

KOKOSEB GOLD PROJECT

CLIMATE CHANGE IMPACT ASSESSMENT

PRELIMINARY BASELINE REPORT



Prepared by:



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This **Climate Change Impact Assessment (Preliminary Report)** contains selected information and examples where applicable to support the understanding of the requirements in, and implementation of, the ***Equator Principles*** and transparency around the climate-related risks guided by the ***Task Force on Climate-related Financial Disclosures (TCFD)***¹ and **other leading reporting practices**.

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¹ <https://www.fsb-tcfd.org/>

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In regard to the leading guide, *TCFD*, **The Financial Stability Board (FSB)** as of November 2023, has asked the IFRS Foundation to take over the monitoring of the progress of companies' climate-related disclosures. Companies applying **IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information** and **IFRS S2 Climate-related Disclosures** will meet the TCFD recommendations.

The calculations therefore should be considered as a carbon footprint estimate only and disclosures contained herein may be impacted by methodological choices, assumptions, and estimations utilized in the preparation of this Report. This Report is also confined to **Scope 1 and Scope 2** at the client's request. It does not represent exclusive calculation methodology and **does not take exhaustive account of all circumstances** affecting the calculation of a carbon footprint.

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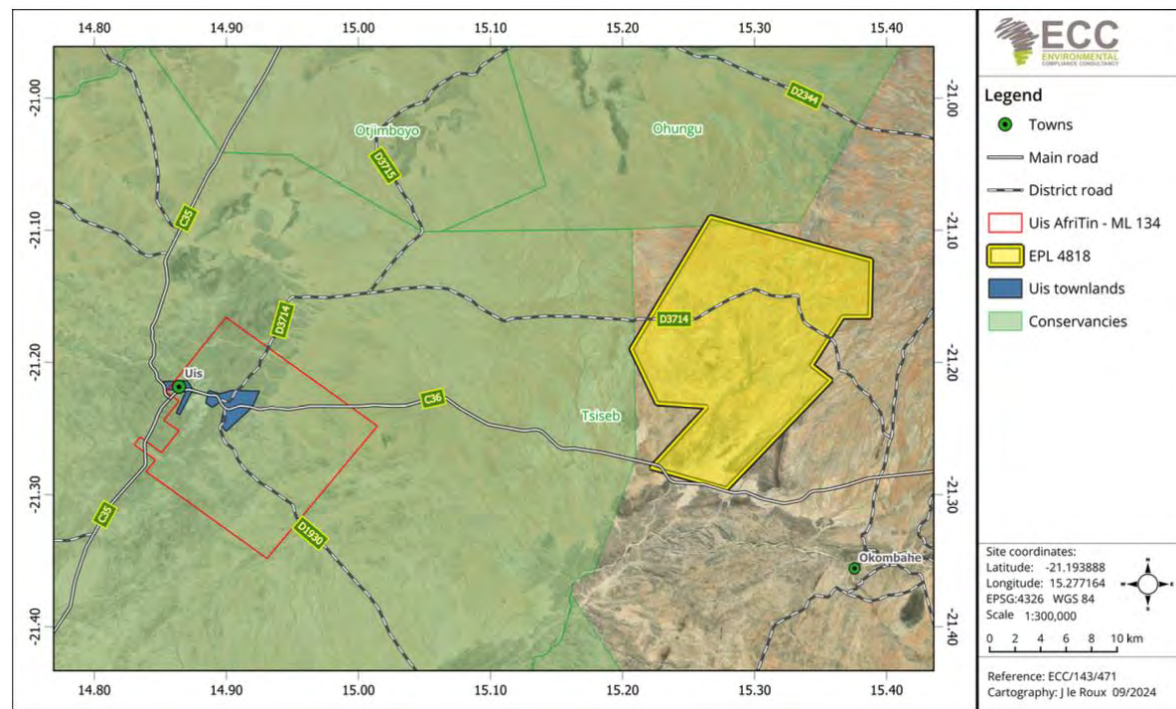
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PROJECT SUMMARY

Project Name	KOKOSEB GOLD PROJECT ON EPL 4818, ERONGO, NAMIBIA
Location (s)	The Project is located in the Erongo Region of Namibia.
MAP  The map displays the project area (EPL 4818) in yellow, Uis townlands in blue, and the Uis AfriTin - ML 134 area in red. The map includes a legend, site coordinates, and a scale bar.	
Project Owner / Developer	Mandarin Investments (Pty) Ltd
Project Contact	Mr. Keith Webb Private Bag 12012 Ausspannplatz Windhoek, Namibia.
Project Summary	Mandarin Investments (Pty) Ltd, a privately funded mining company, will apply for the Mining Licence (ML) within their Exclusive Prospecting License (EPL) 4818 area. The proposed project is stated to lie within the exclusive prospecting licenses (EPL) 4818 area, where the targeted gold resource is located and covering an estimated area of 33,667 ha. The EPL is situated approximately 15 km from Okombahe, 30 km for Uis and 90 km from Omaruru town². Furthermore, The EPL 4818 traverses the Okombahe Reserve, the western portion of the EPL falling within the Tsiseb Conservancy.³

² WIAGOLD_Project Description Rev B WIP, page 1

³ WIAGOLD_Project Description Rev B WIP, page 1

Report Highlight Data

Client Data

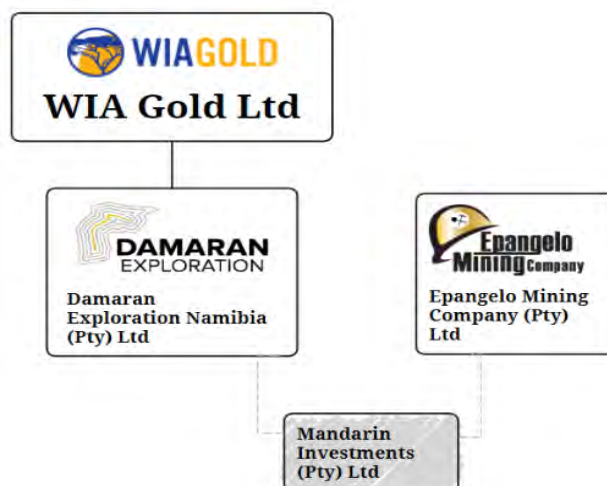
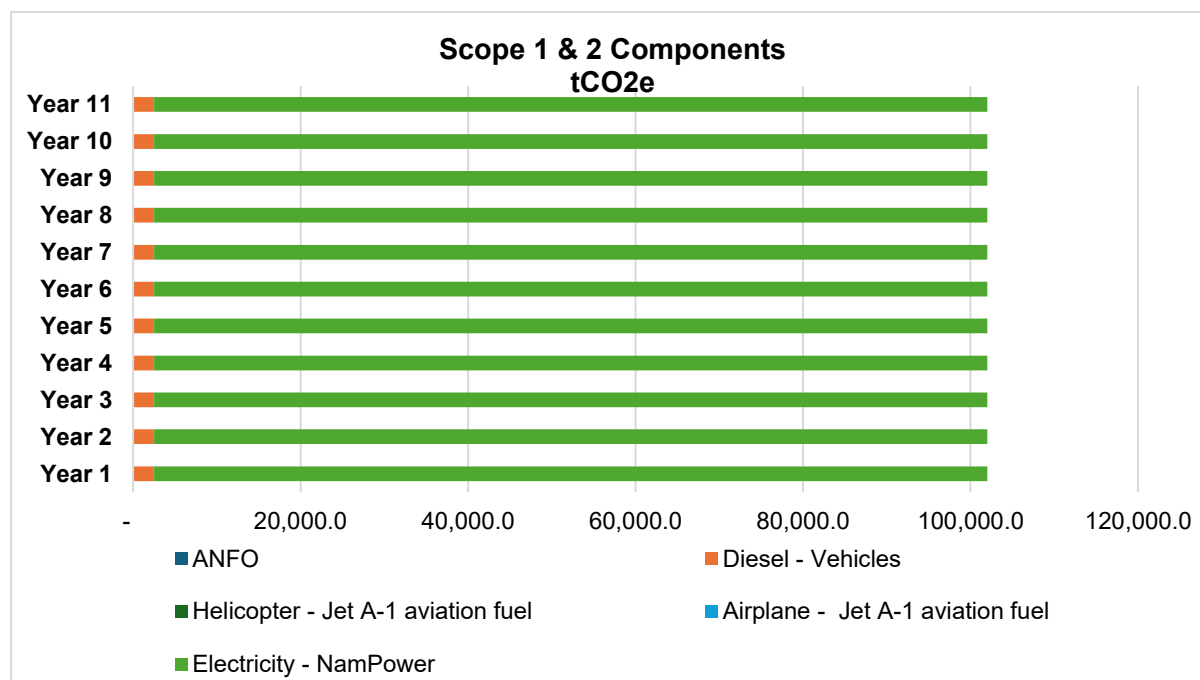


Figure 1 The parent companies and the Project SPV

The principal company responsible for the Kokoseb Gold Mine is Mandarin Investments (Pty) Ltd, with Mr. Keith Webb as its public facing contact.

The capital city address for correspondence is currently listed as Private Bag 12012, Ausspannplatz, Windhoek, Namibia. **This location is NOT included in our assessment.**

Scope Graph⁴



⁴ Report confined to Scope 1 and Scope 2

EXECUTIVE SUMMARY

The Report provides a concise overview of the key findings, risks, and recommended actions. The project is a gold mining enterprise and so this section of this Report is intended to summarize for those who may not have a need to read the entire report. It is a given that leading international practice at all times is required to guide the process of emissions reporting and this report is no exception.

Reporting as explained by the Global Reporting Initiative (GRI)⁵ sends a signal that an organization “*is dedicated to being open and honest with its stakeholders*”. The Task Force on Climate-related Financial Disclosures (TCFD) has a more directed approach and seeks “*to improve and increase reporting of climate-related financial information*”.

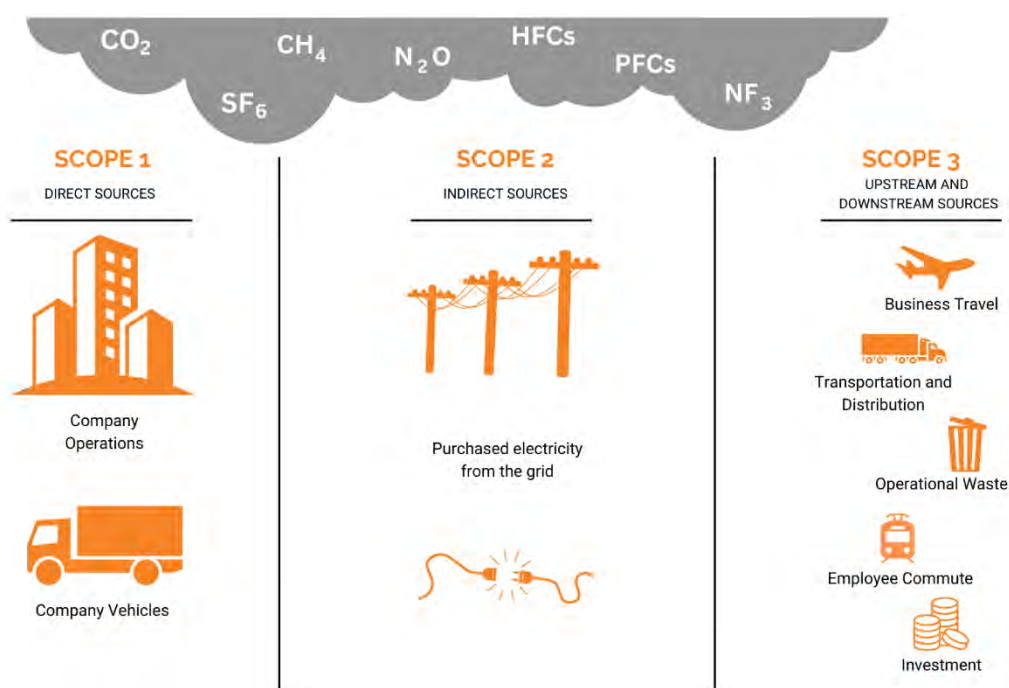


Figure 2 Scope Understanding

Regardless, the Report seeks to adhere to leading international practice such as the (GHG Protocol) to provide **Relevance, Completeness, Transparency, Accuracy and Consistency**. Also, as this is the “*baseline*”⁶ Report, it is further expected that experiential learning will lead to improvements and greater accuracy in the years to come.

⁵ <https://www.globalreporting.org/about-gri/>

⁶ The initial report to create a starting point for future reference on how performance behaves.

Benefits of Scoped Emissions Reporting

- **Comprehensive Emissions Management:** Categorizing emissions into scopes provides a structured approach to understanding and managing all sources of GHG emissions.
- **Transparency and Accountability:** Detailed reporting helps organizations track their emissions more accurately and demonstrates their commitment to sustainability to stakeholders.
- **Target Setting and Performance Tracking:** Scoped emissions allow organizations to set specific targets for emission reductions, monitor progress, and identify areas for improvement.

Similarly, the mining industry is unique in all aspects related to emissions even in the same commodity and reporting aspects of the mines will also differ leading to a difficulty in accurate reporting benchmarking. Regardless, this Report does however, utilise reporting of others to give rationality to its findings.

The report is therefore the summarization of the emission mapping carried out on assumed⁷ primary data sets based on client indicated activities. The culmination of these mapping exercises provides the baseline for climate change impact understanding to segment the project and further track impact or efficiency progress.

Data Findings

The impact of various activities on greenhouse gas (GHG) emissions during operations is a critical consideration in today's business environment, as there is a growing emphasis on sustainability and reducing carbon footprints. By tracking emissions, organizations can identify opportunities for emission reductions, optimize energy use, and contribute to global efforts to mitigate climate change.

GHG emissions in mining are primarily associated with energy consumption, transportation, and various chemical processes as well as supplier value-chains outside the control of the company under review. The emissions calculated in this Report are derived from data provided by the Client or assumed from the latest and best information available. The *scoped emissions* mentioned in the report refer to the categorization of greenhouse gas (GHG) emissions based on their sources and the level of control an organization has or does not have over them.

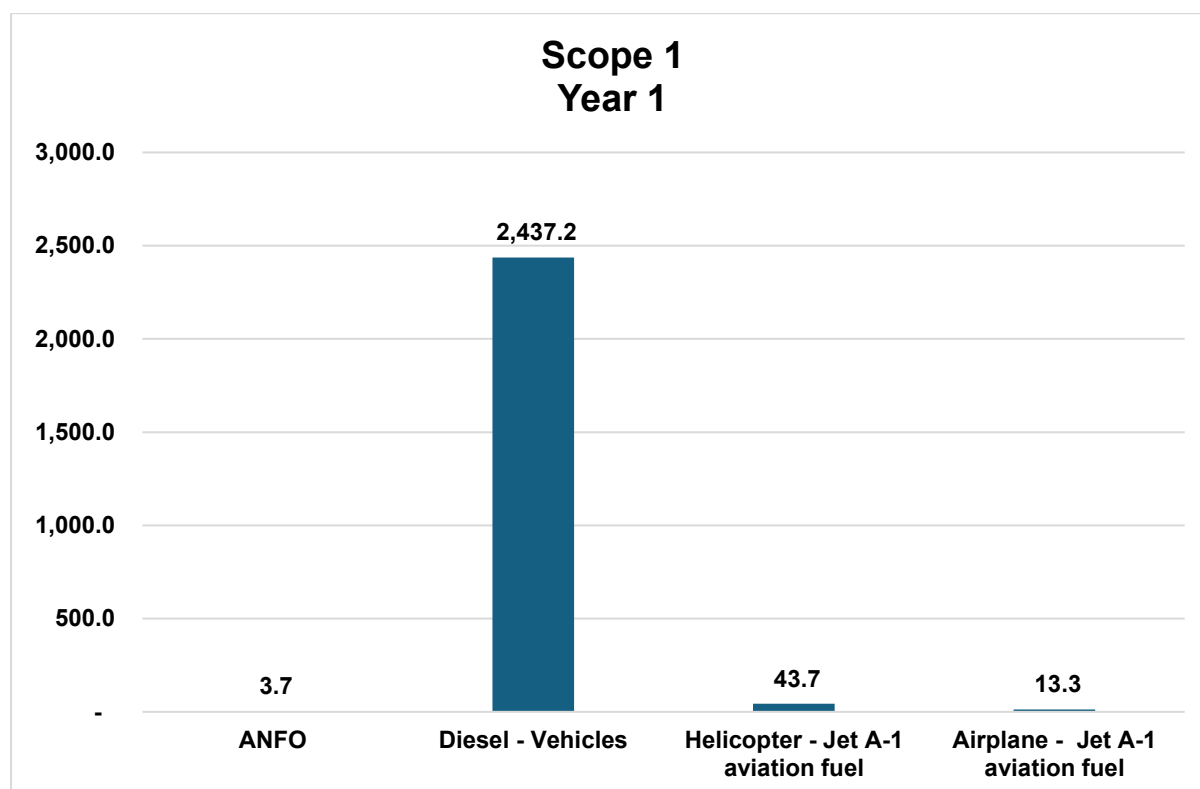
The Base Year for these emission data sets in tonnes carbon dioxide equivalent (tCO₂e) is set as **Year 1** due to the mine still to become operational.

⁷ Utilization of the mine plan and other industry baselines to have emission settings.

Key Findings

- **Total Emissions (Year 1):**
 - **Scope 1:** 2,498 tCO₂e (diesel dominates at 97.5%)
 - **Scope 2:** 99,514 tCO₂e (electricity demand ~280 GWh/year)
- **Scope 3:** Excluded due to data limitations.

Scoped Analysis



Scope 1

Scope 1 in a reporting year: **2,498** tonnes carbon dioxide equivalent (tCO₂e)

Scope 1 emissions in any reporting year as modelled, show that use of diesel in the operations lead to emissions accounting for some 97.5% of all emissions, with aviation fuel purchases accounting for 2.3% of Scope 1. All Fuels currently account for some 99.8%

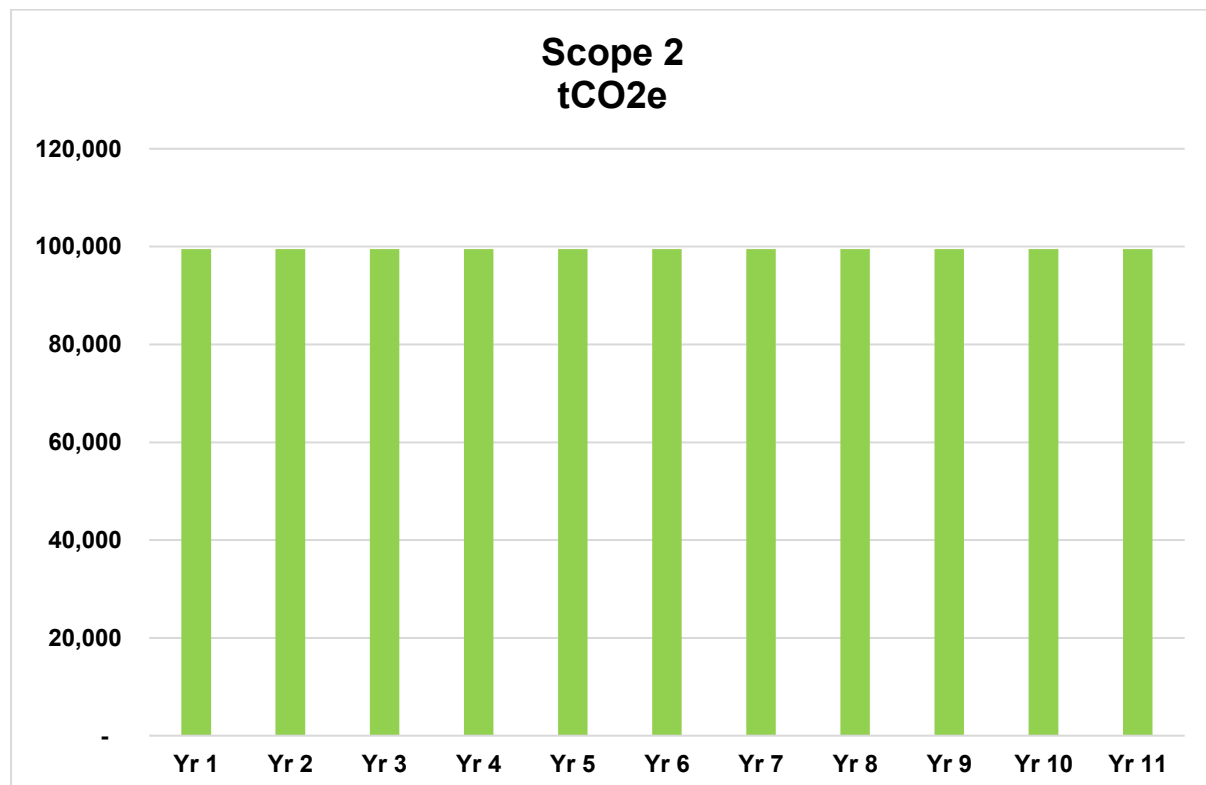
This is linked to the rate of production, the project has an opportunity to mitigate fuel emissions, primarily those associated with diesel use as aviation fuels in Namibia have not yet matured towards sustainable aviation fuels (SAF)⁸.

⁸ <https://www.icao.int/SAF>

Scope 2

Scope 2 in a reporting year: **99,514** tonnes carbon dioxide equivalent (tCO_2e)

The project reported that electricity will be needed for the project operations, consuming approximately 280 million kWh⁹ per annum.



Scope 2 emissions in any reporting year as modelled, are associated with the consumption of purchased electricity. This can be mitigated by purchase or other acquisition of renewable energy electricity sources.

Scope 2 emissions are indirect greenhouse gas emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the organization. While the organization does not own the facilities where these emissions occur, it is responsible for the demand for the energy.

Scope 2 emissions can be reduced through various actions inclusive of energy efficiency and renewable energy sources such as solar and wind. Recently, the opportunity also exists for the use of power markets that trade electricity usually from renewable energy, then wheeled (sent) through power lines (utility networks) operated by others.

⁹ 280,320 MWh assumed

Scope 3

As **Scope 3** emissions are not a result of direct control, then a difficulty in classification, records and measurement exist¹⁰. Scope 3 is mixed matter outside the control of the project and so is not included in this Report due to its difficulty to accurately quantify.

Representative Concentration Pathways (RCPs)

RCPs are global climate scenarios that show what the world might look like under different levels of emissions, from very low (RCP2.6) to very high (RCP8.5). They help us understand how temperature, rainfall, and extreme weather could change.

Scenario	Global Warming	Key Risks for Kokoseb
RCP2.6	+1.5°C	Manageable heat stress, water recycling needed
RCP4.5	+2.4°C	Frequent droughts, higher energy costs
RCP8.5	+4°C+	Severe flooding, mine shutdown risk

RCP2.6 is recommended because it aligns with Namibia's Nationally Determined Contributions (NDCs) and global gold market expectations for low-carbon operations. This ties the scenario to financial and reputational benefits.

Opinions

The Project has an opportunity to use the findings and guidance in this report to create a baseline and also to adopt deeper climate friendly options.

Climate Risks

Physical Risks:

- Rising temperatures resulting in heat stress, higher cooling costs
- Severe droughts leading to water scarcity, tailings management issues
- Flooding leading to infrastructure damage, operational downtime

Transitional Risks:

- Carbon pricing and stricter regulations (higher operational costs)
- Investor pressure for ESG compliance (reputational risk)

There will be a need for the Mine to list¹¹:

- The governance body's responsibilities for climate-related risks and opportunities are reflected in terms of reference, mandates, role descriptions and other related policies applicable to that body or individual.

¹⁰ <https://www.icmm.com/en-gb/guidance/environmental-stewardship/2023/scope-3-emissions-accounting-and-reporting>

¹¹ <https://www.ifrs.org>

- Management's role in assessing and managing climate-related risks and opportunities.

As a result, RDJ Consulting Services recommends the following considerations:

- I. **Governance:** Have a clear identification of the Board and the Management's role both in strategic direction, assessment, and reporting of climate related risks and opportunities including and beyond those mentioned in this report.
- II. **Strategy:** Have a resilience strategy with a clear climate scenario objective including and beyond those mentioned in this report. Setting targets is an essential component.
- III. **Risk management:** Have a process for managing climate related risks including and beyond those mentioned in this report.
- IV. **Operations:** Have an economic plan that will seek to accelerate the use of solar power to reduce purchased electricity, use of battery or at a minimum hybrid powered light delivery vehicles as well as the use of hydrogen vehicles, particularly Heavy-Duty Goods Vehicles (HGVs) and buses.

Our assessment further indicates that the project will unavoidably be an increased GHG emitter in the immediate Uis geographic area when only viewed with a climate change lens. However, by carrying out economically viable actions as indicated in this report, the Mine will be able to either offset emissions (mitigate) or adapt to changing conditions as they occur.

Some early-stage gains could be achieved through:

- **Increased Demand for Renewable Energy:** The growing demand for renewable energy presents opportunities for the mine to diversify its energy sources. By investing in solar or wind power¹², the mine can reduce its reliance on fossil fuels, mitigate climate change risks, and potentially improve its public image.
- **Renewable Energy Procurement:** 30% or more of purchased electricity can now come from renewable energy sources through utilization of the Modified Single Buyer (MSB) program¹³ or a licensed project owned solar plant.

¹² Wind in particular may need to be offsite and obtained either through a power purchase approach or Special Purpose Vehicle (SPV).

¹³ <https://www.ecb.org/na/economic-regulation/modified-single-buyer-market-model/>

- **Energy Efficiency Measures:** Implementation of energy-efficient technologies such as air conditioners and other practices to reduce purchased energy consumption. Some of these actions could be achieved through:
 - implementing emission reduction and fuel efficiency initiatives across haulage and loading fleet,
 - improving payloads for hauling trucks,
 - optimising low-idle for drills
 - improved shovel / truck matching and working towards introducing hybrid-electric shovels.

Furthermore, the project will bring positive benefits to the area such as those outlined in the economic section of this report, such as direct and indirect jobs. This stimulates other economic activities inclusive of revival of the Uis local authority.

Some of the key risks of particular relevance noted while not absolute, will be the increased average temperatures over the life of mine associated with increased water stress in the general Uis area potentially creating stresses with the community.

To address these risks, the mine should develop a climate risk strategy. RDJ has provided guidance under a separate cover for Board and Management consideration.

Further Actions

The International Council on Mining and Metals (ICMM) position as an industry body should be headed and that this report be refined annually, highlighting areas of change. The ICMM also develops best practice frameworks on a range of issues such as environmental stewardship, social performance, health and safety, and climate change mitigation.

As result, the following is required:

- a) Establish ongoing surveillance of existing databases to promptly detect and integrate any updates or modifications.
- b) Continue to research sources for emission factors and incorporate them into future reporting.
- c) Foster proactive collaboration with others to collectively centralized emission factors to support the entire mining value chain. A key starting point would be the Namibian Chamber of Mines.

KOKOSEB GOLD PROJECT

PRELIMINARY BASELINE REPORT

MAIN SECTION

CLIMATE CHANGE IMPACT ASSESSMENT



1 Purpose of this Report

1.1 Objective

Climate change is one of the most pressing global challenges of our time, with profound implications for the mining industry. Extreme weather events, changing precipitation patterns, and temperature fluctuations can significantly affect mining operations, including disruptions to supply chains, increased operational costs, and risks to worker safety.

A climate change impact assessment report is required as part of the environmental and social impact assessment (ESIA) process, and is geared to assist all parties, using guidelines for greater efficiency, recycling and ultimately reduction of emissions to benefit society as a whole.

Some of these guidelines that form the basis for reporting such as:

1.1.1 GRI 102: Climate Change 2025

The Global Sustainability Standards Board (GSSB) GRI 102: Climate Change 2025 provides for disclosures for organizations to report on their most significant emissions that can contribute to the impacts of climate change. These disclosures¹⁴ have been identified and developed based on expert and stakeholder input, and authoritative and science-based intergovernmental instruments in the field of climate change.

The following frameworks and instruments among others informed the development of GRI 102: Climate Change 2025:

- Intergovernmental Panel on Climate Change (IPCC)
- International Labour Organization (ILO) declarations and recommendations like the Declaration on Fundamental Principles and Rights at Work
- OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (OECD Guidelines)
- United Nations (UN) instruments such as the Declaration on the Rights of Indigenous Peoples and the Principles on Business and Human Rights (UNGPs)
- UN Framework Convention on Climate Change (UNFCCC)
- Greenhouse Gas Protocol (GHG Protocol)
- Science Based Targets initiative (SBTi)

¹⁴ <https://www.ifrs.org/news-and-events/news/2025/06/gri-102-ifrs-s2-reporting-and-equivalence/>

1.1.2 The TCFD/IFRS: S1/S2 Reporting Needs

These guidelines as aligned, requires that:

an entity shall disclose information that enables users of general-purpose financial reports to understand the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects¹⁵.

Objective of IFRS S2 Climate Disclosures

The International Financial Reporting Standards (IFRS) S2 aims in particular to mandate disclosures regarding climate-related risks and opportunities that impact financial decision-making.

- Requires entities to disclose climate-related risks and opportunities affecting cash flows and access to finance.
- Focuses on information useful for primary users of general purpose financial reports.
- Emphasizes the importance of understanding climate-related risks over short, medium, and long terms.

The report is therefore the summarization of the emission mapping carried out on assumed primary data sets based on client indicated activities. The culmination of these mapping exercises provides the baseline for climate change impact understanding to segment the project and further track impact or efficiency progress.

1.2 Just Energy Transition

Although climate change may require alternative fuels and changes in lifestyles, the transition process needs to be “just”. As such, all actions for mitigation or adaptation need to be well thought through.

This report is one step in that process to understand where risks and opportunities exist, to build a new, low-carbon economic future and must be seen as such.

1.3 Industry Alignment

As a gold mining company, it is expected that actions will be benchmarked and so the Responsible Gold Mining Principles (RGMPs) require¹⁶:

We will measure and report on our CO₂ equivalent emissions in line with accepted reporting standards. (RGMP Principle 10.4).

¹⁵ Extract: IFRS S2 CLIMATE-RELATED DISCLOSURES—JUNE 2023 (see paragraphs 10–12)

¹⁶ <https://www.gold.org/download/file/14254/Responsible-Gold-Mining-Principles-en.pdf>

This principle falls under the umbrella Theme 10, which focuses on **Biodiversity, Waste, Water, and Climate Change**. Companies adhering to this principle are expected to implement management systems to achieve these aims and report their Scope 1 and 2 (and often Scope 3) emissions in their annual sustainability reports, often in alignment with frameworks like the Task Force on Climate-related Financial Disclosures (TCFD) or Global Reporting Initiative (GRI) standards.

1.4 Governance

Corporate governance refers to the system by which an organization is directed, controlled, and held accountable. It encompasses the structures, policies, and decision-making processes implemented by the Board and Management to oversee the organization's activities and ensure responsible conduct. Governance is important and how the organization handles or plans to handle climate related risks and opportunities will be guided by leadership and associated processes.

In the context of climate change impact reporting, strong corporate governance is essential because it establishes clear accountability and transparency in how climate-related risks and opportunities are identified, evaluated, and managed. It also demonstrates to stakeholders, including investors and regulators, that the organization is committed to sustainable practices and resilient operations.

These governance tenets are embodied into key guidance such as;

The objective of sustainability-related financial disclosures on governance is to enable users of general-purpose financial reports to understand governance processes, controls and procedures the entity uses to monitor and manage sustainability-related risks and opportunities¹⁷.

Extract: IFRS S1

The objective of climate-related financial disclosures on governance is to enable users of general-purpose financial reports to understand the governance processes, controls and procedures an entity uses to monitor, manage and oversee climate-related risks and opportunities¹⁸.

Extract: IFRS S2

Further, under **Responsible Gold Mining Principles (RGMPs)**, members note that;

We will assign accountability for our sustainability performance at Board and/or Executive Committee level. We will report publicly each year on our implementation of the Responsible Gold Mining Principles.

¹⁷ IFRS S1 GENERAL REQUIREMENTS FOR DISCLOSURE OF SUSTAINABILITY RELATED FINANCIAL INFORMATION—JUNE 2023 (see paragraphs 26–27)

¹⁸ IFRS S2 CLIMATE-RELATED DISCLOSURES—JUNE 2023 (see paragraphs 5–7)

RGMP Principle 1.7

Disclose *Scope 1 and 2* greenhouse gas emissions on an annual basis and set emissions reduction targets at a corporate level.

RGMP Principle 6.5

We support the objectives of global climate accords, through avoidance, reduction or mitigation of carbon emissions. Where relevant, we will work to enhance the ability of our operations and nearby communities to be resilient to the effects of climate change.

RGMP Principle 10.3

1.4.1 Roles of the Board

TCFD guidance suggests that the Board provide general oversight. This is because climate change governance matters need to be mainstreamed for effectiveness.

1.4.2 Roles of the Management

TCFD guidance also suggests that the Management 's role in assessing and managing climate-related risks and opportunities.

1.4.3 Strategy

It is important to disclose the actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy and financial planning where such information is material.

The Mine will need to describe the climate-related risks and opportunities the company has identified over the short, medium and long term.

This report will include these based on available information.

1.4.4 Risk Management

Risk management requires looking at the Mine handling of climate related risks as well the starting point that will look at how processes for identifying, assessing and managing climate-related risks are integrated into the company's overall risk management.

This report will contribute to this in its analysis and recommendations.

1.4.5 Metrics and targets

These are covered under the Methodology section of this report.

2 Introduction to Emissions

Scoped emissions are a systematic way to categorize greenhouse gas (GHG) emissions based on their sources and the level of control an organization has over them. This categorization helps organizations understand, measure, and manage their emissions more effectively aligning with the scale and impact.

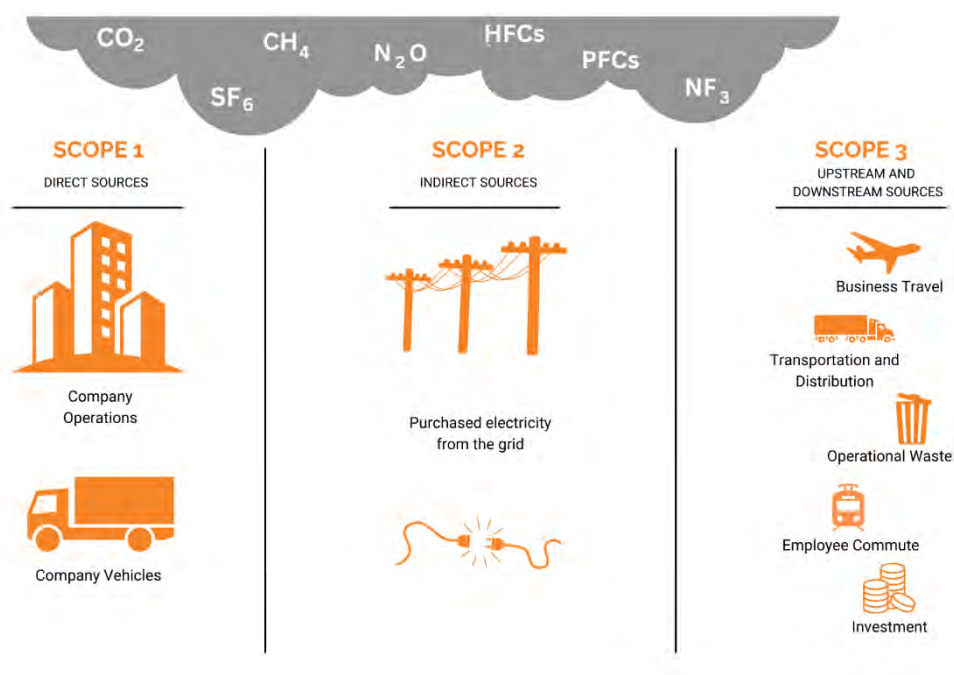


Figure 3 Scope Diagram (RDJ Group)

The Greenhouse Gas (GHG) Protocol, a widely recognized standard, divides emissions into three distinct scopes: **Scope 1, Scope 2, and Scope 3**. This framework provides a comprehensive approach to accounting for and reporting GHG emissions, facilitating better environmental management and climate strategy development.

2.1 Emissions - Scope 1

Scope 1 emissions are emissions under the **DIRECT** control of the company responsible for them from sources owned or controlled by the organization.

These typically include:

- **Combustion Emissions:** Emissions from burning fossil fuels in company-owned vehicles, machinery, and on-site facilities. For instance, diesel emissions from a mining company's trucks or emissions from a power plant's boilers.

- **Process Emissions:** Emissions resulting from chemical reactions in industrial processes. For example, the release of CO₂ during emissions from on-site power generation (usually diesel), mining, processing and smelting.
- **Fugitive Emissions:** Unintentional releases of gases, such as methane leaks from oil and gas operations or refrigeration systems.

Effective management of Scope 1 emissions is a critical component of an organization's overall sustainability and climate change mitigation strategy, as it is internal and allows for the identification of emission reduction opportunities and the tracking of progress towards emission reduction goals.

2.2 Emissions - Scope 2

Scope 2 emissions are **indirect** greenhouse gas emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the organization. While the organization does not own the facilities where these emissions occur, it is responsible for the demand for the energy.

Organizations have a growing responsibility to account for their Scope 2 emissions as part of their broader sustainability and environmental management strategies. Accurate measurement and reporting of Scope 2 emissions increase the demonstration of a commitment to environmental stewardship, transparency, and meeting regulatory and stakeholder expectations.

Scope 2 emissions can be reduced through various actions inclusive of energy efficiency and renewable energy sources such as solar and wind. Recently, the opportunity also exists for the use of power markets that trade electricity usually from renewable energy, then wheeled (sent) through power lines (utility networks) operated by others.

2.3 Emissions - Scope 3

Scope 3 emissions are all other indirect greenhouse gas emissions that occur in the value chain of the reporting company, both upstream and downstream. These emissions are **not directly owned or controlled** by the organization but are a consequence of its activities. It is well known that supply chain emissions often make up the major bulk of a company's total carbon footprint but are difficult to measure and difficult to mitigate.

In light of this difficulty, this Report excludes Scope 3.

2.4 Base Year

The Base Year which is needed to form the starting point of a baseline, acting as a historical datum (a specific year or an average over multiple years) against which

measurement is tracked over time and in this case is set at **Year 1** noting that this project is still conceptual.

3 Methodology

The objective of this report is to assess the potential climate change impact and establish the quantum of greenhouse gas emissions using quantitative and predictive model data as well as standard methodology with Intergovernmental Panel on Climate Change (IPCC) alignment.

The Methodology of this report is generally based on GHG Protocol and TCFD Guidelines. Emission factors and calculation approaches come from various databases and national sources.

The **GHG Protocol**¹⁹ provides standards and guidance for companies to voluntarily calculate and report on their GHG emissions. Accounting and reporting coverage include the following six greenhouse gases identified in the Kyoto Protocol:

- carbon dioxide (CO₂)
- methane (CH₄)
- nitrous oxide (N₂O)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulphur hexafluoride (SF₆)

The GHG Protocol also includes reporting on Nitrogen trifluoride (NF₃) in GHG inventories, however it is our understanding that the **Mine** will not use processes that generate this gas and so it is not considered relevant.

Weather modelling is based around the work of others such as National Centre for Atmospheric Science, University of Reading²⁰, Berkeley Earth & ERA5-Land and *meteoblue*²¹. The data source used is ERA5, the fifth generation ECMWF atmospheric reanalysis of the global climate, covering the time range from 1979 to 2024, with a spatial resolution of 30 km.

3.1 Assessment Steps

Activity data for each emission source is collected using a combination of direct measurement, calculation, estimation, and invoice information.

The calculation method is represented by the equation:

¹⁹ <https://ghgprotocol.org/>

²⁰ <https://research.reading.ac.uk/meteorology/people/ed-hawkins/>

²¹ <https://www.meteoblue.com/>

$$\text{Combustion Emissions (tonnes CO}_2\text{e)} = \text{Activity Data (units used)} \times \text{Emission Factor/s (tonnes CO}_2\text{e/unit)}$$

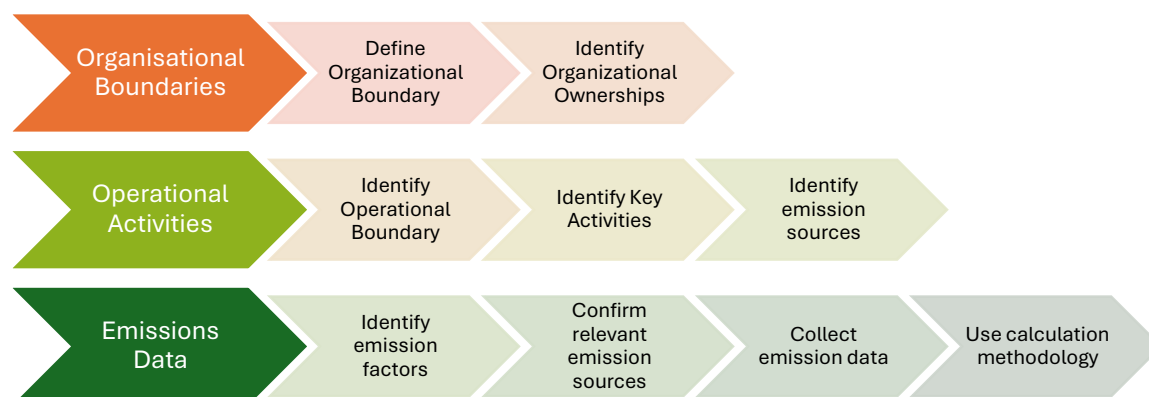


Figure 4 Assessment Steps

3.2 Assumptions

As this mine is still to be operational, key assumptions have been made and this section of the report details this to allow for “*replication*” and comparative evaluations in future iterations.

The emission factors used in this Report are taken from various public and non-public sources. As pointed out by the IPCC²² if no plant level information is available, a Tier 1 method emission factor (default factors).

Compiled fuel emission factors are based on well-to-tank (WTT)²³ conversion factors that allow for the upstream Scope 3 emissions associated with extraction, refining, and transportation to an organizations site or asset to be included.

For all power (renewable and non-renewable), generation emissions factors are applied. The emission factor is based on a NamPower designated value 0.355000 tCO₂/MWh assigned with UNFCCC reporting²⁴.

The combustion of all fuels used by contractors are considered in Scope 1 such as petrol or diesel, and the associated upstream emissions from the fuel exploration, extraction, refining and delivery, would have been covered in Scope 3.

²² https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_3_Ch3_Chemical_Industry.pdf

²³ <https://businessenergyscotland.org/guides/how-calculate-your-businesss-carbon-footprint/>

²⁴ <https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting/ifi-twg-list-of-methodologies>

3.2.1 Company operations

The gold resource is assumed to be 2.1 million ounces, retrieved from 50,003 kilo tonnes of ore. Life of mine is put at 11 years, with closing of operational mining in the same year but activities taken as full in year 11.

3.2.2 Scope 1 - Direct emissions from the company's operations

- Blasting will be undertaken most likely using an emulsion type explosive and client numbers are used.
- Diesel use is assumed and calculated from vehicle list and assumed operation.
- For varied mobile non-grid electricity needs, will be provided from several smaller, isolated diesel generating sets. The diesel fuel consumptions include these mini-power demands.

3.2.3 Scope 2 - Indirect emissions from the company's energy purchases

Electricity via a NamPower supply is given by the client as power demanded at a rate of 32 MW over the life of the project and this is taken in calculations as the power (kW/MW) average. This therefore results in an assumed *energy (kWh/MWh) demand* as 280,320 MWh/annum.

3.2.4 Scope 3 - Indirect emissions from the company's value chain

It is well known that supply chain emissions (Scope 3 emissions, downstream and upstream) often make up the major bulk of a company's total carbon footprint but are difficult to measure and difficult to mitigate.

In light of this difficulty, this Report as per client request excludes Scope 3.

3.2.5 General Limitations

While climate change impact reporting relies on accurate information, as the mine is still to begin operating, assumptions are based on preliminary mine design and operation.

Further, beyond the TCFD recommendation for a 2 degree Celsius or lower scenario, IFRS S2 notes that:

IFRS S2 provides that a company carrying out climate-related scenario analysis use an approach that is commensurate with the company's circumstances and consider all reasonable and supportable information that is available at the reporting date without undue cost or effort.

There is always some level of uncertainty in estimating emissions factors, typically represented as a percentage margin (e.g., +/- 5%). This arises because the activity data is often sourced from broad, averaged datasets, which may not accurately reflect the actual emissions.

The extent of uncertainty can differ widely across different nations, particularly in cases where data collection practices are not as robust or precise. This may change (even dramatically) as the final mine design develops and even more so after first year of operation.

4 Legal Framework

Namibia is a signatory to various UN conventions and protocols that allow for mainstreaming the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention on Biological Diversity (UNCBD), and United Nations Convention to Combat Desertification (UNCCD).

Namibia is also a non-Annex 1 Party to the Paris Agreement. It was ratified on 21 September 2016, with the ratification of the Kyoto Protocol being 4th September 2003. As a result, Namibia is obligated to submit reports *including the National inventory of anthropogenic greenhouse gas emissions by sources and sinks* etc. (Ruppel & Ruppel-Schlichting, 2022).

Climate Change is a risk that will vary depending on the country, business location, and management outlook. Namibia is recognized as being vulnerable to the impacts of climate change (Ministry of Environment & Tourism, 2012).

Legal frameworks are characteristic of the jurisdiction of the host government, shaped by both local and international policy drivers. This section of the report outlines the impacting legislations and other such policy frameworks.

4.1 International Guidelines

4.1.1 Paris Agreement

Namibia, as a signatory to the Paris Agreement, is committed to adopting measures that contribute to the global effort to reduce greenhouse gas emissions. These obligations are reflected in national policy and regulatory instruments, requiring mining projects to align with international climate goals.

The Paris Agreement encourages countries to strengthen transparency, monitoring, and reporting of emissions, and for sectors like mining, this translates into stricter environmental assessments and the integration of climate risk considerations into project planning and operations.

Compliance with these international standards is increasingly expected in project financing and environmental licensing, shaping the way mines approach sustainability and emissions reduction.

4.1.2 United Nations Framework Convention on Climate Change (UNFCCC)

The objective of the convention is to reduce and stabilize greenhouse gases at an atmosphere level to reduce impacts on climate systems, allow ecosystems time to

adapt to these changes and reduce food shortages so that economies can develop in sustainable manners.

4.1.3 Principle 2 of The Equator Principles

Under the Equator Principles, an *Environmental and Social Assessment* is required. While Namibia is not a designated country under Equator Principles, leading practice in both project financing and mining sectors require an “*Appropriate Assessment*”.

The assessment is to be supported by an alternatives analysis to be conducted when there is an “*expectation*” that CO_{2e} emissions will exceed 100,000 tonnes of CO_{2e} (tCO_{2e}) per annum during any stage of the Project (The Equator Principles Association, 2020). This will include both Scope 1 and Scope 2.

An Alternatives Analysis is defined as a systematic process that involves evaluating and comparing different options or alternatives to address a specific problem, decision, or project. It is a methodical approach used to assess the pros and cons of various alternatives and make informed choices based on objective criteria and analysis.

The purpose of an Alternatives Analysis is to identify and evaluate different potential solutions or courses of action to achieve a desired outcome or objective. This will mean that the Project seeing periods²⁵ in excess of 100,000 tonnes of CO_{2e} per annum, an alternatives analysis will be required. ***This is outside the terms of the current scope of this commissioned report.***

4.1.4 International Finance Corporation (IFC) Principle

The IFC notes that related to the project boundary,²⁶ **Performance Standard 3: Resource Efficiency and Pollution Prevention**, projects that are expected to or currently produce more than **25,000 tonnes of CO₂ equivalent annually** are required to **quantify direct emissions** from facilities owned or controlled within the physical project boundary, as well as **indirect emissions** associated with off-site energy production used by the project²⁷. This is designated Scope 1 and Scope 2.

IFC notes further that businesses pose varying risks dependent on operation type and location. This has resulted since 2012 in the following categories:

²⁵ Based on Scope 1 and scope 2 summation.

²⁶ Project-induced changes in soil carbon content or above ground biomass, and project-induced decay of organic matter may contribute to direct emissions sources and shall be included in this emissions quantification where such emissions are expected to be significant.

²⁷ <https://www.ifc.org/content/dam/ifc/doc/2010/2012-ifc-performance-standards-en.pdf>

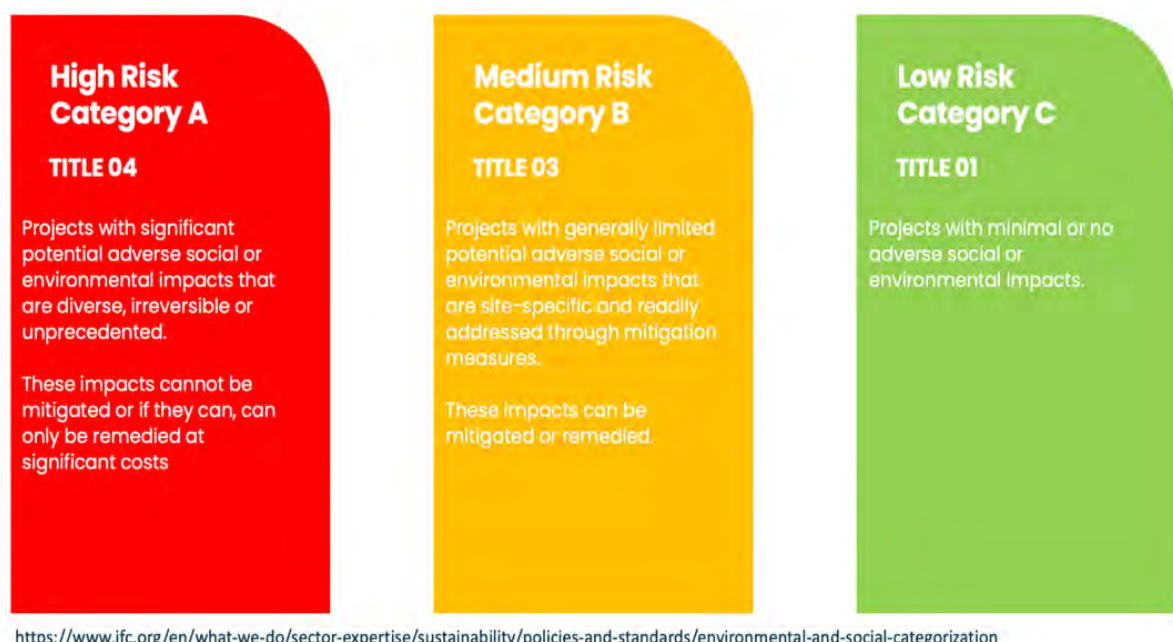


Figure 5 IFC Project Risk Categorization

Quantification of GHG emissions will be conducted by the client annually in accordance with internationally recognized methodologies and good practice²⁸. (International Finance Corporation, 2012).

4.1.5 The International Financial Reporting Standards Foundation (IFRS)

In regard to the update to Task Force on Climate-related Financial Disclosure (TCFD) approaches, **The Financial Stability Board (FSB)** as of November 2023, has asked **the International Financial Reporting Standards Foundation (IFRS)** to take over the monitoring of the progress of companies' climate-related disclosures.

Companies applying **IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information** and **IFRS S2 Climate-related Disclosures** will meet the TCFD recommendations.

The TCFD takes a different approach to understanding a company's long-term climate-related risks and the opportunities to adapt, mitigate or achieve positive cross-impact²⁹. With a "*forward-looking*" approach, TCFD focuses on awareness raising and transparency. Principles, therefore, surround *being clear, balanced, and*

²⁸ Estimation methodologies are provided by the Intergovernmental Panel on Climate Change, various international organizations, and relevant host country agencies.

²⁹ The Financial Stability Board (FSB) created the Task Force on Climate-related Financial Disclosures (TCFD) in 2015 to improve and increase reporting of climate-related financial information. The TCFD, <https://www.fsb-tcfd.org/> has fulfilled its remit and disbanded.

understandable to reliable, verifiable, and objective (Task Force on Climate-related Financial Disclosures, 2021).

An overriding consideration would therefore be any legal obligation either from the country of registration, customer needs or country of operation.

4.2 Other External Compliance

4.2.1 Carbon Border Adjustment Mechanism

The Carbon Border Adjustment Mechanism (CBAM) is a regulatory tool introduced by the European Union (EU) to address *carbon leakage* and promote global emission reductions. Essentially, CBAM places a price on the carbon emissions embedded in certain goods imported into the EU, aligning the cost of these imports with the carbon cost imposed on EU-based producers under the EU Emissions Trading System (ETS).

For Namibia, the introduction of CBAM has significant implications as the EU importers of Namibian minerals will be required to purchase CBAM certificates. Mines with lower carbon footprints will be more competitive in the EU market, while those with higher emissions may find their exports less attractive due to the additional costs.

Mines must now improve their capacity to measure, report, and verify emissions data in line with international best practices and standards, as highlighted by frameworks like TCFD and the requirements set by the IFC. This would entail investing in emissions tracking systems and sustainability disclosures.

4.2.2 International Council on Mining and Metals (ICMM)

The International Council on Mining and Metals (ICMM) starts from the point that “*Climate change is real*”. As an entity, it is thus providing guidance founded on support to the mining sector and leading practice such as the Task Force on Climate-Related Financial Disclosures (TCFD) framework for benchmarking and voluntary standards (International Council on Mining and Metals , 2023).

4.3 Local

Local legislation will undoubtedly impact the project in various ways, and the table takes time to look at the anticipated impact or guidance to be followed. They currently are:

Table 1 Legislative Frameworks

Legislation	Impact
Constitution of the Republic of Namibia (1990)	Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and the utilisation of living, natural resources on a sustainable basis for the benefit of all Namibians, both present, and future.

Legislation	Impact
<i>Environmental Management Act, 2007 (Act No. 7 of 2007)</i>	<i>Promotes sustainable management of the environment and the use of natural resources.</i> <i>The Act requires certain activities to obtain an environmental clearance certificate prior to Project development.</i>
<i>Environmental Management Act Regulations, (Government Notice No. 28-30 of 2012)</i>	<i>Brings the Environmental Act (2007) into force and lists activities for environmental clearance.</i>
<i>Atmospheric Pollution Prevention Ordinance</i> <i>Ordinance No. 11 of 1976</i>	<i>Promotes control of noxious or offensive gases. Also seeks to promote leading practice towards preventing or reducing the release of gases into the atmosphere.</i>
<i>National Climate Change Policy (2011)</i>	<i>The National Climate Change Policy provides the overarching framework for addressing climate change in Namibia. It outlines strategies for adaptation and mitigation and sets the groundwork for future legislation.</i>
<i>Water Resources Management Act (2013)</i>	<i>Namibia faces water scarcity challenges exacerbated by climate change. This act provides for the management and protection of water resources and plays a role in climate adaptation efforts.</i>
<i>Soil Conservation Act, No. 76 of 1969</i>	<i>Namibia has limited arable lands. This act provides foundational legal frameworks for soil and vegetation conservation, which indirectly combats climate change's effects through improved soil health and carbon sequestration.</i>
<i>The Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005</i>	<i>This act relates to climate change impact primarily by providing the legal framework for sustainable forest management, which includes protecting forests as vital carbon sinks and ensuring they perform their role in mitigating climate change and adapting to its effects, such as land degradation and flood control.</i>
<i>Labour Act, No. 11 of 2007</i>	<i>This act has indirect connections to climate change impacts by providing a framework for health and safety, setting conditions for employment termination that could be triggered by climate-related business disruptions, and establishing regulations for employee welfare, all of which are affected by changing climate conditions.</i>

Legislation	Impact
Road Traffic and Transport Act, No. 22 of 1999	<i>The Act's provisions for vehicle roadworthiness indirectly contribute to emissions control, as well-maintained vehicles generally emit fewer pollutants.</i> <i>While not directly addressing climate change, the Act provides a framework for managing the transport sector, which is crucial for implementing broader climate mitigation strategies.</i>
Hazardous Substances Ordinance, No. 14 of 1974	<i>The act does not directly address climate change, as it predates widespread awareness of the issue and focuses on controlling individual hazardous substances due to their toxic, corrosive, or flammable nature.</i> <i>However, it provides a framework for managing the impacts of hazardous substances that, when mismanaged, can contribute to climate change.</i>

5 Assessment Scope

5.1 Organizational Boundary

5.1.1 Boundary

The proposed project is stated to lie within the exclusive prospecting license (EPL) 4818 area, where the targeted gold resource is located and covering an estimated area of 33,667 ha.



Figure 6 Geographic limits of the organizational boundary

The EPL is situated approximately 15 km from Okombahe, 30 km for Uis and 90 km from Omaruru town³⁰. Furthermore, The EPL 4818 traverses the Okombahe Reserve, the western portion of the EPL falling within the Tsiseb Conservancy.³¹

The organizational boundary is maintained as the Kokoseb Mine on mining licence site EPL 4818 located in the Erongo region of Namibia. All associated activities thus fall within the ambit of this area and covered by the report.

For this report, the identified proposed project impact area is defined by RDJ Consulting Services using a 50 km radius. *The report will thus only focus on the climate change impact within this 50 km radius of the proposed project **GPS coordinates (-21.193888, 15.277164).***

5.1.1.1 Exclusion

All offices and residences outside of the Plant domain (and 50 km radius) are excluded due to a lack of credible information. It is however hoped that these will be included in future to help show the full impact.

5.1.1.2 Boundary

It is leading practice to set the boundary for the data to be collected. This requires an understanding of where a reporting company defines its upstream or downstream interactions for accuracy. The boundary used in this report is **OPERATIONAL CONTROL** and is for purposes of impact limited to a 50 km radius around the plant.

5.1.2 Materiality

Materiality of information is judged in relation to whether omitting, misstating or obscuring that information could reasonably be expected to influence decisions of primary users of general-purpose financial reports, which provide information about a specific reporting entity.

This report aligns with the TCFD approach and is independent of materiality with a focus on reliable information allowing others to “judge” impact.

6 Area Information

6.1 Economic and demographic factors

This section of the report aims to utilise the “*boundary*” so as to be able to assess the potential climate change impact on the area, with emphasis where applicable on the local communities situated within the identified proposed project impact area (boundary).

³⁰ WIAGOLD_Project Description Rev B WIP, page 1

³¹ WIAGOLD_Project Description Rev B WIP, page 1

6.1.1 Demographic Factors

The proposed project impact area is located in the Erongo Region. Due to data being available only at the regional level from the Namibia Statistics Agency www.nsa.org.na, the statistics presented in this report may be approximations. According to the Namibia 2023 Population and Housing Census Report by the Namibia Statistic Agency (NSA), *the Erongo Region's population grew over the last 12 years, recording approximately 240,206 people, from 150,809 reported in 2011.*³²

Further, the NSA report indicated that the Region has a higher female population, with approximately 122,322 men compared to 177,884 women. Like many other Namibian towns, urbanisation in the Erongo Region remains high and continues to rise as the region's population continue to seek for better economic opportunities in urban settings. Over 89.9% (~215,945) of the Region's population is said to reside in urban areas, while the remaining 10.1% (~24,260) lives in rural areas.

The Report also revealed that at least 95.4% of the Region's population above the age of 15 are literate. Moreover, there are approximately 74,795 private households in the region, with 97.6% reported to have access to safe drinking water, and at least 42.7% of these households are headed by women. Over 77.9% of the households use electricity for lighting, and at least 13.3% use wood or charcoal for cooking.

Project Area

The proposed project impact area falls within the corridor between Uis and Omaruru located in Namibia's Erongo Region, which forms part of a sparsely populated, semi-arid inland zone traversed mainly by the C36 gravel road and borders the EPL and the road D3714 which runs through the proposed Project footprint.

Uis is a historically important settlement known for its mining legacy and proximity to Brandberg Mountain. Originally classified as a **village**, it was **downgraded as a settlement in 2010** and placed under the administration of the **Erongo Regional Council**. Despite this, Uis remained a vital hub for governance, trade, and transportation in the region.

Table 2 Population for Okombahe and Uis settlement: Erongo Region, Namibia, 2023 Census

Settlement	Households	Both Sexes	Male	Female
Okombahe	477	1 773	796	977
Uis	750	2 377	1 244	1 133

³² <https://nsa.org.na/wp-content/uploads/2024/10/2023-Population-and-Housing-Census-Main-Report-28-Oct-2024.pdf>

The defined project impact area is also surrounded by more sparsely populated small villages such as and including Orumwe, Amasbank, Okatjiho, Otjongeama, Omitjira, Ozondati, Okombaha, Okomapuku, Nu-Uis, Welverdien, Okombahe, Hadi-Aus.

6.1.2 Economic Factors

The Bank of Namibia³³ notes that the domestic economy grew by 2.7%, much slower than the 4.8% in the previous year. This was in the face of the mining sector contracting and so its impact on the study area is expected in the long-term. The area also has limited economic opportunities as is the feature of Namibia's rural areas and villages. However, the presence of another mine in the general area will help mitigate the national contraction.

Forming the main urbanized point for the focal study impact area, Uis is a proclaimed urban area along with Okombahe within the Daures Constituency, both classified as settlements (Namibia Infrastructure Atlas, 2023). However, recent discussions underway are investigating the possibility of reclassifying Uis to a town in by November 2025 under the Local Authorities Act, 1992 (Act No. 23 of 1992).³⁴

To date, Uis hosts one of Namibia's most geologically significant pegmatite zones, now revitalised under the operation of **Andrada Mining Ltd**. Their mine licence (ML 134) spans approximately **19,700 hectares** and contains **numerous pegmatites** rich in **lithium, tin, tantalum, and rubidium** (Andrada Mining, 2025a)³⁵. As the only operational mine in the area, Andrada Mining plays a vital role in the region's economic development.

According to its 2024 Annual Report, the Andrada mine employed approximately 195 permanent staff, of whom 72 are residents of Uis. In addition, 231 contract workers were engaged during the same period. Using the mining sector's accepted social multiplier of seven, Andrada estimated that its operations benefited at least 2,982 people across Namibia, including 504 individuals in Uis alone.³⁶

6.2 Services and Activities

6.2.1 Energy

The area falls both within the purview of the national utility (Namibia Power Corporation Pty Ltd - NamPower) responsible for transmission lines and the Erongo

³³ <https://www.bon.com.na/CMSTemplates/Bon/Files/bon.com.na/8b/8bb527d9-2be9-4673-b95c-63da09b1ad49.pdf>

³⁴ <https://www.lac.org.na/Pdf/UIS%20ON%20THE%20RISE.pdf>

³⁵ <https://andradamining.com/assets/uis/>

³⁶ <https://andradamining.com/wp-content/uploads/2024/11/Andrada-Sustainability-Report-2024.pdf>

Regional Electricity Distributor Company Pty Ltd (ErongoRED) with responsibility for distribution lines. The Uis Village Council is a 0.35% Shareholder in ErongoRED.

In Namibia, all voltages from 0 - 33,000 volts are classed as distribution, and all voltages above 33,000 volts are listed as transmission lines.

ErongoRED indicates that the Uis area utilizes 1.2 GWh of electricity during the 2022 - 2023 financial year³⁷.

6.2.2 Water

The Constituency holds a significant proportion of the region's water infrastructure, with approximately 412 out of 928 facilities located in the area. These include:

- Boreholes: 347
- Dams: 4
- Other water sources: 1
- Reservoirs: 1
- Rivers, streams, and lakes: 1
- Public taps: 22
- Water pump stations: 1
- Water tanker service points: 26
- Wells: 9³⁸

6.2.3 Industry

The only major industrial activity in the area is the Andrada Uis mine³⁹. The mine focuses on critical minerals such as Tin, Lithium and Tungsten. A workforce in excess of 471 persons and 231 Contractors, operate the existing mine and plans seek to develop a lithium processing plant.

Water usage for the 2023-2024 period⁴⁰ totaled 187,603 cubic meters and an intensity of 0.13 GJ/tonne of ore processed.

The mine run by Andrada, is under development and has committed, *“to set formal goals for reducing our environmental impact, based on both science and practicality”*.

³⁷ [https://www.erongored.com/wp-content/uploads/2024/09/ErongoRED-2022-23-report - web_20240918.pdf](https://www.erongored.com/wp-content/uploads/2024/09/ErongoRED-2022-23-report-web_20240918.pdf)

³⁸ National-Infrastructure-Atlas-2023 page 48

³⁹ <https://andradamining.com/assets/uis/>

⁴⁰ <https://andradamining.com/wp-content/uploads/2024/11/Andrada-Sustainability-Report-2024.pdf>

6.2.4 Health

The review of the Daures Constituency shows that it is served by six (6) health clinics: Uis Clinic, Okombahe Clinic, Okongue Clinic, Omatjete Clinic, Tubusis Clinic and Spitzkoppe Clinic.⁴¹

6.2.5 Education

According to the *National Infrastructure Atlas 2023* (data for this report was collected in 2022), approximately 12 educational facilities were recorded in the Daures Constituency in 2022. These comprised nine (9) primary schools, three (3) secondary schools and one (1) high school. Notably, there were no registered technical, tertiary, or vocational institutions within the Constituency during the reporting period.⁴²

6.2.6 Other Services

The area is also served by:

- Four police stations: Uis, Omatjete, Okombahe, and Tubusis⁴³
- Two post offices: Uis and Okombahe⁴⁴
- Government offices including:
 - Daures Constituency Office
 - Two (2) Urban and Rural Development Offices
 - Agriculture, Water and Land Reform
 - Youth and National Services
 - Omatjete Settlement office⁴⁵
 - Environment and Tourism

6.3 Existing Emissions within the Uis Area

The Andrada mining operation in the area, is currently the major source of mining-related emissions. In the 2024 financial year, the mine produced approximately 910 tonnes of tin concentrate, resulting in an estimated 14,143 tonnes of CO₂e (tCO₂e). This was stated as an increase of some +/- 40% year on year as a trend looking forward.⁴⁶

For the communities as a whole, with the limited data available, emissions created in the area is approximated at 6,225 tCO₂e per annum⁴⁷. This excludes the Andrada

⁴¹ National-Infrastructure-Atlas-2023 page 31

⁴² National-Infrastructure-Atlas-2023 page 14

⁴³ National-Infrastructure-Atlas-2023 page 99

⁴⁴ National-Infrastructure-Atlas-2023 page 116

⁴⁵ National-Infrastructure-Atlas-2023 page 133

⁴⁶ <https://andradamining.com/wp-content/uploads/2024/11/Andrada-Sustainability-Report-2024.pdf> page 37

⁴⁷ <https://data.worldbank.org/indicator/EN.GHG.CO2.PC.CE.AR5?end=2023&locations=NA&start=1970&view=chart>

mine and emissions and removals from land use, land-use change, and forestry (LULUCF) are excluded, as these values tend to have greater uncertainty.

7 Climate Impact – Site

Several reports^{48, 49, 50} on Namibia indicate the fact that the country is naturally arid and has several biodiversity hotspots and rainfall ranging between 250 mm - 600 mm per year, with mean temperatures between 16 deg Celcius - 22 deg Celcius (Ministry of Environment & Tourism, 2012)⁵¹.

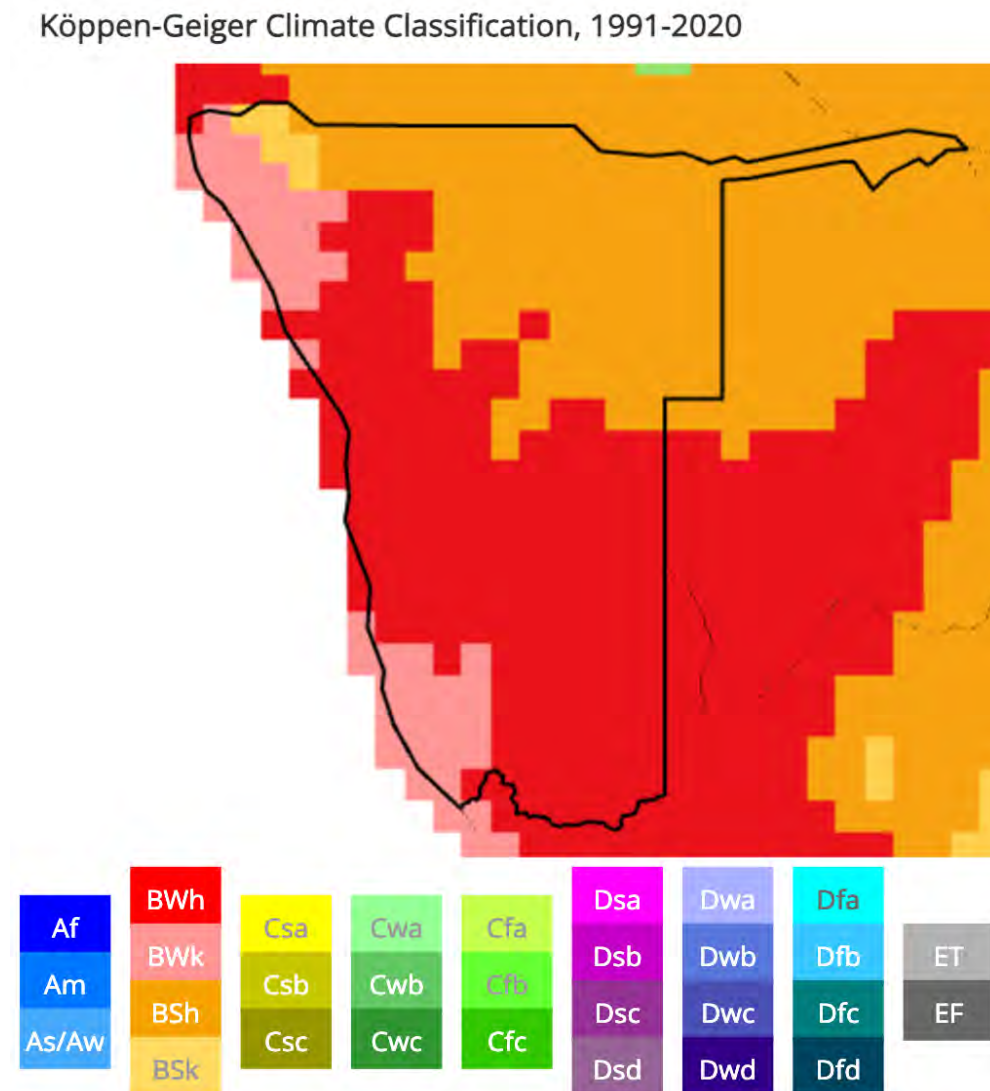


Figure 7 Köppen-Geiger Climate Classification, 1991-2020 (Courtesy: World Bank Knowledge portal)

⁴⁸ <https://climateknowledgeportal.worldbank.org/country/namibia/climate-data-historical>

⁴⁹ <https://atlasofnamibia.online/chapter-3>

⁵⁰ <https://www.nathab.com/know-before-you-go/african-safaris/southern-africa/weather-climate/namibia>

⁵¹ Actual site data provided through others will be commented on under **Site Specific Climate**.

As an arid country, Namibia depends heavily on its groundwater resources. This brings with it challenges such as high rainfall variability that makes recharge into aquifers also variable, so groundwater reserves in many places are not reliable.

The general geographic area⁵² is classified as a *Subtropical desert climate (Classification BWh)* as per the **Köppen climate classification system**. In these locations, stable descending air and high pressure aloft clear clouds and create hot, arid conditions with intense sunshine.

The Köppen-Geiger climate classification system provides a broad overview of climate types based on general patterns. Local variations, microclimates, and other factors may influence the specific characteristics of a region within a given climate classification. Namibia is one of the regions with a BWh climate (that covers the Erongo region). "BWh" represents a hot desert climate.

The "B" stands for dry climates, while the "Wh" indicates a hot desert subtype. This climate classification is characterized by extremely high temperatures and very low annual precipitation.

The classification system helps in assessing the availability of water resources in different regions. In mining, water is a critical resource used for various processes, including ore processing, dust suppression, and cooling machinery. Understanding the climate classification of an area can assist mining companies in determining the adequacy of water resources and planning water management strategies.

High Temperatures: BWh climates are typically associated with scorching temperatures, particularly during the summer months. These regions experience long periods of intense heat, often with daily temperatures exceeding 38°C (100°F).

Low Precipitation: BWh climates are extremely arid, with very limited rainfall throughout the year. Annual precipitation is generally low, often falling below 250 millimeters (10 inches), and sometimes significantly less.

Mendelsohn et. al. points out however that Namibia's arid climate thus was a clear indication of its abundant sunlight resource. These extremes manifest primarily as droughts and floods, which have profound impacts on the socio-economic fabric of the country.

Exploring the different climate scenarios and their potential impact on the organization to understand uncertainties and improve decision-making is essential. The hypothetical baseline year for the project is at the time of writing this report, 2026 assigned for this report.

⁵² <https://tckctck.org/namibia/erongo/karibib>

The climate scenario analysis in this report is qualitative and the World Bank's Namibia Climate Risk report forms the basis (The World Bank Group, 2021), where the Representative Concentration Pathways (RCPs) scenarios is formed, as was the basis of the Intergovernmental Panel on Climate Change's (IPCC) analysis of the state of climate change globally.

Climate variability, marked by severe droughts and floods, poses significant risks to the country's socio-economic stability and development. Addressing these challenges requires comprehensive strategies that include improved water management, and infrastructure adaptation.

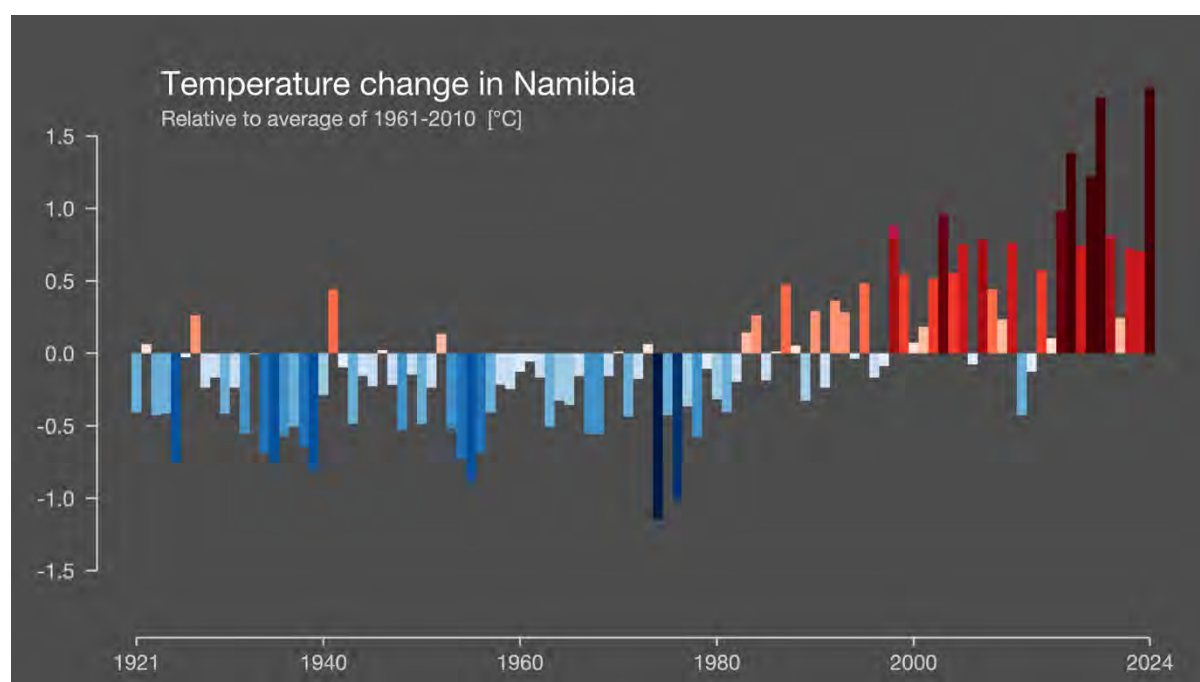


Figure 8 Temperature changes relative to average (1961 - 2010)⁵³

Namibia as can be seen by available data is experiencing increasing temperatures over time and being close to the 1.5 degrees Celsius target limiting global warming to 1.5 degrees Celsius above pre-industrial levels, as outlined in the Paris Agreement, added to which the Country is particularly vulnerable to prolonged periods of drought, which can lead to severe water shortages.

For the mining industry, water is a crucial resource for processes such as ore extraction and dust suppression. Drought conditions can limit water availability, forcing mines to reduce production or halt operations, thereby impacting economic output and employment. Moreover, drought-induced pasture (poor grass) failures can lead to food

⁵³ <https://showyourstripes.info/> Data: Berkeley Earth & ERA5-Land, NOAA, UK Met Office, MeteoSwiss, DWD, SMHI, UoR & ZAMG

insecurity, exacerbating socio-economic instability and potentially increasing tensions within communities dependent on mining. As water is a crucial resource having the need for processes such as desalination from sea water to reduce the shortage.

Drought conditions can force projects to reduce production or halt operations, thereby impacting economic output and employment. Addressing these challenges requires comprehensive strategies that include improved water management, and infrastructure adaptation.

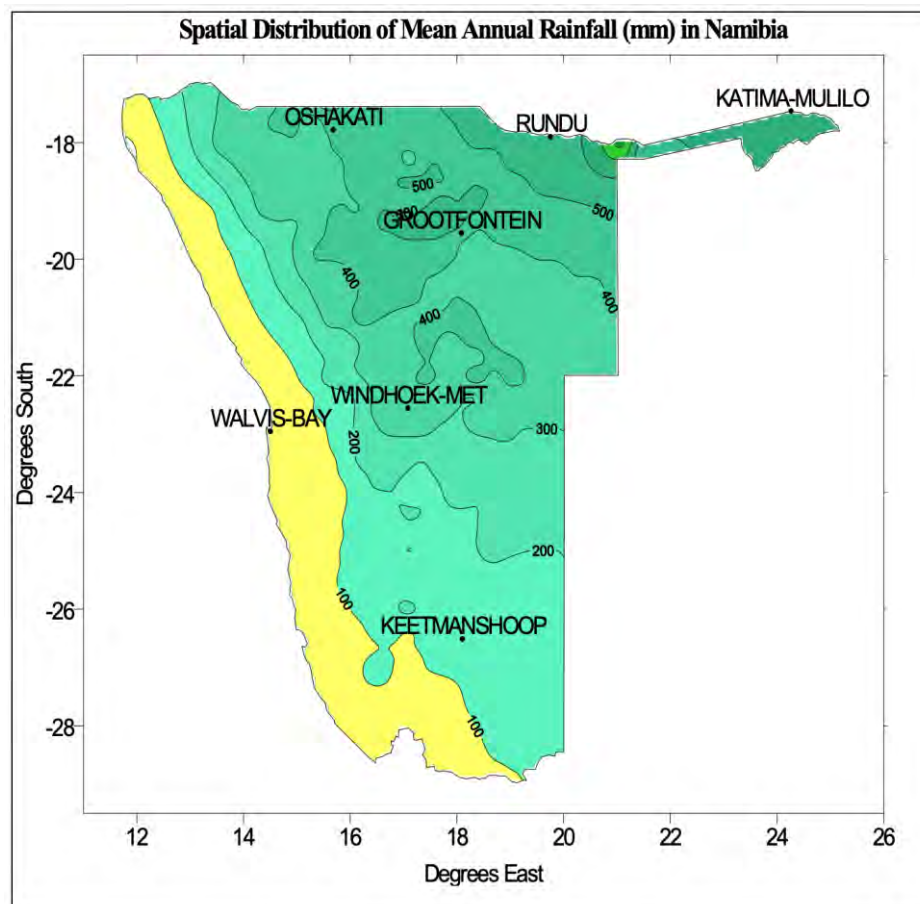


Figure 9 Namibia Mean Annual Rainfall Map. (Courtesy: Namibia Meteorological Service)

On the opposite spectrum, floods pose a different set of challenges. Heavy rainfall can lead to flash floods, which can damage mining infrastructure, including roads, bridges, and processing facilities. Flooding can also cause soil erosion and sedimentation, affecting water quality and increasing operational costs for water management and infrastructure repairs. Additionally, floods can disrupt transportation and logistics, leading to delays in the supply chain and affecting the overall productivity of mining operations.

7.1 Climate Outlook Approach

7.1.1 Representative Concentration Pathways (RCPs)

Representative Concentration Pathways (RCPs) are a method for capturing those assumptions within a set of scenarios. The conditions of each scenario are used in the process of modelling possible future climate evolution⁵⁴.

The RCP pathways represent a broad range of climate outcomes and are neither forecasts nor policy recommendations. They include a wide range of assumptions regarding population growth, economic development, technological innovation and attitudes to social and environmental sustainability.

A common set of reference years and time periods are adopted for assessing climate change and its impacts and risks: the reference period 1850–1900 approximates pre-industrial global surface temperature, and three future reference periods cover the near-term (2021–2040), mid-term (2041–2060) and long-term (2081–2100).

RCP 2.6 Very Low emissions future	RCP 4.5 Low to Moderate emissions future	RCP 8.5 Very High emissions future
• CO₂ emissions remain constant early this century, then decline, becoming negative by the end of the century • This scenario assumes a sharp decline globally in fossil fuel, increased use of crop lands for biofuel production and a general reduction of methane emissions by 40%	• Slight increase until mid-century in CO₂ • Energy use sharply declines • Large-scale reforestation • Agricultural land is reduced due to increase yield and much lower meat consumption • Strict new climate policies will be introduced and methane emissions stabilize	• By the end of the century, CO₂ emissions will be three times higher than present • There is a large increase in methane emissions • Energy use will further increase, mostly using fossil fuels • Uptake of renewables is very limited • Very limited implementation of climate policies

Figure 10 Representative Concentration Pathways (RCPs)

Representative Concentration Pathways (RCPs) create benchmarks for environmental objectives that need to be achieved to avert the more severe outcomes they predict can occur.

The scenarios:

- **RCP2.6:** A scenario with low greenhouse gas emissions, representing a pathway where radiative forcing⁵⁵ peaks and then declines.

⁵⁴ <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---representative-concentration-pathways.pdf>

⁵⁵ Radiative forcing is the amount by which a factor changes the balance between incoming and outgoing radiation, causing the Earth's temperature to increase or decrease.

- **RCP4.5 and RCP6.0:** Scenarios with intermediate levels of greenhouse gas emissions, where radiative forcing stabilizes before 2100.
- **RCP8.5:** A scenario with high greenhouse gas emissions, resulting in the highest radiative forcing by 2100.

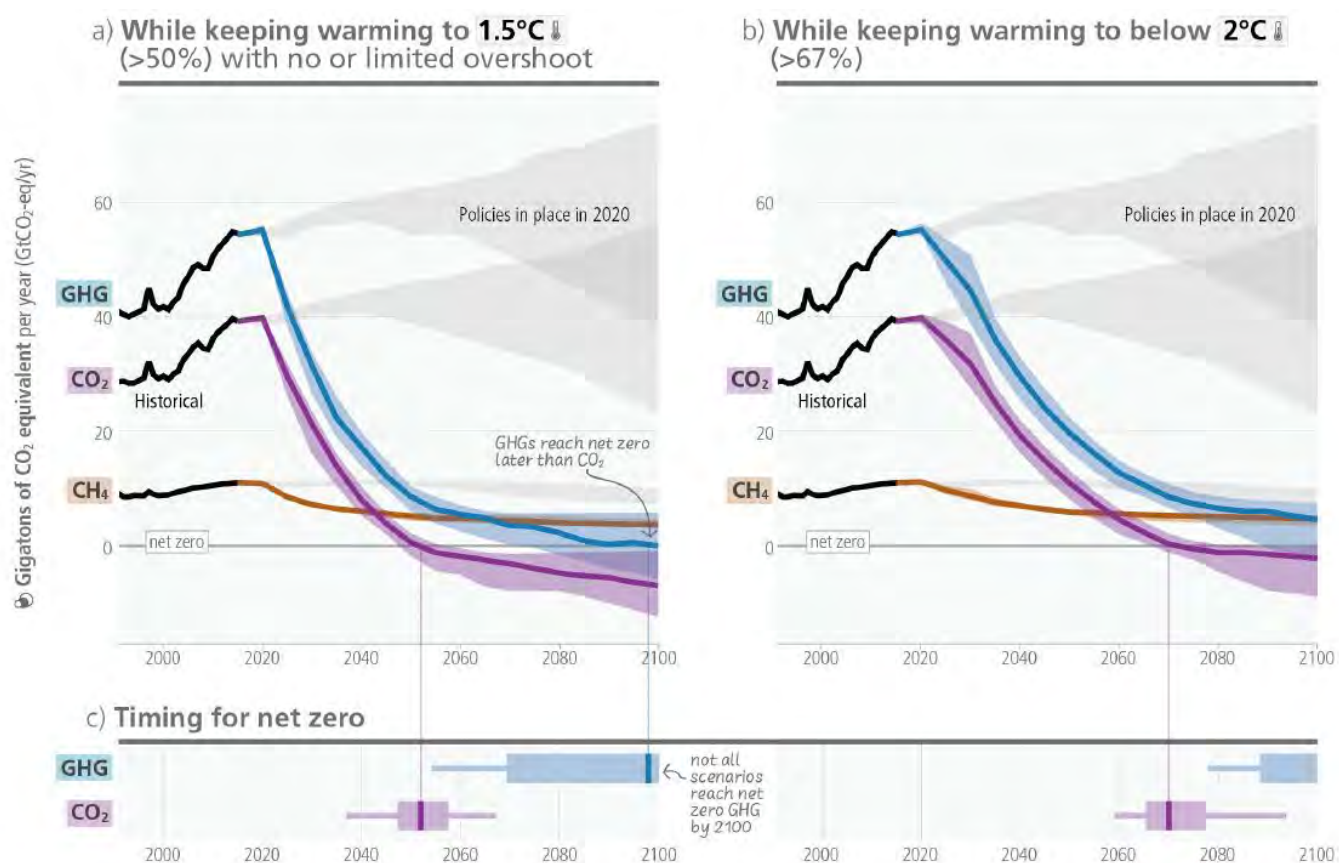


Figure 11 Global modelled pathways (limit warming to 1.5 deg. C)

7.2 Climate Projections

7.2.1 RCP 2.6

The RCP 2.6 scenario envisions a low-emission future characterized by ambitious measures, including a reduction in the use of oil, enhanced energy efficiency leading to low energy intensity, global population stabilization at or below 9 billion by the year 2100, and the implementation of various interventions.

Scenario	Global Warming	Key Risks for Kokoseb
RCP2.6	+1.5°C	Manageable heat stress, water recycling needed
RCP4.5	+2.4°C	Frequent droughts, higher energy costs
RCP8.5	+4°C+	Severe flooding, mine shutdown risk

This is the most appropriate scenario before breaching the 2 degrees Celsius limit set by the Intergovernmental Panel on Climate Change (IPCC) also considered together

with Shared Socioeconomic Pathways. Thus, RCP 2.6 is chosen for this Mine as it aligns with Namibian Government obligations and climate commitments, known as its Nationally Determined Contributions (NDCs), with the Paris Agreement. As part of this commitment, the country has pledged to reduce its greenhouse gas emissions by 91% by 2030, with the aim of contributing to limiting global temperature rise to well below 2-degree Celsius, and ideally 1.5-degree Celsius above pre-industrial levels.

Shared Socioeconomic Pathways (SSPs) are climate change scenarios of projected socioeconomic global changes up to 2100 as defined in the IPCC Sixth Assessment Report on climate change in 2021.

The recommended approach for the Mine will then focus on RCP 2.6 as it best aligns with Namibian climate change policies and global expectations in the gold and financial markets.

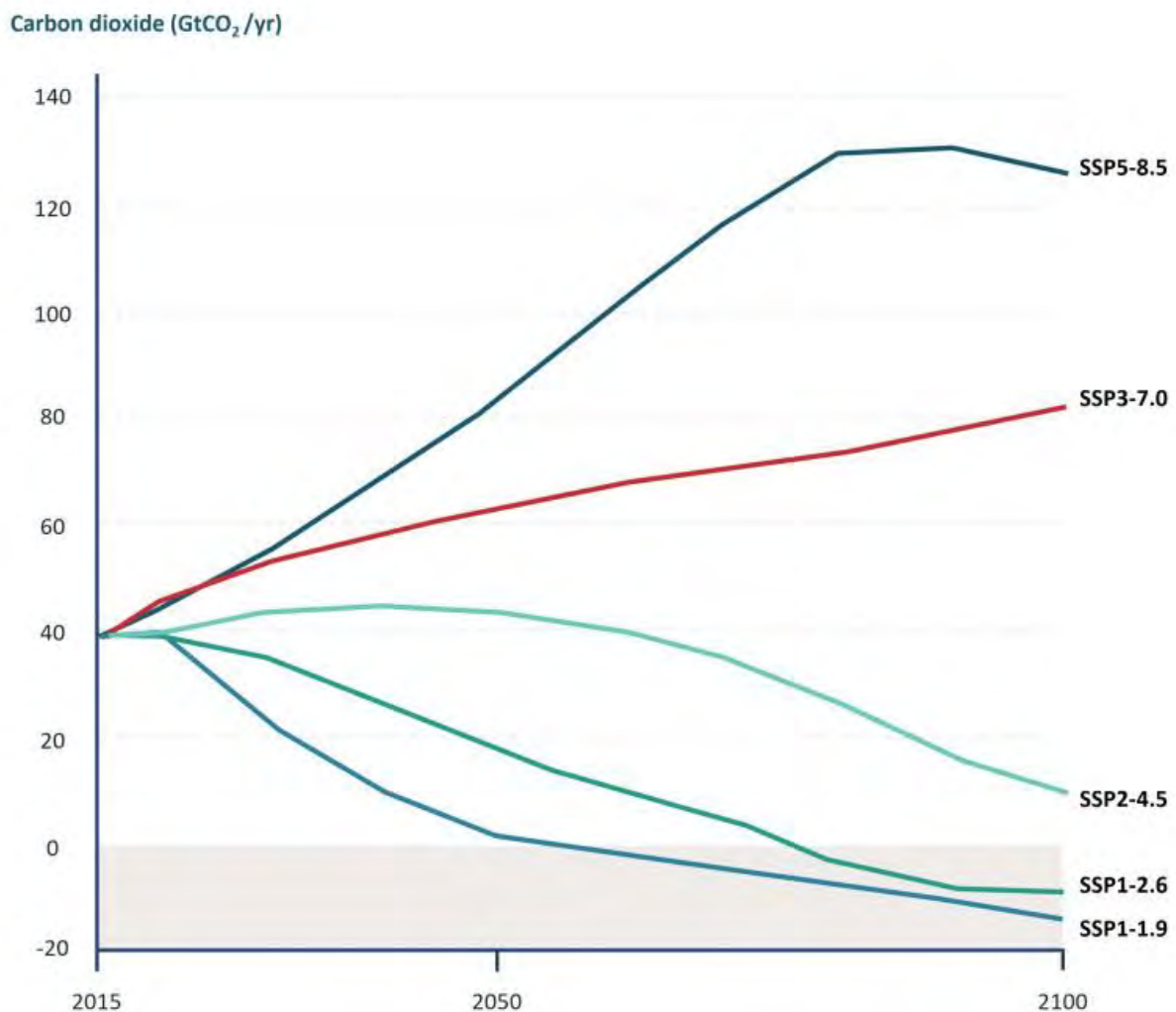


Figure 12 Changes in surface temperature under SSP-RCP Scenarios (Adapted from Sixth Assessment Report Summary for Policymakers, page 14)

Incorporating these elements into the project will contribute to its alignment with the RCP 2.6 scenario and support the pursuit of a low-emission future characterized by:

***reduced oil usage, heightened energy efficiency,
and a sustainable global population.***

This strategic approach underscores a commitment to environmental responsibility and the mitigation of climate change. It is further illustrated why in the graph below.

Temperatures will continue to rise in the near term due to the cumulative effect of greenhouse gases and as shown exceed the 1.5-degree Celsius levels but not yet 2-degree Celsius.

The further details are expounded in the AR6 Working Group reports and summarized as:

Category in WGIII	Category description	GHG emissions scenarios (SSPx-y*) in WGI & WGII	RCPy** in WGI & WGII
C1	limit warming to 1.5°C (>50%) with no or limited overshoot***	Very low (SSP1-1.9)	
C2	return warming to 1.5°C (>50%) after a high overshoot***		
C3	limit warming to 2°C (>67%)	Low (SSP1-2.6)	RCP2.6
C4	limit warming to 2°C (>50%)		
C5	limit warming to 2.5°C (>50%)		
C6	limit warming to 3°C (>50%)	Intermediate (SSP2-4.5)	RCP 4.5
C7	limit warming to 4°C (>50%)	High (SSP3-7.0)	
C8	exceed warming of 4°C (>50%)	Very high (SSP5-8.5)	RCP 8.5

Figure 13 Description and relationship of scenarios and modelled pathways (IPCC AR6 Working Group)

7.3 Site Specific

7.3.1 The Site -21.19S 15.28E

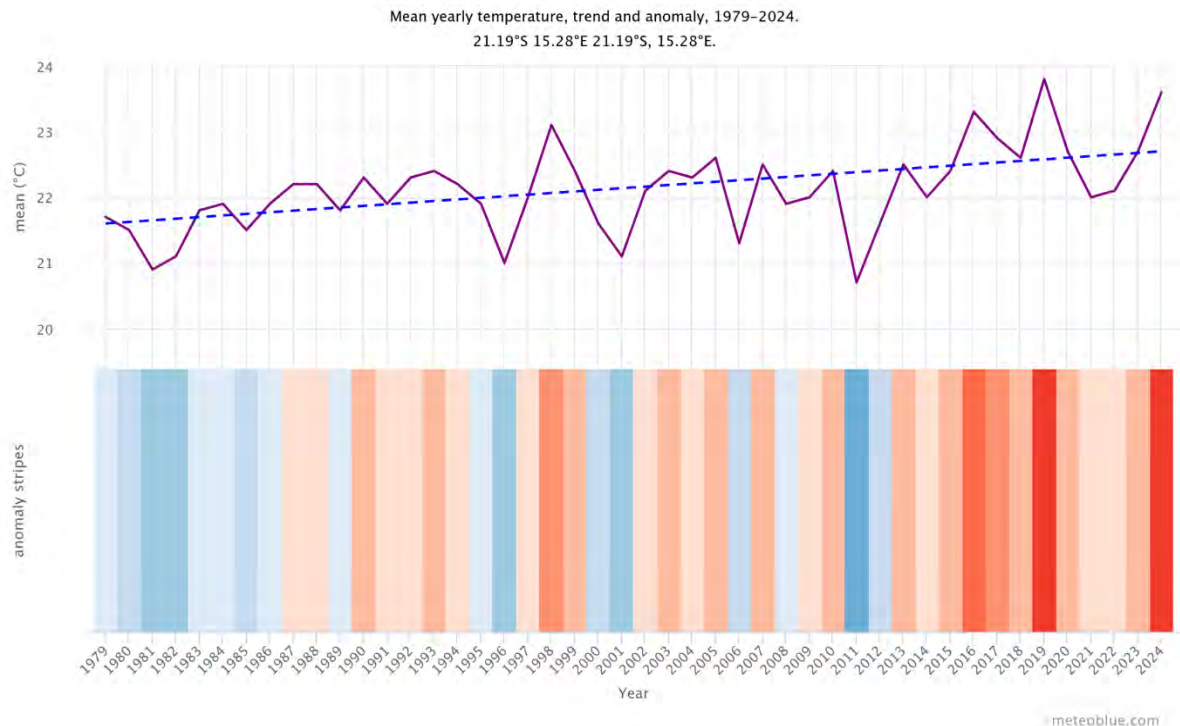


Figure 14 Site Temperature Profile (199-2024)

As can be seen, over the last 20 plus years, the mean temperature has steadily increased and shows no sign of reducing any time soon. This trend feeds into the **Köppen climate** approach indicating more deeper drought periods, followed by extreme rainfall patterns that create flooding and excess runoff. This then leads to damage to infrastructure and potential loss of life which in both cases is detrimental to the mine's operations and profitability.

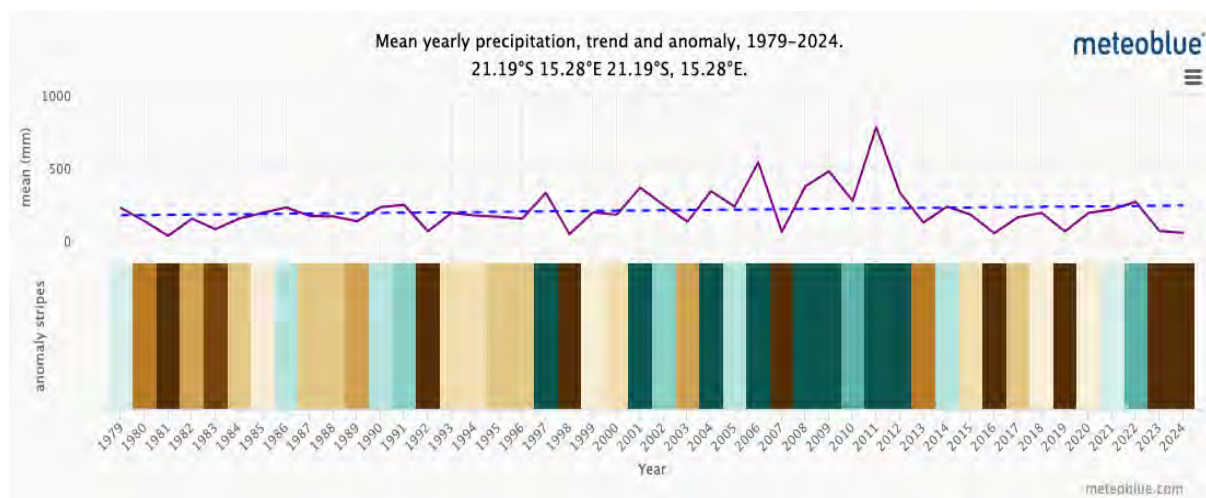


Figure 15 Precipitation Trend (1979 - 2024)

The increasing frequency and severity of climate-induced rainfall extremes present significant challenges for the mining sector in Namibia. It is imperative for stakeholders, including mining companies, government authorities, and local communities, to collaborate on adaptive strategies. This includes investing in climate-resilient infrastructure, developing water conservation strategies, and enhancing early warning systems for extreme weather events.

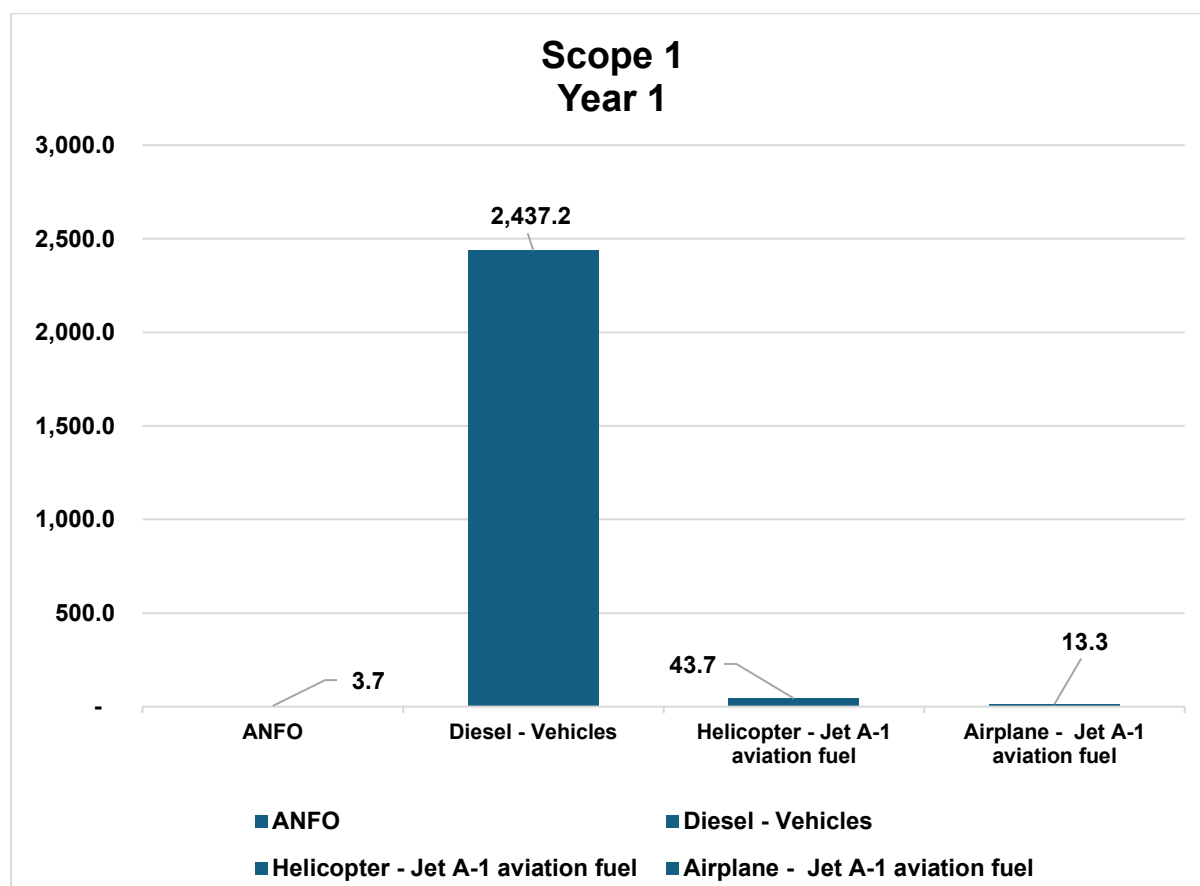
8 Emissions Data

The reader is once again reminded that *scoped emissions* refer to the categorization of greenhouse gas (GHG) emissions based on their sources and the level of control an organization has over them. Further, in keeping with the high-level of assumptions, a *straight line*⁵⁶ approach is used for annual consumption patterns.

The Base Year for these emission data sets in tonnes carbon dioxide equivalent (tCO₂e) is set as Year 1 due to the mine still to become operational.

8.1 Scope 1 GHG emissions

Scope 1 in a reporting year: **2,498**⁵⁷ tonnes carbon dioxide equivalent (tCO₂e)



Scope 1 emissions in any reporting year as modelled, show that use of diesel in the operations lead to emissions accounting for some 97.5% of all emissions, with aviation fuel purchases accounting for 2.3% of Scope 1. All Fuels currently account for some 99.8%

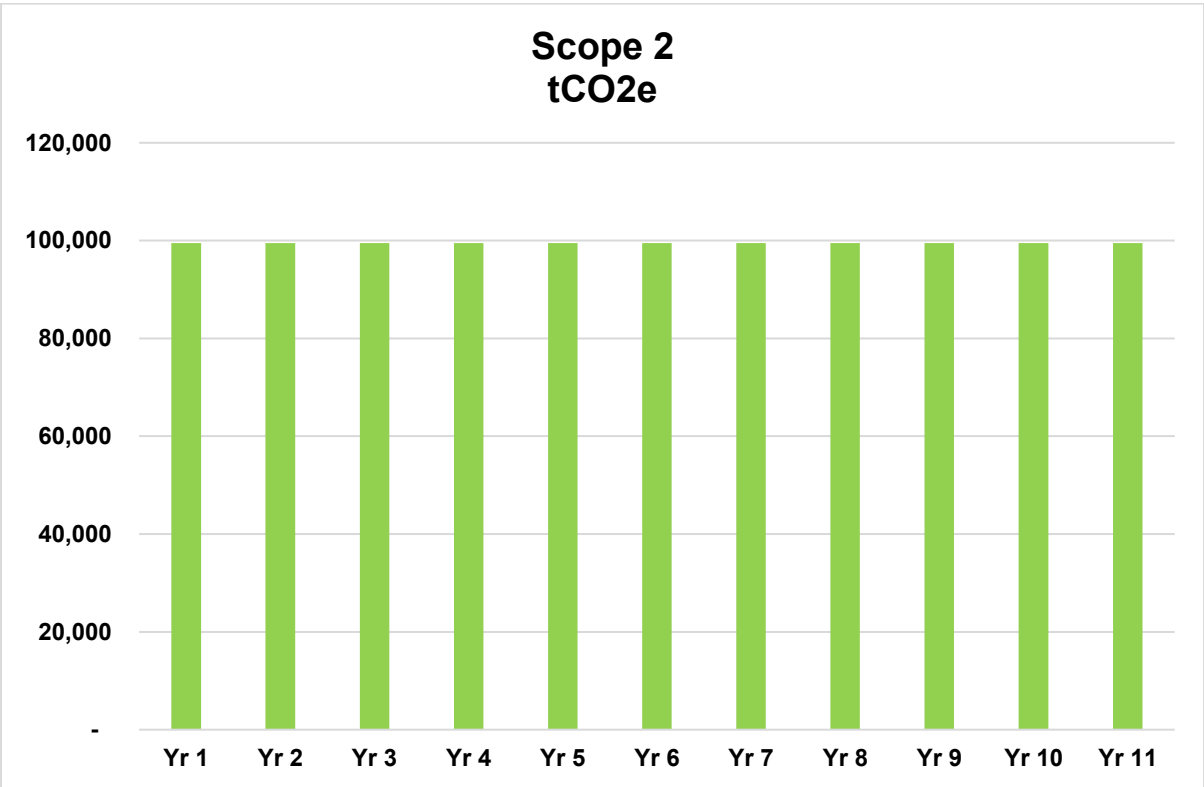
⁵⁶ Allocated evenly over the time periods

⁵⁷ Numbers rounded for simplicity

This is linked to the rate of production, the project has an opportunity to mitigate fuel emissions, primarily those associated with diesel use as aviation fuels in Namibia have not yet matured towards sustainable aviation fuels (SAF)⁵⁸.

8.2 Scope 2 GHG emissions

Scope 2 in a reporting year: **99,514** tonnes carbon dioxide equivalent (*tCO₂e*)



The project reported that electricity will be needed for the project operations, consuming approximately 280 million kWh⁵⁹ (280 GWh) per annum.

Scope 2 emissions in any reporting year as modelled, are associated with the consumption of purchased electricity. This can be mitigated by purchase or other acquisition of renewable energy electricity sources.

8.3 Scope 3 GHG emissions

Scope 3 is mixed matter outside the control of the project and so is not included in this Report in agreement with the Client thus is not assessed.

⁵⁸ <https://www.icao.int/SAF>
⁵⁹ 280,320 MWh assumed

8.4 Emission Intensity

Energy intensity is a measure of the energy consumption of a mining operation relative to the output of ore or mineral products. It provides insight into how much energy is required to produce a specific amount of material.

Energy Intensity is understood to be:
the “*Ratio of total energy inputs to total production*”

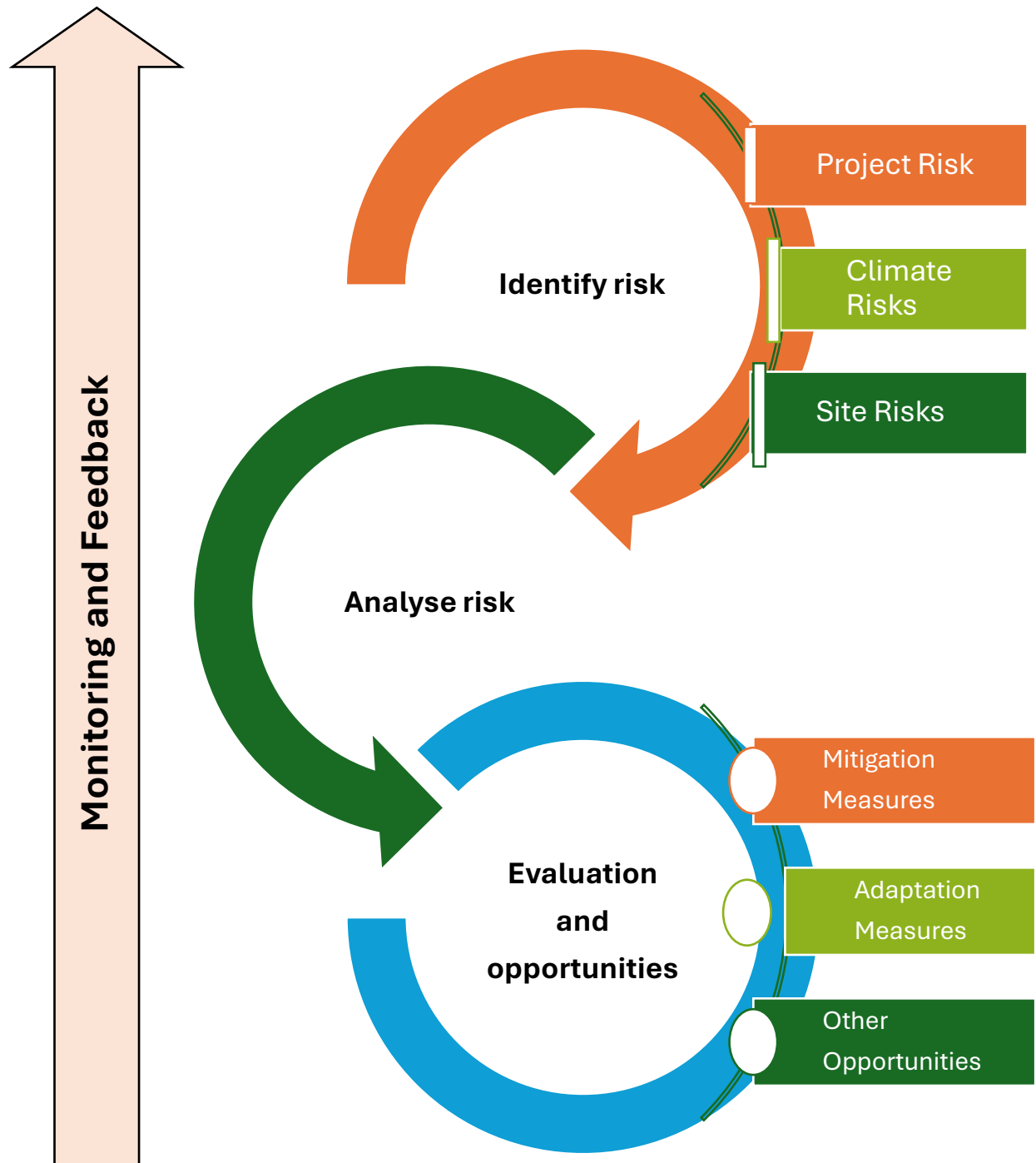
This then affects the carbon intensity, getting higher when fossil fuel sources are used in the operations and production cycles.

Carbon Intensity is therefore a similar measure and for climate change is the most relevant as a consequence of renewable energy input from solar and wind distorting the Energy intensity measure. Its focus is on the summative value of Scope 1 and 2 measures annually.

Neither has been calculated in this report due to sparse reliable data for such calculations.

9 Project Risk

9.1 Risk Framework



9.1.1 Risk Keys

		Low	Consequence Medium	High
Likelihood		Medium Impact	High Impact	High Impact
		Low Impact	Medium Impact	Medium Impact
		Low Impact	Low Impact	Medium Impact

Figure 16 Risk / Impact Rating

Low Impact
Moderate Impact
High Impact

9.2 Risk Factors

Identification of climate change-related risks and opportunities, which may include physical risks (e.g., extreme weather events, sea-level rise, temperature changes), transitional risks (e.g., policy and regulatory changes, market shifts), and reputational risks (e.g., public perception of the company's climate actions).



Source: Adapted from the Task-Force for Climate-related Financial Disclosures

Figure 17 TCFD Strategy Plan

The IPCC (Intergovernmental Panel on Climate Change, 2022) notes that risk is key to their assessments. Risk is defined by the IPCC as

“The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change. Relevant adverse consequences

include those on lives, livelihoods, health and well-being, economic, social and cultural assets and investments, infrastructure, services (including ecosystem services), ecosystems and species.

Physical and transitional risks are important considerations in the context of climate change for several reasons:

- Business Continuity:
- Operational Efficiency:
- Regulatory Compliance:
- Investor and Stakeholder Confidence:
- Reputation and Social License:

In the context of climate change impacts, risks result from dynamic interactions between climate-related hazards with the exposure and vulnerability of the affected human or ecological system to the hazards. Hazards, exposure and vulnerability may each be subject to uncertainty in terms of magnitude and likelihood of occurrence, and each may change over time and space due to socio-economic changes and human decision-making.

As Namibia is dependent on its natural resources (Ministry of Environment & Tourism, 1995), Namibia has committed to combining an approach that incorporates both environmental awareness raising and promoting action thus creating “two fronts” to combat climate change.

9.3 Project Risk – Physical

Physical risks emanate from exposure and vulnerability to hazards as set out by the IPCC⁶⁰. This section examines the projects physical risks.

9.3.1 Rising temperatures / Heat stress

Table 3 Rising Temperatures / Heat Stress

	Consequence		
	Low	Medium	High
Likelihood		Medium To High Impact	

⁶⁰ IPCC, The concept of risk in the IPCC Sixth Assessment Report: a summary of cross-Working Group discussions. Guidance for IPCC authors. September 2020.

As a starting point to most other physical risks, temperatures are extremely fickle and more variant as the high temperatures are tempered by the nighttime and winter impacts. July is generally considered the coldest month although records from the national utility NamPower show that the coldest days occur during August. In contrast, the hottest days occur during June or thereabouts, creating a need for site specific understanding.

With Namibia being an arid country, the likelihood is very high, resulting in low/medium consequences even in the face of clear mitigation strategies and technology options.

Impact on the mine is anticipated to be at a minimum:

- Heat stroke and fatigue
- Excessive evaporation
- Increased energy consumption
- Electricity equipment overloads
- Increased equipment stress due to high temperatures
- Need for increased safety in handling of explosives
- Veld fires

9.3.2 Droughts / Water Scarcity

Table 4 Impact table - Drought/Water Scarcity

		Consequence	
		Low	Medium
			High
Likelihood			High Impact

The likelihood of droughts and water scarcity occurring during the life of the mine is very likely based on historical patterns requiring the Namibian government to declare national emergencies. The Namibian government declared national emergencies in 1992/1993, 1995/1996, 2012/2013, 2013/2014, 2015/2016, and 2018/2019 due to extreme drought events, and by the end of 2019, which was the worst drought recorded in 90 years⁶¹ as reported by the International Red Cross.

⁶¹ <https://www.ifrc.org/sites/default/files/2022-08/Namibia-drought-assessment-report-2022.pdf>

The latest national emergency on record was in May, 2024 and superseded the 2019 drought as the worst in a century. The consequence is however medium on the mine as mitigation and adaptation strategies can be put in place.

Impact on the mine is anticipated to be at a minimum:

- reducing water supplies
- increasing risk of fires
- Limited or no water in the community
- Reduced water for dust suppression
- Heat stroke and fatigue from reduced hydration
- Tailings management difficulty
- Reduced productivity
- Increased staff absence

9.3.3 Storms / Flooding

Table 5 Impact table - Storms / Flooding

	Consequence		
	Low	Medium	High
Likelihood			
		Moderate Impact	

The likelihood of storms and flooding to occur during the life of the mine is likely, although unlike the drought patterns, the cycles are more erratic. The cumulative impact of persistent rainfall heightens the risk of flooding events, which can directly cause physical damage to mining assets and disrupt operational continuity.

Increased rainfall and periods of unusually heavy rain can overwhelm site drainage systems and natural waterways, resulting in surface runoff and pooling of water in vulnerable areas. This excess water can erode embankments, destabilize slopes, and infiltrate structures, undermining the integrity of roads, tailings facilities, and other critical mine infrastructure.

Impact on the mine is anticipated to be at a minimum:

- **Damage Infrastructure**
Floods can damage roads, bridges, and other infrastructure, disrupting the mine operations.
 - Stormwater system failures
 - Stressed tailing dams

- Rain washed out railways
- Washed out roads
- Subsidence created by excessive and irregular rainfall.
- **Cause Mine Closures**
In severe cases, flooding can force the mine to temporarily shut down to assess and repair damage.
- **Equipment contamination**
Dust can enter machinery, causing damage and reducing efficiency.
- **Health hazards**
Dust can enter machinery, causing damage and reducing efficiency.
- **Reduced visibility**
Dust storms can reduce visibility, hindering operations and increasing the risk of accidents. This can lead to safety hazards for workers and equipment damage.

9.4 Project Risk – Transitional

As global awareness of climate change grows, governments are increasingly implementing stricter environmental regulations. These changes can pose significant challenges for the Mine. Under the Shared Socioeconomic Pathways (SSPs):

9.4.1 Market Demand / Carbon Rules, Pricing Risks

Table 6 Market Demand / Carbon Rules, Pricing Risks

Risk type	SSP1-2.6	SSP2-4.5	SSP5-8.5
Increased carbon pricing	High	Medium	Low
Increased emissions reporting	Low	Low	Low
Climate Mandates on product off-takers	Low	Low	Low
Market erratic fluctuations and uncertainty	High	High	Medium
Tariff regimes	High	High	Medium

Market Shifts:

The transition to a low-carbon economy is expected to lead to significant market shifts, which can impact the Mine in several ways.

9.4.1.1 Risk Strategies

- Shifts in market demand towards more sustainable products
- Improve operational efficiency to reduce costs and remain competitive
- Allow for increased scrutiny from investors and stakeholders regarding sustainability practices
- Regularly disclose environmental performance and sustainability initiatives to maintain transparency.

9.4.2 Technology Risks

Table 7 Technology Risks

Risk type	SSP1-2.6	SSP2-4.5	SSP5-8.5
Transition technology performance failure	High	Medium	Low
Nascent technology failure	High	High	High
Transition technology cost barriers	High	High	Medium
Substitution of product with lower climate impact sourced product	High	Low	Low

Technological Advancements:

As time progresses new and more efficient mining technologies are constantly being developed. These new efficiencies produced by these emerging technologies, that could potentially reduce carbon emissions significantly could become the new national or international standard. Incorporating this into the organisations daily operations to meet these new regulations could require significant investments.

Decreased Demand for Fossil Fuels: As the world shifts towards cleaner energy sources, the demand for fossil fuels such as diesel and petrol may decline. This could affect the mine's energy costs, as it may need to source fossil fuels from more expensive or less reliable suppliers.

A clear example of this has been shown by the movements from say 50 PPM diesel to 10 PPM diesel. Not only does this affect supply but equipment choice or equipment life and performance. With heavy reliance on diesel-based operations, this risk can be very costly at the least.

9.4.2.1 Risk Strategies

- Stay updated with emerging technologies and integrate them into operations as they become viable.
- Rapid evolution of low-carbon technologies
- Timely integration of low-carbon technologies

9.4.3 Public Policy Risks

Table 8 Public Policy Risks

Risk type	SSP1-2.6	SSP2-4.5	SSP5-8.5
Climate mandates	Low	Low	High
Carbon pricing	Low	Medium	High
Emissions reporting	Low	Medium	High

Increased Operational Costs: Compliance with stricter regulations often requires investments in new technologies, infrastructure, or processes, which can increase operational costs. For example, the mine may need to implement advanced water

treatment systems, adopt more efficient mining methods, or invest in renewable energy sources to reduce its carbon footprint.

Additionally, the implementation of carbon pricing mechanisms can impose additional costs on the mine, especially if it relies heavily on fossil fuels for energy. Carbon pricing involves placing a monetary value on carbon emissions, incentivizing businesses to reduce their carbon footprint. For the Mine, this could mean incurring costs for carbon permits or investing in low-carbon energy alternatives.

9.4.3.1 Risk Strategies

- Monitor the evolving regulatory landscape
- Engage regularly with policymakers
- Support lobby groups such as the Namibia Chamber of Mines

9.4.4 Legal Risks

Table 9 Legal Risks

Risk type	SSP1-2.6	SSP2-4.5	SSP5-8.5
Litigation from interest groups	Low	Low	Medium
Climate laws	Low	Medium	High
Market rules	Medium	Medium	High

Changes in laws and regulations can significantly affect businesses' investment decisions, potentially changing the expected returns or rendering projects financially unfeasible midstream. In terms of climate change, these laws can be punitive or at a minimum very disruptive even in the face of mining license agreements.

9.4.4.1 Risk Strategies

- Update environmental management systems
- Implement rigorous environmental monitoring and compliance programs.
- Engage in proactive dialogue with stakeholders to address concerns and mitigate potential conflicts.

9.4.5 Investor Sentiment

Table 10 Investor Sentiment

Risk type	SSP1-2.6	SSP2-4.5	SSP5-8.5
	High	Medium	Low
Market stigmatization	High	High	High
Market fickle sentiments - investment	High	High	High
Market fickle sentiments – customers transitioning	Medium	Medium	High
Increased input costs	Medium	Medium	High

Reputational Risks:

Failure to address climate change risks and reduce emissions could damage the mine's reputation and impact its social license to operate. Neglecting to proactively address investor sentiment risks poses significant reputational challenges for the mine.

Stakeholders, including investors, regulatory bodies, local communities, and international partners are increasingly holding companies. Public scrutiny through media coverage and advocacy campaigns can quickly escalate if the company is perceived as ignoring concerns or failing to adopt sustainable practices.

9.4.5.1 Risk Strategies

- Collaborate with local communities, government agencies, and other stakeholders to address climate change concerns.
- Understand all actions can affect public perception.
- Create a clear plan for responding to crises, including assigning responsibilities and establishing clear communication protocols.
- Educate employees on how to behave and respond appropriately to situations that could harm the company's reputation.

10 Climate Change Resilience

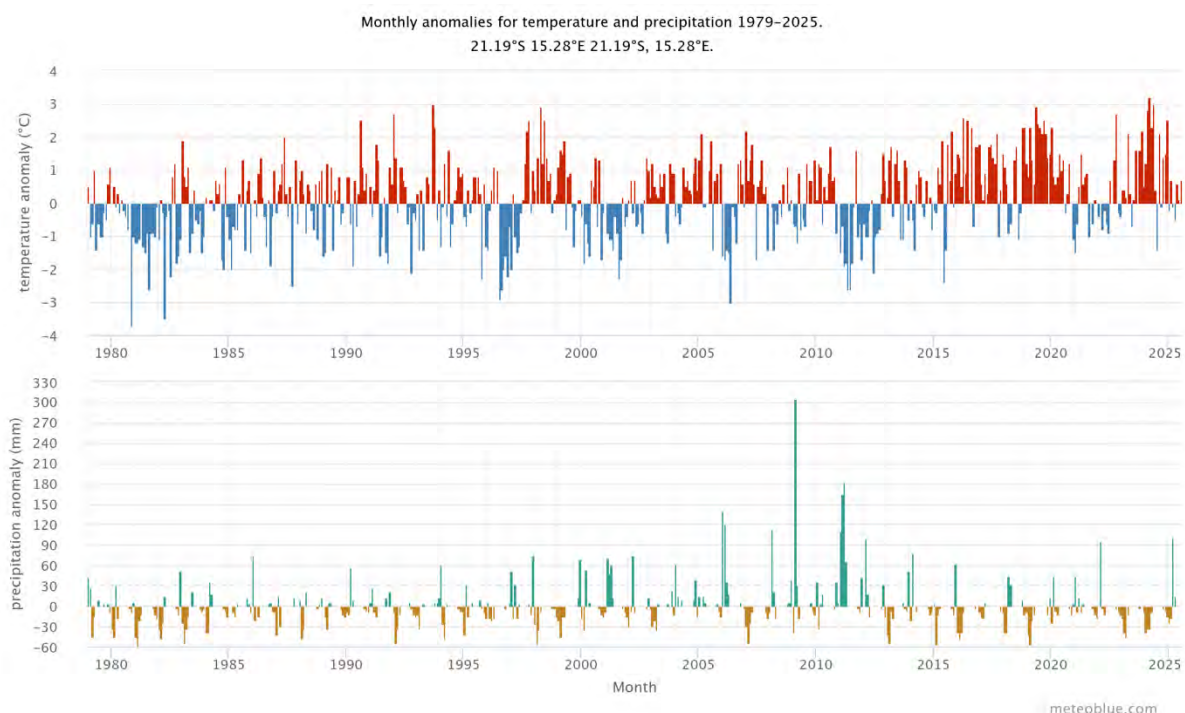


Figure 18 Temperature and Precipitation anomalies (1979 - 2024)

It can be clearly demonstrated that temperature trends show a rising pattern and that rainfall is very erratic in nature. Climate resilience therefore calls for the mining

operations and communities to anticipate, prepare for, and adapt to the impacts of climate change, while also recovering from related disruptions.

10.1 Climate Mitigation Measures

Mitigation measures are designed to captivate the natural resource advantages over fossil-based fuels, which in this context minimizes or eliminates greenhouse gas emissions. Mitigation seeks to reduce the release of harmful greenhouse gases (emissions) through sustainable energy utilization.

Namibia is expected to see an 11.6% reduction in energy versus *business-as-usual* approach by 2030 (Ministry of Environment, Forestry and Tourism, 2021) resulting in some savings of national emissions of 2.8 MtCO_{2e}. The next major area for reduction is expected to be in the Industrial Processes and Product Use (IPPU) and Refrigeration and Air Conditioning (RAC) sector, leading to a 0.6% or 0.134 MtCO_{2e}.

Mitigation measures such as substituting fossil fuels with commercially viable alternative energies (solar electricity, electric vehicles, etc) will be needed to create impact. These are outlined in the strategies in the following sub-sections.

10.1.1 Scope 1 Reduction Strategies

Objective:

- 1) Reduce energy consumption by optimizing processes and equipment.
- 2) Increase the use of renewable energy sources to reduce reliance on fossil fuels
- 3) Reduce emissions by switching to lower-carbon fuels and electrifying operations where feasible.
- 4) Transition to battery, electric or hybrid vehicles.
- 5) Implement energy efficiency measures in machinery and equipment⁶².
- 6) Increase use of renewable energy sources on-site.

10.1.2 Scope 2 Reduction Strategies

Objective:

- 1) Reduce energy consumption by optimizing processes and equipment.
- 2) Increase the use of renewable energy sources to reduce reliance on electricity utility
- 3) Purchase of renewable energy credits (RECs).
- 4) Invest in on-site renewable energy generation (solar, wind).
- 5) Improve energy efficiency in operations.

⁶² See Opinions section of this report

10.2 Climate Adaptation Measures

Climate change adaptation for a mining operation involves adjusting operations and infrastructure to reduce vulnerability to the unavoidable impacts of climate change, such as extreme weather, and water scarcity.

This section will show how the mine can carry out adaptive actions to reduce the impact of climate change on its operations.

Proposed Actions for the mine are:

- Water Recycling: Implementing water recycling systems
- Designing water infrastructure, like tailings dams, to cope with prolonged dry periods or flash floods.
- Constructing or reinforcing flood defenses to protect critical infrastructure from extreme rainfall.
- Diversifying supply chains and sourcing critical inputs from different regions to minimize disruptions from climate events.
- Integration of climate considerations into the company strategic plan
- Implement monitoring systems.
- Work with local communities such as Uis Village Council and the Daures Constituency officials to develop concrete climate adaptation plans.

10.3 Carbon Trading

Namibia does not yet have a formal, national carbon trading system. However, there are developments and considerations related to external carbon markets and climate finance that are relevant.

While Namibia does not have a formal national carbon trading system as of now [2025], the country is actively involved in voluntary carbon markets and international climate initiatives. These credits are typically generated from projects such as reforestation, renewable energy, and conservation efforts.

Future developments in carbon trading and climate policies may present opportunities for Namibia to enhance its role in global carbon markets and achieve its climate goals.

11 Opinions

The Project has an opportunity to use the findings and guidance in this report to create a baseline once operations begin and also to adopt deeper climate friendly options. This Report is focused on Year 1 as the base year to achieve this.

There will be a need for the Mine to list⁶³:

- The governance body's responsibilities for climate-related risks and opportunities are reflected in terms of reference, mandates, role descriptions and other related policies applicable to that body or individual.
- Management's role in assessing and managing climate-related risks and opportunities.

As a result, the following considerations are proposed:

- I. **Governance:** Have a clear identification of the Board and the Management's role both in strategic direction, assessment, and reporting of climate related risks and opportunities including and beyond those mentioned in this report.
- II. **Strategy:** Have a resilience strategy with a clear climate scenario objective including and beyond those mentioned in this report. Setting targets is an essential component.
- III. **Risk management:** Have a process for managing climate related risks including and beyond those mentioned in this report.
- IV. **Operations:** Have an economic plan that will seek to accelerate the use of solar power to reduce purchased electricity, use of battery or at a minimum hybrid powered light delivery vehicles as well as the use of risk vehicles, particularly Heavy-Duty Goods Vehicles (HGVs) and buses.

Some of the key risks of particular relevance noted while not absolute, will be the increased average temperatures over the life of mine associated with increased water stress in the general Uis area potentially creating stresses with the community.

To address these risks, the mine should develop a climate risk strategy. RDJ has provided guidance under a separate cover for Board and Management consideration.

⁶³ <https://www.ifrs.org>

12 Further Actions

The International Council on Mining and Metals (ICMM) position as an industry body should be headed and that this report be refined as soon as operations begin and annually thereafter, highlighting areas of change. The ICMM also develops best practice frameworks on a range of issues such as environmental stewardship, social performance, health and safety, and climate change mitigation.

As result, the following is required:

- a) Establish ongoing surveillance of databases to promptly detect and integrate any updates or modifications.
- b) Continue to research sources for emission factors and incorporate them into future reporting.
- c) Foster proactive collaboration with others to collectively centralized emission factors to support the entire mining value chain. A key starting point would be the Namibian Chamber of Mines.

Our assessment further indicates that the project will unavoidably be an increased GHG emitter in the immediate Uis geographic area when only viewed with a climate change lens. However, by carrying out economically viable actions as indicated in this report and others, the Mine will be able to either offset emissions (mitigate) or adapt to changing conditions as they occur.

Some early-stage gains could be achieved through:

- **Use of Renewable Energy:** There is growing opportunity for the mine to diversify its energy sources and renewable energy presents opportunities for mitigation. By investing in renewables such as solar or wind power⁶⁴, the mine can reduce its reliance on fossil fuels, mitigate climate change risks, and potentially improve its public image.
- **Renewable Energy Procurement:** 30% or more of purchased electricity can now come from renewable energy sources through utilization of the Modified Single Buyer (MSB) program⁶⁵ or a licensed project owned solar plant.
- **Energy Efficiency Measures:** Implementation of energy-efficient technologies such as air conditioners and other practices to reduce purchased energy consumption. Some of these actions could be achieved through

⁶⁴ Wind in particular may need to be offsite and obtained either through a power purchase approach or Special Purpose Vehicle (SPV).

⁶⁵ <https://www.ecb.org.na/economic-regulation/modified-single-buyer-market-model/>

- implementing emission reduction and fuel efficiency initiatives across haulage and loading fleet,
- Improving payloads for hauling trucks,
- optimising low-idle for drills
- Improved shovel / truck matching and start working towards introducing hybrid-electric shovels.

Furthermore, the project if properly executed, will bring positive benefits to the area such as those outlined in the economic section of this report, such as direct and indirect jobs. This stimulates other economic activities inclusive of revival of the Uis local authority.

13 ANNEXES

13.1 Scope 1 Tables

	Activity	Unit	Yr 1	Yr 2	Yr 3
	Mining Tonnes Mined	Mtpa	5	5	5
	Mining Oz - Gold	MOZpa	0.190909	0.190909	0.190909
tCO2e					
Scope 1	Scope total				
	Explosives Consumption				
0.000170	ANFO	tCO2e	3.7	3.7	3.7
	Petrol - Vehicles				
		tCO2e	0.0	-	-
	Diesel - Vehicles				
0.002558	Diesel	tCO2e	2437.2	2,437.2	2,437.2
	Diesel - Stationary equipment				
0.002558	Diesel	tCO2e	0.0	-	-
	Liquid petroleum (LPG)				
		tCO2e	0.0	-	-
	Welding Gas (Oxygen)				
		tCO2e	0.0	-	-
	Welding Gas (Acetylene)				
		tCO2e	0.0	-	-
	Welding Gas (Argoshield)				
tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e
	Jet A1 - Aviation				
0.002600	Helicopter - Jet A-1 aviation fuel	tCO2e	43.7	43.7	43.7
0.255800	Airplane - Jet A-1 aviation fuel	tCO2e	13.3	13.3	13.3

13.2 Scope 2 Tables

	Activity	Unit	Yr 1	Yr 2	Yr 3
	Mining Tonnes Mined	Mtpa	5	5	5
	Mining Oz - Gold	MOZpa	0.190909	0.190909	0.190909
Scope 2	Scope total				
	Electricity Total				
0.355000	Electricity - NamPower	tCO2e	99,514	99,514	99,514

13.3 Namibia Grid Emission Tables

In terms of this report, the *Harmonized IFI Default Grid Factors 2021 v3.2*⁶⁶ for Namibia and its Grid Network is taken **as 0.3550 tCO₂/MWh** as advised by NamPower⁶⁷.

It is important to note the following guidance statement:

For the purpose of promoting greater harmonization, the IFI Technical Working Group (IFI TWG) on GHG accounting maintains a common dataset containing Default Emissions Factor (DEF) of the country's electricity grid including in-country interconnected grids.

The DEFs apply to electricity generation in a country and currently do not consider the impact of interconnections with neighbouring countries⁶⁸. The common dataset containing DEFs is constructed using a Combined Margin (CM) for the grid that is comprised of an Operating Margin (OM) and a Build Margin (BM)⁶⁹.

⁶⁶<https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting/ifi-twg-list-of-methodologies>

⁶⁷ Via e-mail, January 2024

⁶⁸ IFI TWG is undertaking further work to develop harmonized approaches for interconnection with neighbouring countries.

⁶⁹ The methodologies and databases listed above are developed and solely owned by the Technical Working Group of the International Financial Institutions (IFI TWG). Any comments and queries related to these products should be addressed to the IFI TWG and sent to IFITWG-Coordinator IFITWG-Coordinator@unfccc.int

13.4 Terms and Definitions

Terms	Meaning
Ambition	A qualitative measure of the steps the entity will take to minimise its climate related impact on the environment.
Accuracy	A relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over nor under true emissions or removals, so far as can be judged.
Activity Data:	Activity data is a key input for the calculation of GHG emissions and refers to the data associated with an activity that generates GHG emissions, such as litres of gasoline consumed from company cars. This activity data is collected in physical units (gallons) or energy units (therms) and then combined with an emissions factor and the relevant greenhouse gas GWP value to calculate CO ₂ e
Business as Usual (BAU)	A practice or ensemble of practices that take place on a delineated area over a given period of time.
Carbon Dioxide Equivalent (CO₂e):	Carbon dioxide equivalent (CO ₂ e) is the standard unit used to compare and account for emissions from various GHGs based on their global warming potential. For example, CO ₂ has a GWP of 1 and CH ₄ (methane) has a GWP of approximately 28 (on a 100-year time horizon). Therefore, for every ton of CH ₄ emitted, an equivalent of 28 tons of CO ₂ would be emitted. Since one ton of a particular GHG is not the same GWP as one ton of another, this standard unit is a simple way to normalize and express GHGs as an equivalent of CO ₂ .
Carbon Credit	An emissions unit that is issued by a carbon crediting programme and represents an emission reduction or removal of greenhouse gases. Carbon credits are uniquely serialised, issued, tracked and cancelled by means of an electronic registry. IFRS S2
Carbon Footprint	The term 'carbon footprint' is used to mean the total mass of greenhouse gas emissions caused by an organisation, product or process over a given time period. A carbon footprint considers all seven of the Kyoto Protocol greenhouse gases: carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), sodium hexafluoride (SF ₆), nitrogen trifluoride (NF ₃), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).
Climate Resilience	The capacity of an entity to adjust to climate-related changes, developments or uncertainties. Climate resilience involves the capacity to manage climate-related risks and benefit from climate-related opportunities,

Terms	Meaning
	including the ability to respond and adapt to climate-related transition risks and climate related physical risks. An entity's climate resilience includes both its strategic resilience and its operational resilience to climate-related changes, developments and uncertainties. IFRS S2
climate-related physical risks	Risks resulting from climate change that can be event-driven (acute physical risk) or from longer-term shifts in climatic patterns (chronic physical risk). Acute physical risks arise from weather-related events such as storms, floods, drought or heatwaves, which are increasing in severity and frequency. Chronic physical risks arise from longer-term shifts in climatic patterns including changes in precipitation and temperature which could lead to sea level rise, reduced water availability, biodiversity loss and changes in soil productivity. These risks could carry financial implications for an entity, such as costs resulting from direct damage to assets or indirect effects of supply-chain disruption. The entity's financial performance could also be affected by changes in water availability, sourcing and quality; and extreme temperature changes affecting the entity's premises, operations, supply chains, transportation needs and employee health and safety. IFRS S2
climate-related risks and opportunities	Climate-related risks refers to the potential negative effects of climate change on an entity. These risks are categorised as climate-related physical risks and climate-related transition risks. Climate-related opportunities refers to the potential positive effects arising from climate change for an entity. Efforts to mitigate and adapt to climate change can produce climate related opportunities for an entity. IFRS S2
climate-related transition plan	An aspect of an entity's overall strategy that lays out the entity's targets, actions or resources for its transition towards a lower-carbon economy, including actions such as reducing its greenhouse gas emissions. IFRS S2
climate-related transition risks	Risks that arise from efforts to transition to a lower-carbon economy. Transition risks include policy, legal, technological, market and reputational risks. These risks could carry financial implications for an entity, such as

Terms	Meaning
	increased operating costs or asset impairment due to new or amended climate-related regulations. The entity's financial performance could also be affected by shifting consumer demands and the development and deployment of new technology. IFRS S2
CO₂e	'CO₂e' or 'carbon dioxide equivalent' is a unit of measurement of greenhouse gases that allows the different gases to be compared on a like-for-like basis relative to one unit of CO₂.
Emissions	Metric tonnes (t)
Environmental, Social and Governance (ESG)	Environmental, Social and Governance framework.
financed emissions	The portion of gross greenhouse gas emissions of an investee or counterparty attributed to the loans and investments made by an entity to the investee or counterparty. These emissions are part of Scope 3 Category 15 (investments) as defined in the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011). IFRS S2
Fugitive Emissions (oil and natural gas systems)	The intentional or unintentional release of greenhouse gases that occur during the exploration, processing, and delivery of fossil fuels to the point of final use. This excludes greenhouse gas emissions from fuel combustion for the production of useful heat or power. It encompasses venting, flaring, and leaks.
Gigajoule	Energy unit (GJ)
Good Practice	"<i>Good practice</i>" is a key concept for inventory compilers to follow in preparing national greenhouse gas inventories. Certain terms in the definition have been updated based on feedback from the statistics community, such that this definition can be also understood as "a set of procedures intended to ensure that greenhouse gas inventories are accurate in the sense that they are systematically neither over- nor underestimates so far as can be judged, and that they are precise so far as practicable" in the context of refinement of Chapter 3 of Volume 1. <i>Good Practice</i> covers choice of estimation methods appropriate to national circumstances, quality assurance and quality control at the national level, quantification of uncertainties and data archiving and reporting to promote transparency.

Terms	Meaning
Global Warming Potential:	GHGs released into the atmosphere have different radiative effects depending on the unique qualities of the gas. The factor describing the radiative forcing impact of one unit of a given GHG relative to one unit of CO ₂ is known as the Global Warming Potential (GWP). Since the amount of warming a gas causes over a given period (normally 100 years) varies, GHG emission calculations must account for the GWP of each gas. GWP is an index with CO ₂ having an index value of 1. The GWP for all other GHGs refers to the amount of warming they cause compared to CO ₂
Greenhouse gas	Greenhouse gases are gases in Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere
Grid emission factor⁷⁰ (GEF)	The List of Grid Emission Factors aims to provide information to be utilized for research and analysis regarding emissions from electricity generation. A "grid emission factor" refers to a CO ₂ emission factor (tCO ₂ /MWh) which will be associated with each unit of electricity provided by an electricity system. It is a parameter to determine the baseline emissions for CDM projects in the renewable energy sector (hydro, wind, solar PV, and geothermal power, etc.) and waste heat/gas recovery sector.
Kilometre	Length (km)
kilowatt-hour	Energy unit used primarily with electricity (kWh)
Litre	Liquid measure of volume
Mass	Gravitational Weight (kg)
Metre	Length (m)
Methane	A greenhouse gas (CH ₄)
Nitrous Oxide	A greenhouse gas (NO ₂)
PPA	Power Purchase Agreement
Renewable Energy	In this report, refers to solar energy sources.
Scope 1 emissions	refer to a category of greenhouse gas emissions associated with direct sources of emissions that are owned or controlled by an organization. These emissions are a fundamental component of an organization's carbon

⁷⁰ <https://www.iges.or.jp/en/pub/list-grid-emission-factor/en>

Terms	Meaning
	footprint and typically originate from activities such as the combustion of fossil fuels, on-site industrial processes, and emissions from vehicles or equipment owned and operated by the organization. In the context of the Greenhouse Gas Protocol, a widely recognized international standard for greenhouse gas accounting, <i>Scope 1 emissions are those for which an organization has operational control and are reported in the organization's carbon inventory.</i>
Scope 2 emissions	refer to greenhouse gas emissions associated with a company's activities. It specifically pertains to indirect emissions, which result from the generation of electricity, heating, and cooling consumed by the organization. <i>These emissions are not produced directly on-site but are a consequence of purchased energy sources.</i>
Scope 3 emissions	refer to indirect emissions that result from activities related to an organization but occur from sources not owned or controlled by the organization. These emissions encompass a wide range of sources, including the entire value chain of an organization, such as suppliers, customers, transportation, and the end-of-life treatment of products. The Greenhouse Gas Protocol's Scope 3 framework classifies these emissions into 15 different categories, such as purchased goods and services, transportation and distribution, and use of sold products, among others.
TCFD	Task Force on Climate-related Financial Disclosures https://www.fsb-tcfd.org/

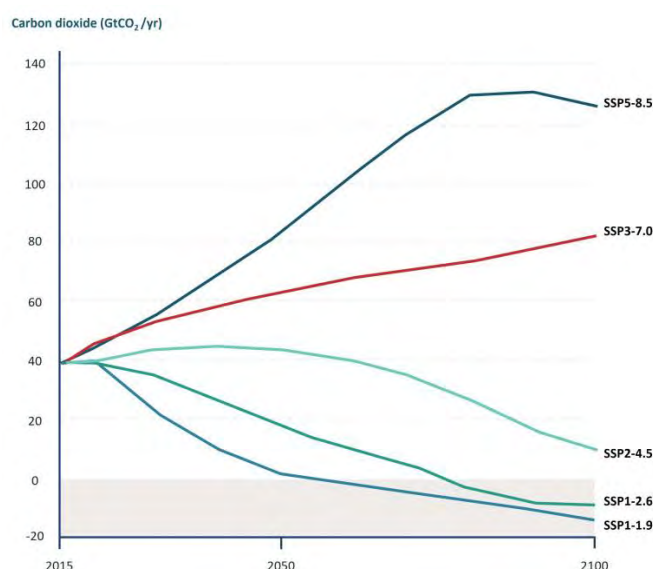
REPRESENTATIVE CONCENTRATION PATHWAY SCENARIOS

Representative concentration Pathways (RCPs) – as illustrated – emissions scenarios to model futures based on levels of greenhouse gas emissions, to evaluate changes in temperature, rainfall, and extreme weather. RCP2.6 a low emissions scenario, aligning with Namibia's Nationally Determined Contribution (NDC) targets. Alternatives, with progressively higher emissions intens.

Scenario	Global Warming	Key Risks for Kokoseb
 RCP2.6	+1.5°C	Manageable heat stress; encourage renewable energy adoption and water recycling
 RCP4.5	+2.4°C	Frequent droughts and heatwaves: higher costs for energy and water supply
 RCP6.0	+2.8°C or more	Increased flooding and extreme weather: disruptions to operations and the communities
 RCP8.5	+4°C or more	Severe droughts and flash floods: major operational and financial losses possible

13.6 Baseline SSP scenarios⁷¹

The Socio-economic Pathways (SSPs) provide baseline narratives. The SSPs form part of the basis for modelling the combined SSP-RCP scenarios⁷².



SSP1 Sustainability – Taking the Green Road

The world shifts gradually, but pervasively, toward a more sustainable path, emphasising more inclusive development that respects perceived environmental boundaries.

SSP2 Middle of the Road

The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. Development and income growth proceeds unevenly, with some countries making relatively good progress while others fall short of expectations.

SSP3 Regional Rivalry – A Rocky Road

A resurgent nationalism, concerns about competitiveness and security, and regional conflicts push countries to increasingly focus on domestic or, at most, regional issues. Policies shift over time to become increasingly oriented toward national and regional security issues.

SSP5 Fossil-fueled Development

This world places increasing faith in competitive markets, innovation, and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development.

⁷¹ <https://www.sciencedirect.com/science/article/pii/S0959378016300681>

⁷² <https://environment.govt.nz/>

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KOKOSEB GOLD PROJECT

PRELIMINARY BASELINE REPORT

MEMORANDUM

NOVEMBER
2025

CLIMATE CHANGE IMPACT ASSESSMENT



MEMORANDUM

To: Mr. Henk Diederichs
From: RDJ Consulting Services CC
Date: 25 November 2025
Subject: Climate Risk Mitigation and Sustainability Recommendations

This memorandum outlines strategies and recommendations to address climate-related risks and enhance the sustainability of mining operations. These recommendations are not compulsory but represent best practices agreed upon for inclusion in a separate memorandum rather than the main report.

General Risk Mitigation Strategies

Some of the key risks of relevance noted while not absolute, will be the increased average temperatures over the life of mine associated with increased water stress in the general Uis area potentially creating stresses with the community.

To address these risks, the mine should consider the following strategies:

Table 1 General Risk Mitigation Strategies

Risk factor	Mitigation Strategy
Extreme weather events	• Design and build infrastructure to withstand extreme weather events e.g. the implementation of the stormwater management plan. • Ensure tailings dams are engineered to withstand probable maximum precipitation and flood events, incorporating climate change projections. • Reduce the volume of stored tailings over time through backfilling and dry stacking where feasible. • Implement real-time monitoring systems for water levels, seepage, and structural integrity, with automated alerts for anomalies.
Changes in temperature and precipitation patterns	• Monitor and evaluation of changes • Effect staff awareness of mitigation measures such as hydration and protective covering (wearing of hats outdoors, dark glasses where appropriate, staying in shaded areas as necessary etc.)

Risk factor	Mitigation Strategy
Increased water scarcity	• Conduct regular audits to identify high-consumption areas and implement targeted reduction measures. • Water-saving technologies and recycling systems to reduce water consumption • Install sensors and monitoring systems to quickly identify and fix leaks in pipelines and storage tanks. • Adaptive water management plan to reduce freshwater use • Collaborate with local communities to develop shared water management plans and avoid competition for scarce resources.
Disruption to mining operations	• Operational contingency plans • Develop detailed operational contingency plans for extreme weather, equipment failure, and supply chain interruptions. • Maintain an inventory of essential spare parts and consumables to avoid prolonged stoppages during supply chain disruptions. • Design critical systems with redundancy (e.g., backup pumps, duplicate communication systems) to maintain functionality during failures.
Disruption to supply chains	• Supply chain contingency plans • Work with suppliers to reduce emissions in the supply chain and support sustainable practices. • Implement waste reduction, recycling, and circular economy practices to minimize the environmental impact.

Risk factor	Mitigation Strategy
Damage to infrastructure	• Infrastructure maintenance programs • Use materials and engineering standards that withstand extreme temperatures, heavy rainfall, and wind loads. • Schedule regular inspections and proactive repairs to identify vulnerabilities before they escalate. • Install robust drainage systems to prevent flooding and waterlogging around critical infrastructure. • Retrofit older structures with additional supports or protective coatings to improve durability. • Deploy sensors to track structural integrity and environmental conditions, enabling timely interventions. • Design critical infrastructure with redundancy (e.g., backup power, alternative access routes) to maintain operations during disruptions. • Implement landscaping and erosion control measures to protect foundations from soil degradation.
Damage to equipment	• Develop comprehensive risk assessment and management plans.
Energy Demand risks	energy efficiency measures in machinery and equipment – • use of High-Efficiency Motors (e.g., IE3 or IE4). • Install VFDs on pumps, fans, and conveyors to optimize energy use based on load demand. • Introduce policies and automation to minimize idling of heavy machinery during non-productive periods. • Implement a rigorous maintenance schedule to ensure equipment operates at peak efficiency and avoid energy losses due to wear and tear. • Training for staff on energy-efficient operating practices, such as proper shutdown procedures and load management.

Recommendations

By addressing the risk factors through targeted mitigation strategies, the Project can enhance its resilience to climate-related risks and ensure sustainable and responsible operations. This proactive approach not only safeguards the Project's operations but also contributes to the broader efforts in combating climate change beyond that of the project itself.

Implementing these measures will enhance operational resilience, reduce environmental impact, and position the project as a leader in sustainable mining. In line with our opinion on the mine activities, we therefore recommend the following:

Short-term (Year 0 – 2)

- a) **Alternative Energy Sources:** Consider immediate adoption of solar power to reduce purchased electricity and cut carbon emissions. Try to achieve 30% renewable energy integration by Year 2.
- b) **Vehicle Transition – Initial phase:** Transition components of the vehicle fleet from any potential diesel-powered to hybrid or electric powered vehicles, to lower fuel costs and emissions. Fleet electrification lowers maintenance costs and aligns with global sustainability trends.
- c) **Create data classification points:** this will involve classifying operational assets into groupings that allow for identification of emission “hotspots” and emission reduction opportunities.
- d) **Community Engagement:** Collaborate with local communities and stakeholders to develop long-term sustainable practices that align with environmental and social goals, thus minimizing the overall impact of the Project. Collaborate with local communities on water stewardship to avoid resource conflicts.

Medium-term (Year 3 – 5)

- a) **Vehicle Fleet Transition:** Continue to transition components of the vehicle fleet from diesel-powered to electric vehicles, which have lower carbon emissions.
- b) **Hydrogen or Hydrogen Fuel Cell Vehicles:** The adoption of hydrogen vehicles, particularly Heavy-Duty Goods Vehicles (HGVs) and buses is another crucial step toward reducing the dependence on fossil fuels and mitigating the carbon footprint associated with transportation.

Long-term (Year 5 – LOM)

- a) **100% Transition:** It is anticipated that “*learning*” from the previous terms would now be better understood and possibly entrenched in the business culture.

Annexes

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Mitigation Alternatives

Electric Excavator



The R 976-E electric crawler excavator, along with the R 980 SME-E, replaces the ER 974 B for mine and quarry extraction¹.

https://www-assets.liebherr.com/media/bu-media/lhbu-corp/news/corp_news_2021/corp_04_38/corp_09_38/corp_lfr_14/liebherr-crawler-excavator-r-976-e-1-96dpi_w800.jpg

¹ <https://www.liebherr.com/>

HGV Vehicles



MAN eTGS: The all-rounder for distribution transport and construction sites.

Development of the battery in the new MAN electric truck generation sets new standards: Ranges of around 750¹ kilometres are possible for regional use without interim charging with the new MAN eTGS. Due to the new megawatt charging system of up to 750 kW, it only lasts up to 31 minutes for the battery packs to have their state of charge (SoC) increased from 10 % to 80 %, depending on the configuration.

<https://www.man.eu/global/en/truck/electric-trucks/overview.html>

HGV Vehicles



100% electric

The MAN Lion's Coach E is the world's first fully electric coach from a major European manufacturer and sets new standards for sustainable mobility. The MAN Lion's Coach E combines innovative technology, comfort and environmental awareness in a unique coach experience with a range of up to 650 km under optimum conditions.

The new MAN Lion's Coach E incorporates state-of-the-art MAN technology and features a modular battery system manufactured in Germany, which is already used in the MAN eTGX. The battery consists of four to a maximum of six packs – for even further range.

https://www.man.eu/global/en/bus/coaches/the-man-lion_s-coach-e/overview/man-lion_s-coach-e.html

Hybrids



COROLLA CROSS 1.8 HEV XS

From N\$ 494 400

Corolla Cross Hybrid, the first Toyota hybrid proudly manufactured in South Africa. Its dual-engine system seamlessly integrates petrol and electric power for remarkable efficiency, responsiveness, and reduced emissions. Achieving an impressive fuel consumption of just 4.3 L/100 km, the Corolla Cross Hybrid combines superior mileage with eco-friendly performance, proving that you don't have to compromise on power or sustainability.

<https://www.pupkewitz-motors.com/toyota/new-cars/corolla-cross/>

Key Developments in the region (South Africa)



MAN Truck & Bus will deliver 100 electric buses to South Africa's Paruk Group, with production starting locally in 2026 and completing by the end of 2027.

This is the largest electric bus order for MAN outside Europe, and it includes a commitment to local production to strengthen the regional economy. The buses are based on MAN's Lion's Explorer E model.

<https://www.sustainable-bus.com/electric-bus/man-electric-bus-order-south-africa-paruk-group>



Golden Arrow Bus Services (GABS) is partnering with BYD to introduce 120 electric buses into its fleet in Cape Town, marking the first large-scale deployment of electric buses in South Africa.

BYD has already provided two electric buses for testing by GABS since late 2020, with the test outcomes receiving high praise. GABS is now replacing a portion of its fleet with 120 of BYD's electric models.

<https://en.byd.com/news/byd-brings-the-first-electric-buses-to-south-africa>

Electricity – Solar Power (B2Gold)



The Maxwell 10 MWac PV Plant for B2Gold Otjikoto Mine was successfully commissioned on 27 March 2025, marking the completion of a yet another important renewable energy project.

Located approximately 75 km north of Otjiwarongo in the Otjozondjupa Region of Namibia, the plant is now fully operational and synchronized to the grid.

<https://hopsol.com/2025/04/03/completion-of-the-maxwell-10-mw-pv-plant-for-b2gold/>