmaline-bearing pegmatite. In 1960, the carbonatites were interpreted to have been skarn deposits, but later studies by Verwoerd (1967) and Dunai (1989) confirmed the magmatic origin of the Eureka carbonatite dykes. The Eureka carbonatite dykes are located close to the intersection of the Omaruru Lineament with the Welwitschia Lineament Zone, and have an age of 450-500 Ma, separating them from earlier carbonatite and alkaline complexes of the NE-trending Damara Belt.

Aukam Graphite Project. The Aukum Graphite Deposit was discovered by J. Eloff in 1928. The deposit was mined in two stages between 1940 to 1956 and 1964 to 1974. The operations halted in 1956 when the workings were destroyed by fire and ceased in 1974 when the reserves were exhausted. In that period (1940-1974), all the crude ore was sent by rail to South Africa where it was treated and refined.

The Steilrand Manganese and Barite Deposits (SSM). Outcrops of stratiform manganese layers in the Orurio/Olulilwa (company vernacular) area were discovered by Kunene Resources (Rainer Ellmies and Kaarina Ndalulilwa) on 15th June 2013 on a reconnaissance excursion on the western part of EPL4347 (relinquished). The geological literature did not note manganese occurrences in the area. A comprehensive exploration program on the prospect comprising of detailed surface mapping and diamond drilling was undertaken in 2016.

Bitterwasser Lithium Clays and Brines. Arcadia's Bitterwasser lithium in clays and lithium in brines deposits are in central Namibia, east of the town of Kalkrand. The deposits are comprised of lithium, potassium, and boron enriched sulphate-, chlorite- and carbonate- saltpan, within Kalahari Group sediments. The pan sediments are dominated by massive clays, silty-clays, and sandy-clays, within the unconsolidated red-coloured aeolian sands. Coarse sediment increases towards the margins of the pan, while finer sediments dominate the central section, suggesting persistent terrestrial sediment input throughout the pan's development processes of deflation and sedimentation.

Kum-Kum Nickel-PGE (Pd) Project. The Kum-Kum Project is at an early stage of mineral exploration. EPL 7295 covers the Kum-Kum Igneous Complex. The Kum-Kum Igneous Complex consists of rocks with a gabbro-norite composition, which are metamorphosed and altered, with significant proportions of green amphibole. Small doleritic dykes crosscut the complex. Gabbros, gabbro-norites, and their metamorphic equivalents make up the bulk of the Kum Kum rock library.

Swanson Tantalum-Niobium-Lithium Project. Tantalum mineralisation has been known in the area since the 1940s. There is abundant evidence of historical extraction of economic minerals such as tantalite, beryl, spodumene, and tungsten, from pegmatites on EPL 5047. The remains of permanent structures such as personnel accommodation and a processing plant is still evident. The primary mining was for tantalum which it took place on the shallow dipping pegmatites in the north-western strain shadow of the Tantalite Valley Complex.

Omitiomire Copper Project. The Omitiomire Copper (Cu) Deposit was discovered in the mid-1970s by General Mining and Finance Corporation (GenMin), following on the discovery of malachite occurrences associated with sporadic outcrops of metabasite. Drilling between 1976 and 1978 targeted copper in soil geochemical anomalies but due to the disappointing copper assay results and failure to understand the geology due to the relatively wide spacing of drill holes, it resulted in no work on the project for more than a decade until the rise in copper prices in 1989.

Otjozondü (Otjosondü) Manganese Field. The Otjozondü Manganese Field is the largest known manganese occurrence in Namibia. It is located about 150 km NE of the town Okahandja and covers an area of over 240 km². The area is relatively flat lying, with limited outcrops, and mostly covered by extensive Kalahari sands. Production has been ongoing since the 1950's at small-scale mining, and ores are un-depleted. Upside potential lies in off-take opportunities, mineral exploration in the underexplored areas and the areas under cover, including possible extensions of current open pit operations.

7.2. ASM sector country profiles

In Namibia, the term "small-scale mining" (SSM) is used as opposed to artisanal and small-scale miners (ASM). SSM refers to mining with minimal machinery and/or simple technology with very low capital requirements (Linus, 2023). Throughout its history, Namibia has been renowned for its diverse range of high-quality semi-precious stones. SSM and prospectors are primarily responsible for extracting these stones, with most mining activities concentrated in three regions: | |Kharas, Erongo, and Kunene (Figure 24). Due to the limited economic feasibility of large-scale mining operations, small-scale miners rely on basic equipment and simple technology to exploit small mineral deposits. Compared to other nations, Namibia's SSM community remains relatively small, largely due to the country's modest population. Approximately 5000 – 8000 Namibians derive their livelihoods from the small-scale mining sector, a notable figure considering the country's population of only about 2.6 million people.

The small-scale mining sector plays a crucial role in Namibia's Minerals Policy of 2002 and is governed by the Minerals Act 33 of 1992 ("Minerals Act"). The Minerals Act regulates the prospecting, exploration, and exploitation of solid minerals throughout Namibia. It encompasses various licenses, approvals, and restrictions that are applicable to the mining sector as a whole, with specific relevance to the SSM sector. The Ministry of Mines and Energy (MME) serves as the regulatory authority for mining activities and has a dedicated division to support SSM operators in all aspects of the mining process. This includes assisting with license acquisition, conducting sample testing, and facilitating mineral export procedures. To address any disputes that may arise, the MME has established the Minerals Ancillary Rights Commission (MARC) as a mechanism for conflict resolution within the SSM sector. MARC focuses on mediating conflicts related to land access between SSM miners and private landowners, particularly when a mineral license area overlaps with privately owned properties. MARC's primary objective is to facilitate agreements that ensure both access to land for SSM miners and appropriate compensation for landowners.

The Minerals Act stipulates that all prospecting, exploration, and mining activities are prohibited without the appropriate license. In the small-scale mining sector, there are two primary licenses:

- **Non-exclusive Prospecting License:** This license allows the holder to conduct prospecting activities, extract specified minerals listed on the license, and sell them with the approval of the mining commissioner. It does not grant exclusive rights to the designated area, meaning multiple parties can hold non-exclusive prospecting licenses for the same geographic area. As a result, the application fees for non-exclusive prospecting licenses are cheaper than those for exclusive prospecting licenses.
- **Mining Claims:** This license enables the holder to engage in both prospecting and mining activities, extract specified minerals mentioned in the license, and sell them with the approval of the mining commissioner. Additionally, the holder is permitted to construct supporting infrastructure within the claim area.

SSM licenses are exclusively reserved for Namibian citizens or corporate entities in which only Namibian citizens have ownership. This restriction aims to promote local participation in the mining sector. Compared to licenses for large-scale mining, SSM licenses have lower acquisition costs, quicker feedback on applications, and less stringent technical or financial requirements for applicants. The issuance of SSM licenses is overseen by the Mining Commissioner, who governs the SSM sector, in contrast to licenses for the large-scale mining sector, which are issued by the Minister of Mines and Energy. However, despite the reduced administrative requirements, many SSM operators face challenges in formally registering their sites due to the distant location of the license administrative centre from the mining sites.

Similar to large-scale mining, obtaining an Environmental Clearance Certificate (ECC) is a prerequisite for SSM licenses. The ECC application requires applicants to provide details of the proposed mining activity and assess potential environmental impacts. The ECC requirements have been identified as a barrier to formalizing SSM operations. Acquiring an ECC typically involves significant capital investment, which is often inaccessible to SSM operators. To address this issue, organizations such as the United Nations Development Program have provided funding for district-scale Environmental Scoping Studies in SSM hotspots, facilitating the acquisition of ECCs.

Small-scale mining in Namibia coexists with established large-scale mines. At present, small-scale miners have taken steps to form associations based on regions or mining districts, aiming to advocate for their interests and address their specific needs. As of now, associations have been established in three regions: Erongo, Kunene, and //Kharas. However, in most other regions of the country, small-scale miners continue to operate without formal recognition or association representation. The formation of these regional associations demonstrates the proactive approach taken by small-scale miners to organize themselves and have a collective voice in the industry. It allows them to collaborate, share information, and work towards addressing the challenges they face. The goal is to further expand the formation of associations across the country, ensuring that small-scale miners in all regions have a platform to represent their interests and contribute to the development of the sector. The Ministry of Mines and Energy (MME), in collaboration with Regional and Town Councils, is actively engaged in the ongoing endeavour to formalize a larger portion of these miners. However, it is important to note that the process of formalization is progressing slowly. Efforts are being made to streamline and expedite this process to ensure that small-scale miners across the country receive the necessary recognition and support in their operations.

Conclusion

There are several 100 ECRM prospects in Namibia, covering 16 ECRMs as a primary commodity, but the majority of them will not fit into so called world-class deposits with a major share in the production of a certain commodity. Nevertheless, there are various investment opportunities in several commodities like lithium, tin, rare earths elements, graphite and tantalum in a small to medium scale. Due to the small number of only 3 million inhabitants and thus a small workforce, combined with restrictive working permits for foreign specialists, investing into small to medium size projects can be very attractive in Namibia.

The most interesting mining areas in Namibia are the Kunene Region, which has emerged as a significant mining hub with promising ventures in cobalt, copper, rare earth metals, iron ore, Ni-Cu-(Co-PGE) mineralizations.

The Erongo region in central Namibia is promising to lithium, rare earth elements, tin, and tantalum, offering untapped potentials in a former mining area.

Other investments from the Namibian government like the Southern Namibia Mapping Program (SNMP) shows the commitment of the government to increase the geological database and to attract mining investment. This program seeks to provide deeper insights into the geological formations and structural features that influence mineral deposits within the region, specifically targeting resources such as copper, lead, zinc, uranium, tantalum, niobium, rare earth elements, lithium and tungsten.

Due to its long mining history, Namibia offers a robust legal and fiscal framework for mining and exploration companies. Mining has a huge share in the Namibian GDP of around 10 % in the last years. Compared with the smelting operation in Tsumeb the share of mineral and metal production will be even higher. Mining and mineral products also dominate the exports of Namibia, where their share is 57 %. Although there is such a big contribution of the minerals sector to the economy, there is only one major further processing project in Namibia, the Tsumeb smelter. The government wants to increase further processing in the country, not only for ECRMs, but in general for mineral products and defined the Growth at Home strategy.

This reports also gives an extensive overview about the relatively high taxation environment, but also fair royalty regime and stability in Namibia. There is of course room for improvement in workers' rights and other ESG topics, but besides the access to water, there is not much opposition to mining in Namibia at present. Although Namibia has not yet joined the Extractive Industries Transparency Initiative (EITI), but the country is in the process of establishing a position on joining it. Mining investors appreciate a clear interpretation of regulations and a solid geological database. But they also demand improvement in the sectors of labour regulations, taxation, trade barriers and more predictability about protected areas.

The EU and Namibia want to extend their cooperation and signed a Memorandum of Understanding establishing a strategic partnership on Sustainable Raw Materials Value Chains and Renewable Hydrogen. This planned investment demonstrates the stability and general investment regime in Namibia, which make it possible to attract multi-billion dollar investments.

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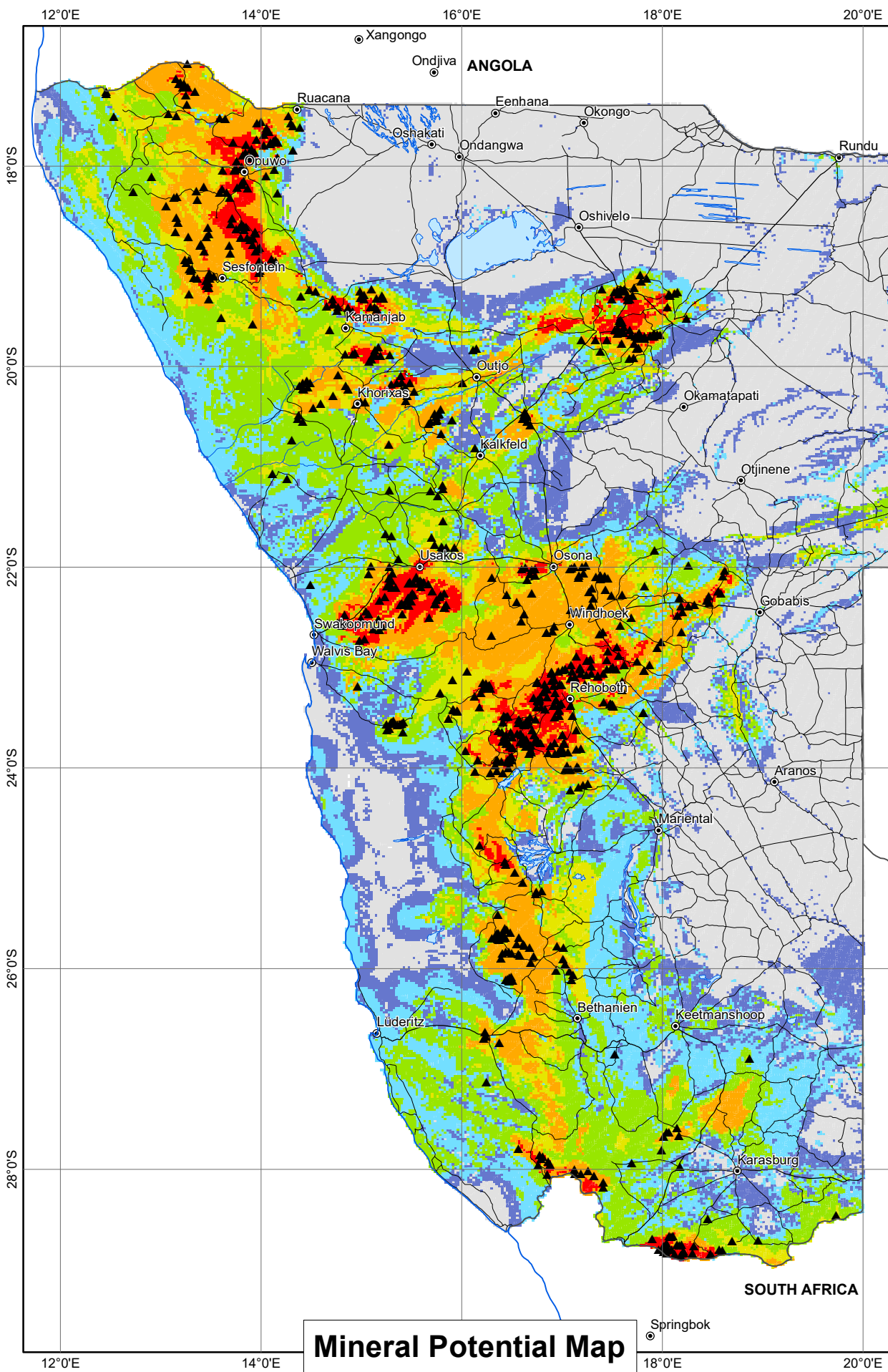
APPENDICES



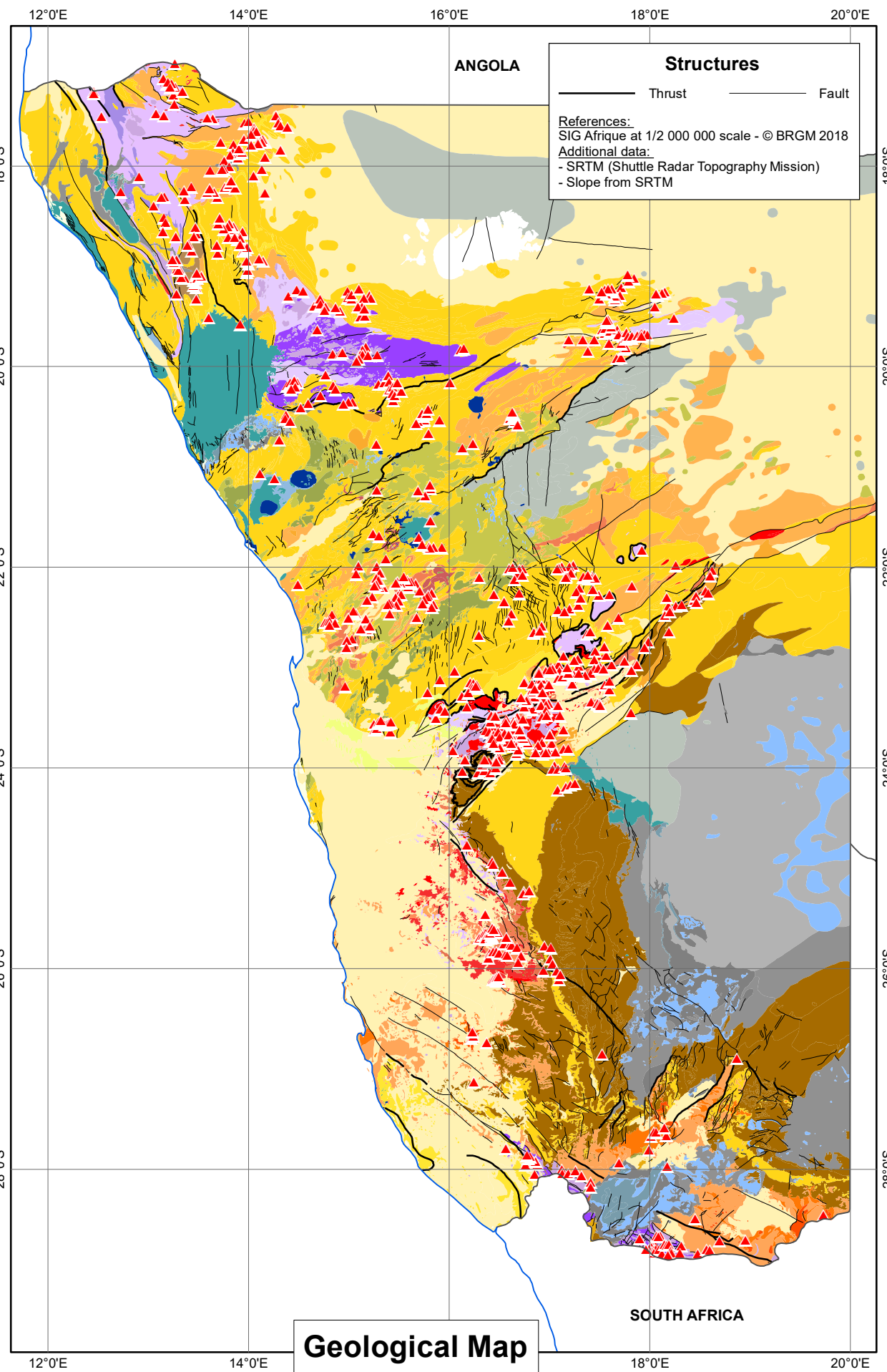
Funded by
the European Union

Country: **NAMIBIA**

MINERAL POTENTIAL MAP - *COPPER (Cu)*



Mineral Potential Map



Geological Map

Legend

Score

- < 0.05
- 0.05 - 0.125
- 0.125 - 0.25
- 0.25 - 0.45
- 0.45 - 0.60
- 0.60 - 0.80
- 0.80 - 1

Known occurrences

- Copper (Cu)
- SIG Afrique - © BRGM 2018

Confusion matrix

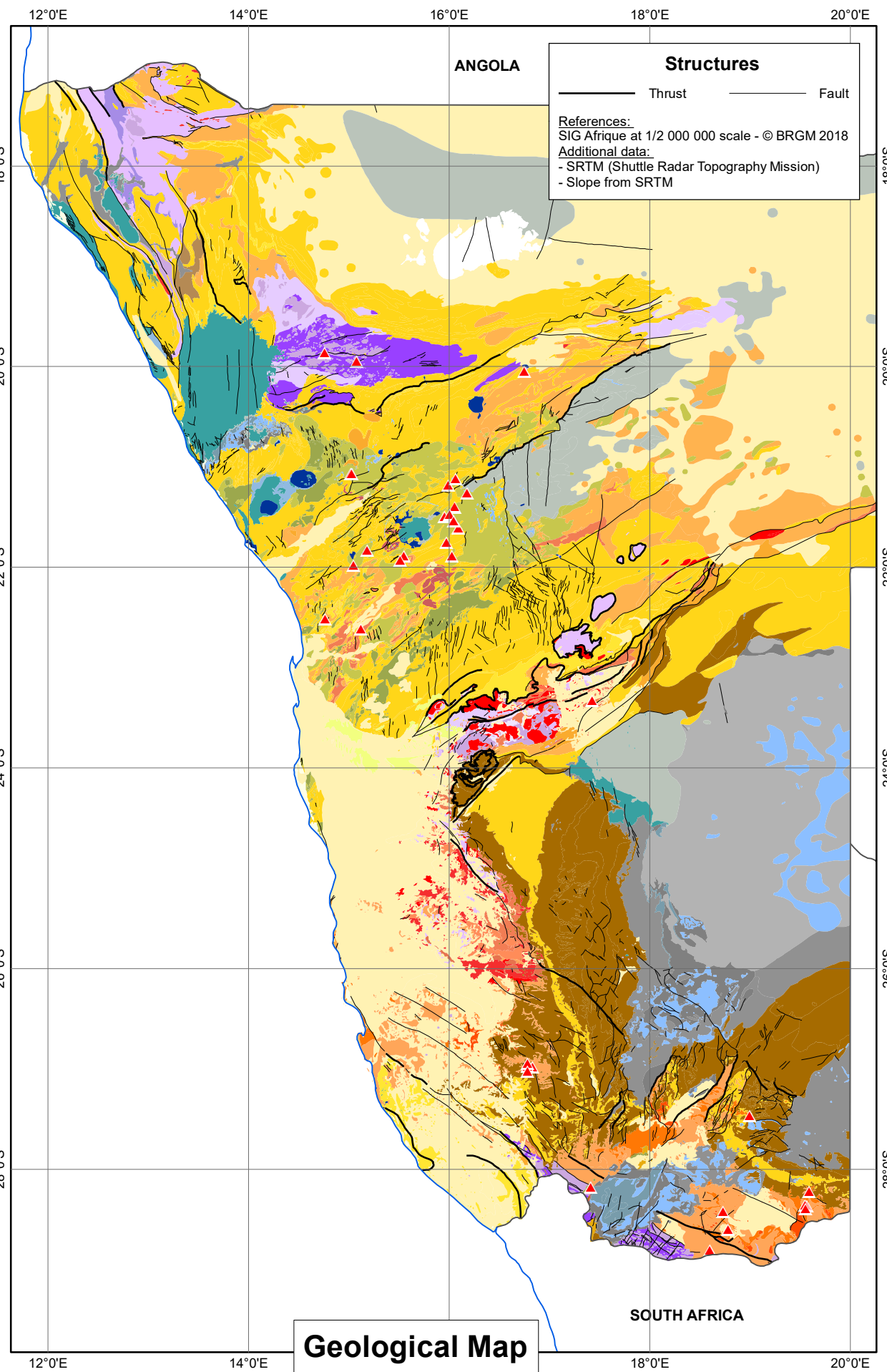
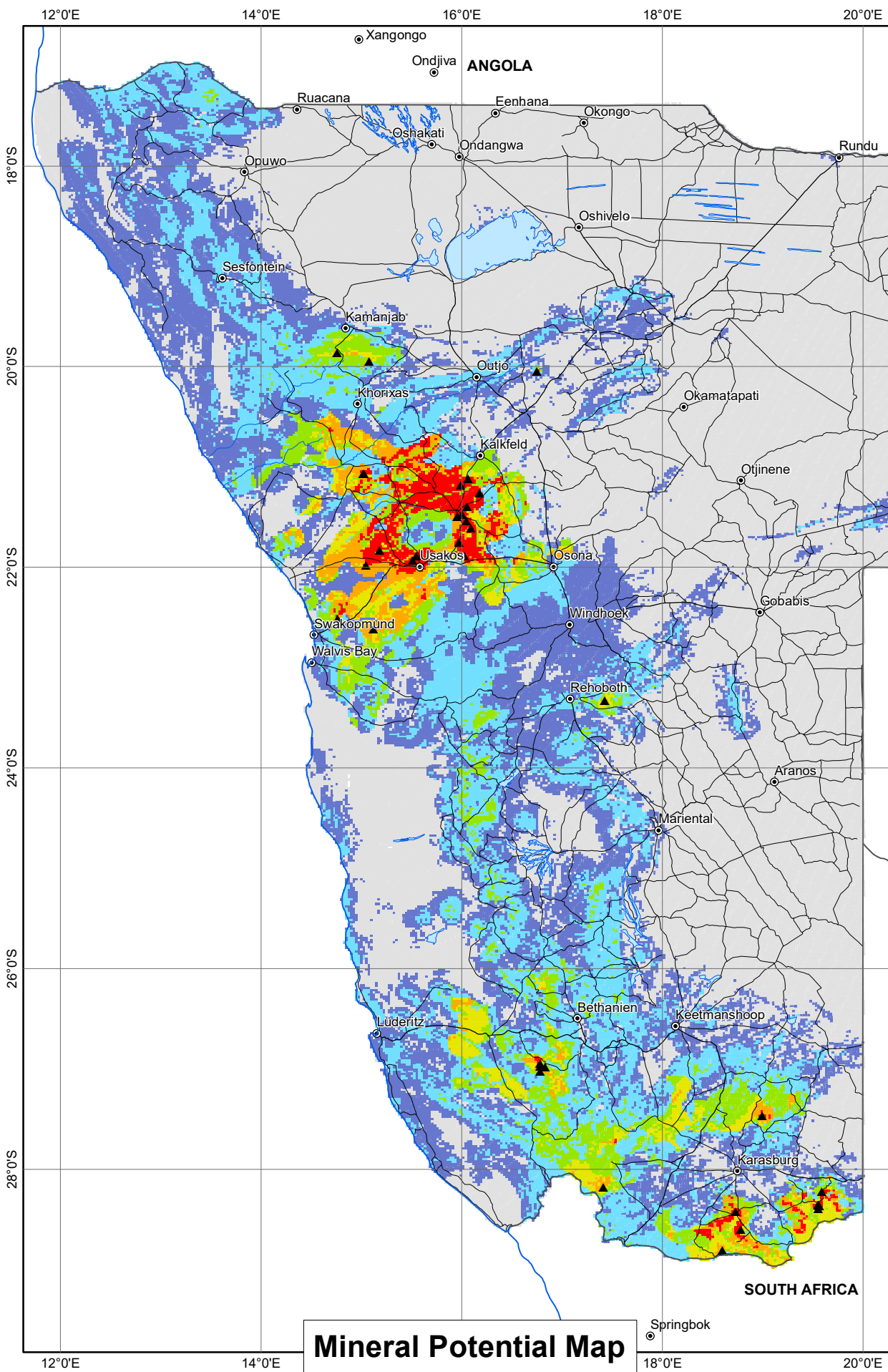
| | |
|--|--|
| True negative Cells: 114262 85.87% Non-occurrence in database Non-occurrence predicted | False positive Cells: 16824 12.64% Non-occurrence in database Occurrence predicted |
| False negative Cells: 185 0.14% Occurrence in database Non-occurrence predicted | True positive Cells: 1796 1.35% Occurrence in database Occurrence predicted |

Best threshold (G-Means): 0.57
Cell size: 2500 m

0 50 100 200 Km

Datum : WGS84 (World Geodetic System 1984)

January 2024



Legend

Score

- < 0.05
- 0.05 - 0.125
- 0.125 - 0.25
- 0.25 - 0.45
- 0.45 - 0.60
- 0.60 - 0.80
- 0.80 - 1


Known occurrences

- Fluorine (FI)
- SIG Afrique - © BRGM 2018

Confusion matrix

| | |
|--|--|
| True negative Cells: 128382 96.48% Non-occurrence in database Non-occurrence predicted | False positive Cells: 4541 3.41% Non-occurrence in database Occurrence predicted |
| False negative Cells: 1 0.00% Occurrence in database Non-occurrence predicted | True positive Cells: 143 0.11% Occurrence in database Occurrence predicted |


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Cell size: 2500 m



0 50 100 200 Km

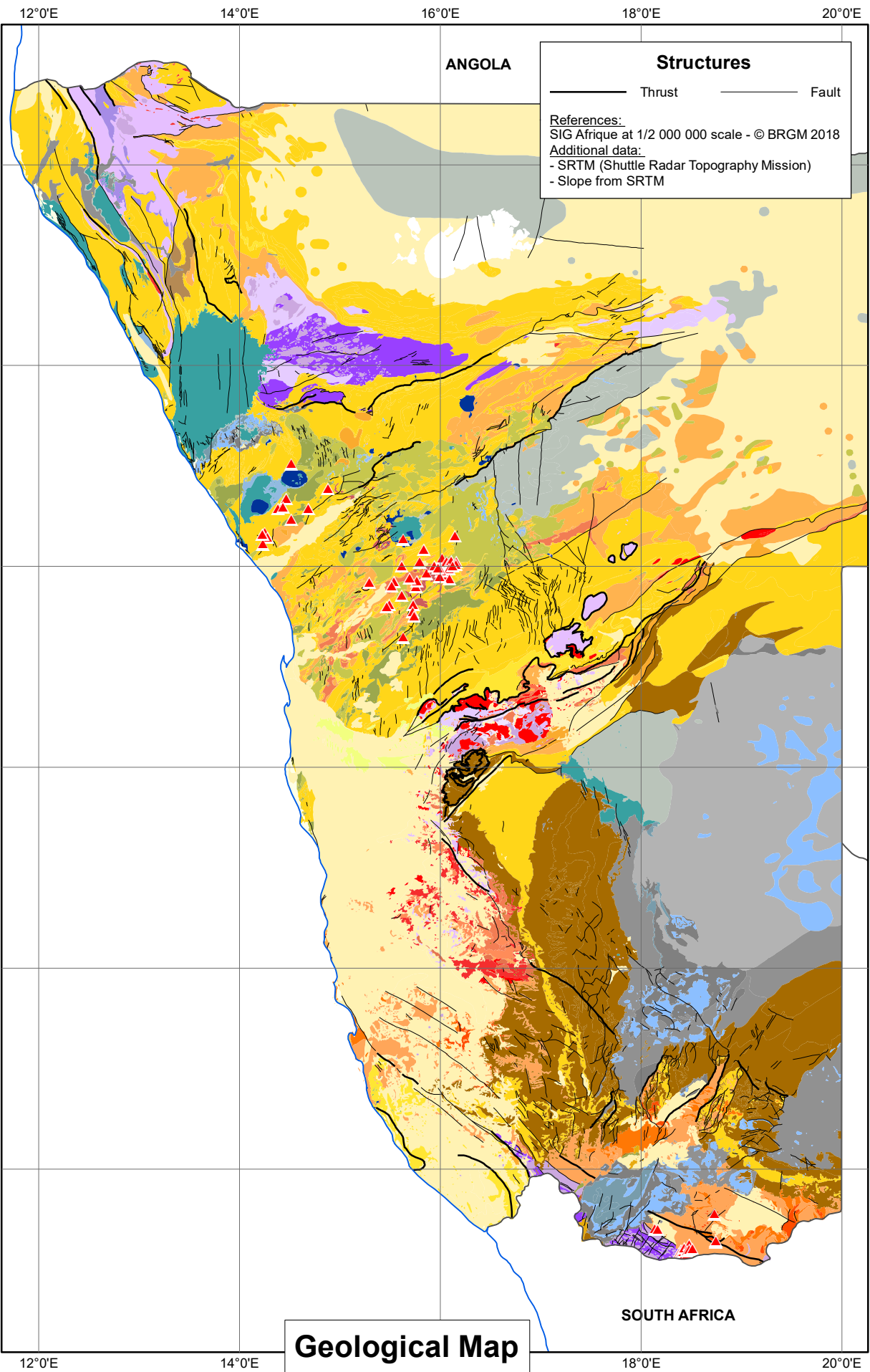
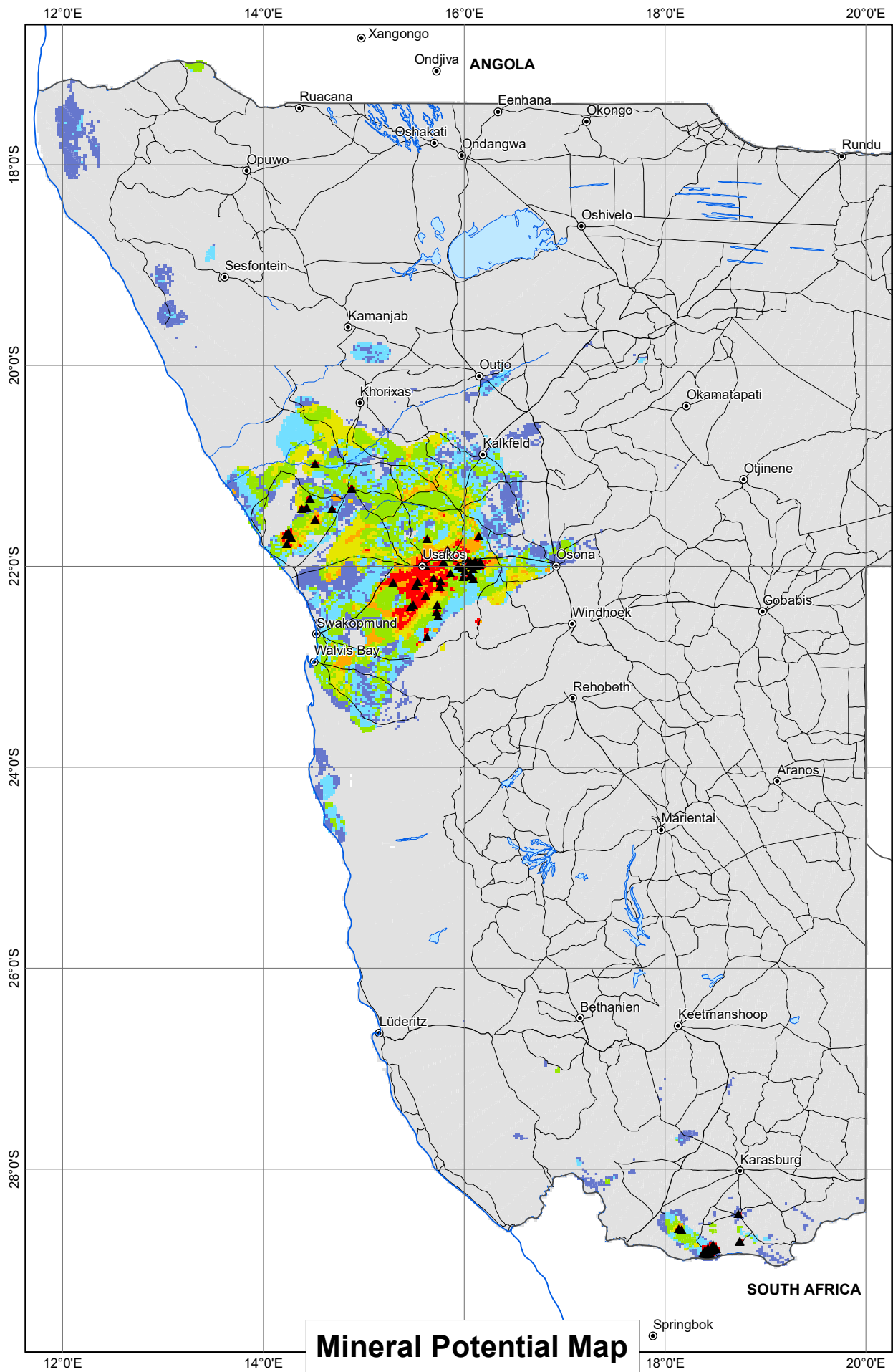
Datum : WGS84 (World Geodetic System 1984)

January 2024



Country: **NAMIBIA**

MINERAL POTENTIAL MAP - *LITHIUM (Li)*



Legend

Score

- < 0.05
- 0.05 - 0.125
- 0.125 - 0.25
- 0.25 - 0.45
- 0.45 - 0.60
- 0.60 - 0.80
- 0.80 - 1

Known occurrences

- Lithium (Li)
- SIG Afrique - © BRGM 2018

Confusion matrix

| | |
|--|---|
| True negative Cells: 132148 99.31% Non-occurrence in database Non-occurrence predicted | False positive Cells: 682 0.51% Non-occurrence in database Occurrence predicted |
| False negative Cells: 0 0.00% Occurrence in database Non-occurrence predicted | True positive Cells: 237 0.18% Occurrence in database Occurrence predicted |

Best threshold (G-Means): 0.65
Cell size: 2500 m

0 50 100 200 Km

Datum : WGS84 (World Geodetic System 1984)

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Appendix 2.1.1 RECYCLING : List of ECRM related recycling organizations

| Organisation/company | Target waste | Commodity | Description | website |
|--|--|-----------------------------------|--|---|
| Collect-a-Can | Metal cans, tinplate | Tin | All recovered scrap and used metal cans are either processed to add value (de-tinning and briquetting) or prepared and sold for recycling | |
| Gratomic | Historical tailings dump at Aukam graphite Mine | graphite | Investigating the reprocessing of historical tailings from Aukam Mine | https://www.gratomic.ca/aukam/ |
| Mr. Morne Du Plessis | Historical tailings dump at Sinclair Copper Mine | copper | Small scale re-processing of the existing surface stockpiles from historical | |
| NAMCLAY Bricks and Pavers | Historical slimes from Uis Tin Mine | clay | productin of high strength quality bricks | https://www.namclay.com/ |
| Namib Base Minerals CC and Namibia Silica CC | Historical tailings dump at Uis Tin Mine | lithium, tin, silica sand | Investigating the reprocessing of historical tailings from Uis Tin Mine | |
| NamiGreen | Electronic waste | e-waste | The company collects and sorts e-waste from companies, individuals and organisations. The company has drop-off points where citizens can drop- | https://www.namigreen.com/ |
| Q Global Commodities | Historical tailings dump at Klein Aub Mine | copper | Klein Aub was known for copper mining from 1964 to 1987. QGC is exploring the viability of re-working the tailing storage facility of the old | https://qgc.co.za/metals-2/ |
| RENT-A-DRUM | Scrap metal | copper | organization involved in waste management and recycling including | https://www.rent-a-drum.com.na/ |
| Scrap Metal Sales cc | Scrap metal | copper | Collection and recycling of scrap metals | https://scrapmetalsalesnam.com/ |
| Scrap Salvage | Ferrouse and non ferrous scrap | copper | Offers a total recyclng facility for any type of waste. | https://www.scrapsalvagenam.com/ |
| Tsumeb (Ongopolo) Mine | Historical tailings dump at Tsumeb Mine | Germanium, Gallium | Investigating the reprocessing of historical tailings from Tsumeb Mine | |
| Vision Sales and Marketing (VARTA) | Household batteries | zinc/manganese/potassium/graphite | and at Namibia's coastal towns. | https://visionsalesnamibia.com/ |