ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR:

Development of a Campsite and Tourism Facilities in De Riet, Khorixas Constituency, Kunene region, Namibia

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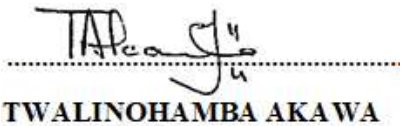

TWALINOHAMBA AKAWA

EAP Signature

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Proponent

January 2026

DECLARATION OF AUTHORSHIP

I **Twalinohamba Akawa**, (full name of Environmental Assessment Practitioner - EAP) understand and agree that the information I have furnished in this submission will be reviewed by the Office of the Environmental Commissioner (OEC). I accept that the Environmental Commissioner, will hold me accountable in terms of Section 43(1)(b) of the Environmental Management Act, Act No. 7 of 2007 for any inaccurate or misleading information knowingly provided in the following documentation.

Tick the box (es) applicable to your submission:

☐ Pro Forma Environmental Contract for Mining Claim(s)

☐ Environmental Questionnaire for Mining

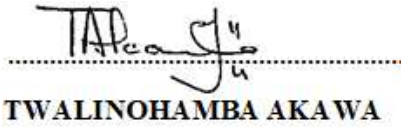
☒ Scoping Report

☒ Environmental Management Plan

☒ Consent from Relevant Authority

I certify, and, acknowledge that the provision of such information will impede the lawful carrying out of the duties, responsibilities and functions of the Environmental Commissioner. I declare that the information submitted is my own work. All direct or indirect sources used are acknowledged as references.

Consultancy Name: **Envirodu Consulting & Training Solutions cc**



TWALINOHAMBA AKAWA

Date: **13 January 2026**

NB- To be submitted jointly with Scoping Report, EIA, EMP documents to the Office of the Environmental Commissioner

EXECUTIVE SUMMARY

Background *– BB-9 Investment cc (the proponent) is a recognised Namibian company established in terms of Namibian applicable laws. The proponent intends to construct and operate Eagle Rock Tented Campsite and Tourism Facilities located at De Riet village in Khorixas Constituency. De Riet is one of the rural areas in Khorixas Constituency that is poorly developed and highly dependent on farming. Unfortunately, the farming system which is tied to the mono-modal rainfall regime is no longer supporting inhabitants due to climate change and variability. The drought of 2013-2022 negatively affected local agriculture production. It is predicted that over a long time, series this risk will increase in frequency and amplitude and local farmers need to rapidly respond and adapt. Interestingly, over the past years, farmers had adopted new livelihoods strategies focusing on tourism and this effort need to be supported and appreciated.*

Project motivation *– Generally, Kunene Region has a predominantly young population, indicated by a wide population pyramid base and a narrow top. Despite strong local tourism potential, communities such as De Riet have benefited little from the sector. Tourism remains one of Namibia's most resilient and sustainable industries, as it relies on the country's natural landscapes, wildlife, and cultural diversity, and even benefits from currency depreciation through increased international visitation.*

Tourism also offers accessible opportunities for rural youth, women, and small-scale farmers, particularly through diversified products such as ecotourism, cultural tours, desert experiences, and local gastronomy. However, complex legal and environmental requirements, including the need for Environmental Impact Assessments and clearance certificates, limit community participation, as these processes often require specialized expertise beyond local capacity.

GRN's efforts to scale up mining *– GRN has made comprehensive investments in wildlife conservation and natural resources management. Adoption of the CBNRM through creation of landscapes and conservation areas has laid a strong foundation for the tourism sector. In addition, efforts by local funding partners, institutions and international donor projects (e.g. Millennium Challenge Account-Namibia) had helped boost this momentum. GRN's support need to be supported and scaled up, so that benefits could eventually trickle to those at the lower level in the tourism sector value chain, the majority of whom are youths and women. The increase in tourist packages involving gastronomy, entertainment and information about the cultural wealth of local people is an opportunity that entrepreneurs, community organisations, local funding partners and development agencies need to seize to promote sustainable tourism.*

***Detailed project description** – **T**he proposed project will entail construction of 10 (ten) tented luxury campsites each with own toilet and shower. In addition, 10 (ten) campsites with 2 (two) ablution facilities will be constructed. The Eagle Rock Tented Campsite and Tourism Facilities campsite is located near a rhino population. Due to current demand for accommodation, the proponent identified the site as one of higher potential and could generate revenues for the proponent and the community. Currently, application for leasehold rights had been approved but tourism activities cannot take place because the environmental clearance certificate is missing. The proponent understands the value of the environment and the probable impacts of tourism development in the sensitive areas such as the proposed site which is an important habitat for rare diversity of flora and fauna. It is for this reason BB-9 Investment cc appointed the EAP to carry out the EIA study. The appointed EAP has prepared this EIA Report to support application of the ECC.*

***Baseline environmental conditions and biological diversity** –*

De Riet lies within the savannah–desert transition zone and is partly influenced by the Benguela Current upwelling system, which results in low air temperatures and limited rainfall due to temperature inversion layers. The area supports significant biodiversity, including approximately 66% of Namibia's endemic plant species, indicating high ecological sensitivity and the need for precautionary protection measures. This plant diversity is complemented by a wide range of fauna—mammals, reptiles, birds, and invertebrates—many adapted to arid conditions, including species of conservation concern such as the desert-adapted elephant.

The area also functions as an important biodiversity corridor, facilitating habitat connectivity and species adaptation to climate change. To protect these fragile ecosystems, a robust Environmental Management Plan (EMP) is essential to minimize habitat degradation, conserve biodiversity, and promote sustainable resource use.

***Project impacts** - The project is expected to have several positive impacts, including job creation for local youth, supporting economic development and poverty reduction. Increased tourism could stimulate the local economy through related activities such as guided tours and craft markets, while promoting eco-tourism, conservation awareness, and support for habitat restoration and wildlife protection.*

Potential negative impacts include disturbance to local biodiversity, particularly desert-adapted elephants and endemic plant species, pressure on limited water resources, soil erosion from construction

activities, and possible overcrowding that could reduce the area's eco-tourism value. Social challenges may also arise if benefits are not equitably shared or if traditional lifestyles are affected.
These impacts will be addressed through the implementation of a robust Environmental Management Plan (EMP) in line with Namibia's Environmental Management Act, focusing on sustainable resource use, protection of sensitive habitats, fair community benefit-sharing, and ongoing monitoring and community engagement.

Conclusions and recommendation – *The proposed Eagle Rock Tented Campsite and Tourism Facilities project offers significant potential for local economic development, particularly through job creation and eco-tourism. It aligns with Namibia's conservation and sustainable development goals, leveraging the region's rich biodiversity and cultural heritage. However, the project will be carefully managed to mitigate potential negative impacts on the environment and local communities.*

To ensure the project's success, measures that protect biodiversity, particularly endemic species and desert-adapted elephants, by minimizing habitat disruption and preserving ecological corridors will be implemented. Water resource management strategies will be developed to prevent overuse and ensure sustainability for both the project and the surrounding community. Equitable benefit-sharing mechanism will be established to ensure local youth, women, and tour guides can access employment and entrepreneurship opportunities in the tourism sector. Additionally, cultural values will be integrated into the project to prevent disruptions to traditional lifestyles. Regular monitoring and adherence to the Environmental Management Act of Namibia will ensure compliance and allow for adaptive management, addressing emerging concerns promptly. By incorporating these recommendations, the project can promote sustainable tourism while protecting the environment and supporting community development.

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ACRONYM

BID	Background information document
CBNRM	Community based natural resources management
CMC	Conservancy Management Committee
EAPs	Environmental Assessment Practitioners
EC	Environmental Commissioner
ECD	Early Childhood Development
ECC	Environmental Clearance Certificate
ECO	Environmental Co-Ordinator
EIA	Environmental Impact Assessment

EMP	Environmental management plan
ENSO	El Nina Southern Oscillation
GRN	Government Republic of Namibia
I & APs	Interested and affected parties
ITCZ	Intertropical Convergence Zone
IUCN	International Union for Conservation of Nature
LFA	Logical Framework Assessment
M & E	Monitoring & Evaluation
MET	Ministry of Environment and Tourism
NACSO	Namibia Association of CBNRM Support Organizations
NEMA	Namibia's Environmental Management Act
NEPRU	Namibia Economic Policy Research Unit
NSA	Namibia Statistical Agency
ONI	Oceanic Nino Index
RE	Resident Engineer
SEA	Strategic Environmental Assessment
SHE	Safety health & environment
SRT	Save the Rhino Trust
TORs	Terms of References

1. INTRODUCTION AND BACKGROUND

1.1 Project Location

BB-9 Investments (the proponent) intends to construct and operate Eagle Rock Tented Campsite and Tourism Facilities located at De Riet village in Khorixas Constituency. The developer has secured the necessary agreement from the Torra conservany and the Riemvasmaak traditional Authority. Generally, the campsite is not yet developed, but currently tourists frequent the area for camping, but illegally.

FIGURE 1: General site of the project in Torra conservancy.

1.2 Project Motivation

GRN's effort to invest in tourism is evident from the adoption of the CBNRM concept by creating conservation landscape areas where communities are able to make their own decisions about natural resources use and management. Torra Conservancy, established in June 1998, is a community-managed legal entity focused on sustainable natural resource use and local development. Located in the Kunene Region of north-western Namibia, the conservancy spans 3,522 square kilometers and is home to approximately 1,200 residents, primarily from the Riemvasmaak community.

Sixth National Development Plan (NDP6) and its emphasis on the sustainable development of Namibia's key economic sectors, including tourism. Tourism has consistently demonstrated its resilience to economic fluctuations and remains one of Namibia's fastest-growing sectors. It contributes approximately 15% to the Gross Domestic Product (GDP) and is a significant source of employment, particularly in rural areas where alternative economic opportunities are limited.

Namibia's unique landscapes, rich biodiversity, and cultural heritage position it as a competitive global tourism destination. NDP6 emphasizes the need to diversify tourism products to enhance value addition and extend benefits to underserved communities. The Eagle Rock project supports this directive by introducing a luxury tented campsite in De Riet village, a rural area in the Khorixas Constituency. This development aims to attract more visitors, offering eco-tourism experiences that promote cultural appreciation and environmental conservation.

Further supported by the National Sustainable Tourism Growth and Development Strategy, the project prioritizes inclusive development by creating jobs for local youth and women, fostering skills development, and ensuring equitable benefit-sharing with the community. By integrating sustainable practices, the Eagle Rock initiative will contribute to conserving Namibia's natural resources, bolstering biodiversity, and advancing the goals of Vision 2030.

This project is a pivotal step in achieving Namibia's national goals by leveraging tourism as a tool for socio-economic upliftment, poverty alleviation, and environmental sustainability.

1.3 Terms of References and Study tasks

Appointed EAPs (Environmental assessment practitioners) has proposed TORs (terms of reference) to be:

- Conduct an EIA/Scoping study for the proposed development project as per the Environmental Management Act (NEMA) no. 7 of 2007 and its regulation of 2012;
- Prepare adverts for placement in the newspapers as part of the I & APs (interested & affected parties) consultation process;
- Prepare BID and communicate BID to I & APs;
- Attend, and administer a meeting in consultation with the Client;
- Visit the proposed development project site;
- Carry out baseline biodiversity and environmental surveys;
- Compile the EIA/scoping and EMP reports for submission to relevant authority, and
- Assist the proponent to apply for environmental clearance licence.

1.4 Deliverables

Deliverable of this project are:

- Inception report;
- Background information document (BID);
- EIA/screening Report;
- Draft EIA/scoping and EMP Reports;
- Final EIA/scoping and EMP Reports, and
- Environmental clearance license.

1.5 Objectives

The main objective of this task is to draft an EIA/Scoping report and an environmental management plan (EMP). Specific objectives are to launch application for Environmental Clearance Certificate with the Environmental Commissioner/Ministry of Environment & Tourism.

2. REVIEW OF LEGAL FRAMEWORK

Ecological sustainability should be a priority for any proposed development, and mining is one of the listed activities in the Government Notice No. 29 of 2012 of the EMA 2007. Therefore, thorough review of relevant international policies and local legislations, policies and guidelines has been conducted for the proposed small-scale mining Project. The proposed is located in a protected area, but not in any heritage

listed areas. Table 4 below summarize the relevant legal requirements specific to the Project. The summary will enable the Project Proponent, Interested and Affected Parties and the decision makers at the Department of Environmental Affairs to be informed of what will be done to set up the proposed tourism activities.

Table 1: Relevant Namibian laws and their applicability to De Riet campsite project.

Laws	Relevant sections	Summary	Applicability to Project
Namibian Constitution	Article 95	Promotes sustainable development, environmental protection, and the welfare of people, including proper use of resources for current and future generations.	Ensure sustainable and environmentally responsible exploration activities that align with the Constitution's goals of resource protection
Environmental Management Act (EMA), No. 7 of 2007	Section 27, Section 33, Section 3	Requires EIA, EMP, and ECC for activities with environmental impacts. Promotes sustainable development and public participation	Conduct EIA, prepare EMP, and obtain ECC from MEFT before construction.
Water Resources Management Act, No. 11 of 2013	Section 32, Section 39	Prohibits water pollution and requires permits for water abstraction.	Prevent water pollution and apply for water-use permits if required for exploration.
Labour Act, No. 11 of 2007	Section 3, Section 39	Promotes fair labor practices and ensures safe working environments, including for high-risk activities.	Ensure worker safety, provide PPE, and comply with labor laws during exploration activities.
Public Health Act, No. 36 of 1919 (as amended)	Section 119, Section 15	Mandates proper waste management and ensures activities do not pose risks to public health.	Manage waste to prevent public health risks and avoid contamination during exploration activities.
National Heritage Act, No. 27 of 2004	Section 55, Section 59	Protects heritage sites and objects; requires reporting of discoveries of cultural significance	Avoid disturbing heritage sites and report any heritage findings during exploration activities.

Table 2: Relevant Namibian Policies, Guidelines, and Their Applicability to De Riet campsite Project.

Policy/Guideline	Key Provisions	Applicability to the Project
Conservancy Guidelines and Regulations	Provides a framework for managing activities within conservancies, including benefit-sharing and minimizing harm.	Ensures engagement with conservancy management, compliance with buffer zones, and community benefit-sharing.
Community-Based Natural Resource Management (CBNRM) Policies	Advocates for sustainable resource management and equitable benefit-sharing among community members in conservancies.	Promotes collaboration with local communities and adherence to sustainable practices.
National Policy on Human-Wildlife Conflict Management (2009)	Offers strategies for mitigating and managing conflicts between wildlife and human activities.	Requires measures to minimize human-wildlife conflicts in exploration areas near conservancies.
Strategic Environmental Assessment (SEA) Guidelines	Encourages integration of environmental considerations into early planning stages of projects.	Guides alignment of exploration activities with regional and national environmental strategies.
Pollution Control and Waste Management Bill (Draft)	Regulates pollution and promotes sustainable waste management practices.	Ensures responsible handling and disposal of waste generated during exploration activities.
National Policy on Climate Change (2011)	Advocates for climate-resilient development and mitigation of climate change impacts.	Encourages the adoption of climate-sensitive practices during exploration to reduce environmental impacts.
National Energy Policy (2017)	Promotes sustainable energy use, especially in resource-intensive activities like mining.	Encourages efficient energy use and exploration practices that minimize greenhouse gas emissions.

National Drought Policy and Strategy (1997)	Aims to ensure sustainable use of water resources in arid regions like Kunene.	Guides water conservation practices during exploration activities in the drought-prone Kunene Region.
Biodiversity Strategy and Action Plan (NBSAP3, 2013-2022)	Promotes biodiversity conservation and sustainable use of natural resources.	Ensures that exploration does not adversely impact biodiversity in the area.

This table consolidates the legal framework, policies, and guidelines applicable to mineral exploration activities on De Riet campsite in the Kunene Region, ensuring compliance with Namibia's environmental and conservancy standards.

3. ENVIRONMENTAL IMPACT ASSESSMENT METHODS

3.1 Sustainable development concept

The concept of sustainable development was coined in 1987 and aims at developing natural resources in order to meet to needs of both present and future generations. Several sustainable development approaches and assessment methodologies had been developed and are used in the appraisal and evaluation of development projects. Under the proposed mineral tourism activities, the following methodologies will be used:

- Environmental and Impact Assessment (EIA).
- Environmental Management Plan (EMP).

3.2 Definitions of Selected Sustainability Approaches and Methods

Environmental Impact Assessment (EIA) – is defined as a formalized, systematic and comprehensive process of determining environmental impacts of a project (MET 2009).

Environmental Management Plan (EMP) – is a method that provides guidance as how environmental impacts should be managed in order to minimize negative impacts and increase benefits throughout the life cycle of a project (DEAT 2004a).

3.3 Description of selected Sustainability Approaches and Methods

3.3.1 Environmental Impact Assessment (EIA)

3.3.1.1 Desk studies and Literature review

Desk studies and literature reviews were undertaken in order to gather facts, relevant background documents and information from literature and previous works about the site, people, current and past land use. Key documents reviewed included, Namibia population Census report 2024, Kunene regional council website population, Biological biodiversity of Namibia, booklet of the conservancy and others. Institution such as the information centre at the Save Rhino Trust also provided crucial information about the specific project site.

Legal documents reviewed included the Namibian Constitution, NEMA no. 7 of 2007 (and its regulations of 2012), Namibia's Environmental Assessment Policy for Sustainable Development, Nature Conservation Amendment Act no. 6 of 1996, Pollution Control and Waste Management Bill, Water Act and Water Resources and Management Act, Communal Land Reform Act, Public Health Act and Customary Law (Bill of Rights 1990; Principles of State Policy 1990; MET 1995; MET 2013).

3.3.1.2 EIA process

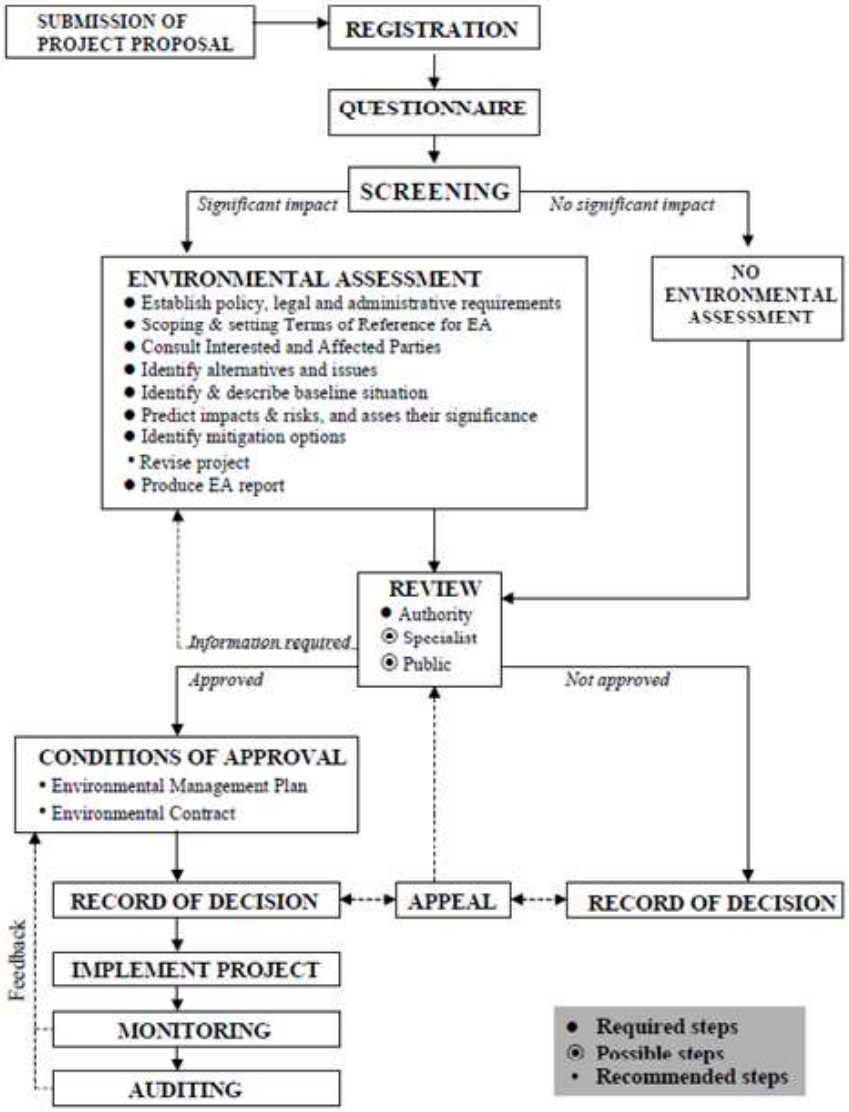

Figure 2: Illustration of the EIA process in Namibia.

Steps in the illustration above can be summarized as follows:

Determination whether the ECC is required – there are some activities that do not require ECCs. It is the responsibility of the Proponent and their Consultants to determine this during this stage.

Submission of project proposal and registration – the BID (background information of document) is prepared to provide information about the proposed project and the project application (APP) number is assigned.

Screening – The Office of the EC (Environmental Commissioner) makes determination in terms of Section 35 1(a)(b) of the Environmental Management Act (No. 7 of 2007) and issues a screening notice. In the screening notice a list of documents/reports are provided which the Consultants and their Proponent should compile, prepare and submit to the Office of the EC.

Scoping – at this stage, the spatial and temporal boundaries and main issues that the assessment should address are determined. It ensures that only main issues and reasonable alternatives are determined.

Impact analysis – as it implies, this stage predicts impacts and assess the extent of their significance.

Mitigation and enhancement plan – to establish measures to prevent, reduce or compensate for impacts.

Integration and reporting – to prepare information required for decision-making.

Review – to check the quality of the EIA report.

Decision-making – to approve/disapprove the project and draft terms of references.

Follow up – to manage impacts of project implementation i.e., mitigation, monitoring, auditing, etc.

Public involvement – to engage the public and stakeholders affected by the proposed projects.

3.3.1.3 Effectiveness of EIA Approach and Methods

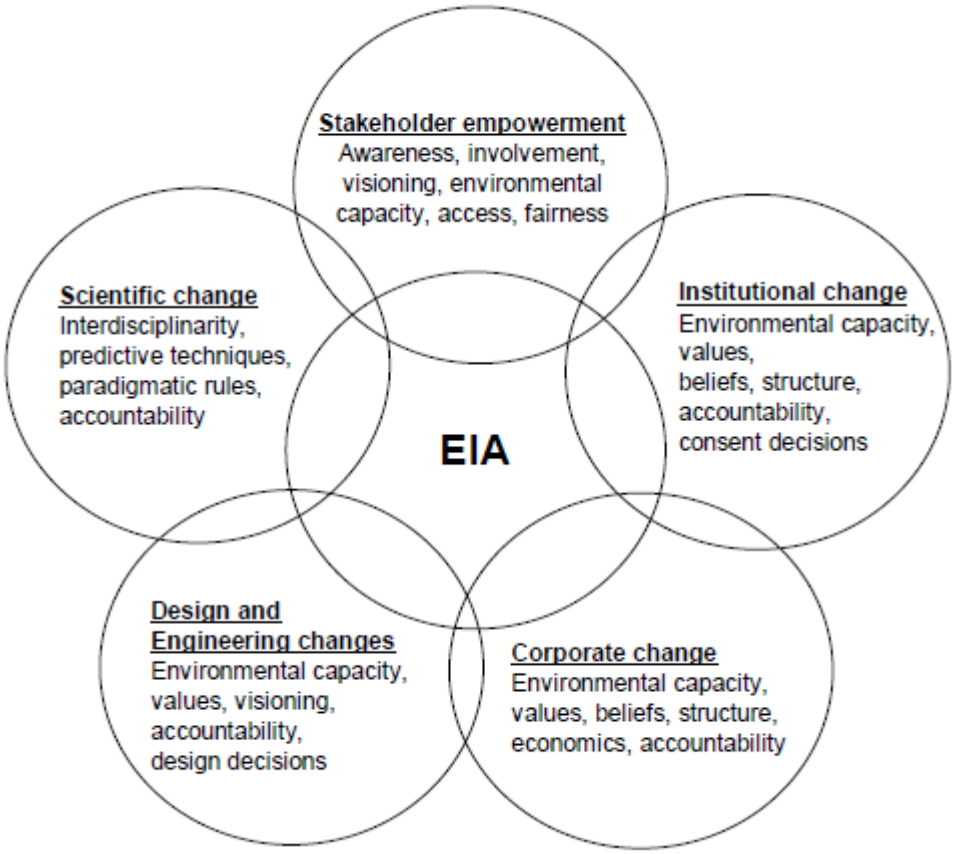

Figure 3 : The effectiveness of EIA approach and methodologies.

EIA can promote sustainability via:

- Integration of social, economic, and environmental aspects – evaluation of all aspects of development is important in order to achieve a balanced development and provide ways to deal with consequences when certain decisions are made.
- Ensuring efficient resources use and environmental protection.
- Modification and improvement of the design of development projects, which enhance positive impacts, reduce potential risks and conflicts.
- Acquisition of baseline information and data that never existed.
- Fostering learning through public engagement, especially during stakeholders' meeting.
- Considering needs of the people – one of the principles of sustainable development requires sustainable development to recognize values and knowledge of local people.

3.3.1.4 Limitations of EIA Approach and Methods

However, EIA contribution to sustainability of projects is limited mainly because of the:

- Inherent ambiguity of the EIA approach,
- Inappropriate use of EIA procedures and processes, and
- Lack of or inadequate incorporation of EIA systems and processes at decision-making level.

Furthermore, it is argued that EIA appears to have contributed more in theory then in practice. Others criticize EIA as a hindrance to economic growth, especially in developing countries where economic growth is much needed. Moreover, EIA is seen as a deliberate process designed to delay development and create jobs to Environmental Assessment Practitioners.

Originally incepted, by NEPA (National Environmental Policy Act), the EIA approach was designed to respond to impacts of modern development and the apparent failures to adequately deal with impacts of such developments. In essence, EIA was a tool for implementing NEPA and therefore, EIA could be regarded as of political origin than science based. This lack of scientific objectivity makes EIA susceptible to biasedness when issues and concerns are competing.

3.3.1.5 Assumptions and Precautionary Approach

Globally, EIA is popularly used and have been incorporated into policies of many countries. In South Africa, EIA has been incorporated into the National Environmental Act (No. 107 of 1998). In Namibia, EIA is a law and have been incorporated into the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (GN. No. 30 of 6 February 2012).

By using the EIA assessment method, it is generally assumed that their limitations are sufficiently addressed when applying the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (GN. No. 30 February 2012). If there are instances where such limitations had not been covered, Consultants will apply the precautionary approach principle to minimise negative environmental impacts of the proposed mineral exploration activities.

3.4 ENVIRONMENTAL MANAGEMENT PLAN (EMP) APPROACH AND METHODS

3.4.1 Introduction to EMP Approach and Methods

Even for those developments that were preceded by proper EIAs, it is possible that the cumulative impacts not initially addressed during the EIA process would affect the environment or delay implementation of the project. In such cases, it is difficult to manage environmental impacts. The suitable sustainability tool to rectify the situation is to develop an EMP for the project. The EMP is submitted along with the EIA Report for approval by the authorities.

3.4.2 Effectiveness of EMP

The EMP is an improvement of the EIA. The aim of the EMP is to provide guidance on how environmental impacts shall be managed in order to deal with impacts throughout the life cycle of the project. EMP provides a base upon which activities are continuously managed, monitored and evaluated. This makes an EMP effective compared to the EIA.

3.4.3 Limitations

The EMP is an ongoing and in-house process with a virtual lack of public pressure and accountability. In other words, developers may still deviate from their originally proposed development they proposed in the EIA. This is the main limitation of the EMP which need improvements, for example, by ensuring the authorities are actively involved.

Critically, if authorities fail to enforce compliance with conditions that set out in the Environmental Clearance Certificates (ECCs), it can lead to a cascade of negative consequences. Non-compliance to conditions of ECCs can undermine environmental protection efforts, harm ecosystems, and contribute to unsustainable development practices. This could also result in litigations, legal challenges, financial penalties, and long-term damage to both the environment and public health.

Adequate environmental compliance and enforcement will ensure that the proposed mineral explorations activities are conducted in a responsible manner and promotes sustainable development practices.

3.4.4 Assumptions and precautionary approach principle

By using the EMP method, it is assumed the authority has sufficiently scrutinised the EMP in order to determine its effectiveness. It is also assumed the authorities have sufficient resources to monitor proposed project activities throughout the project lifecycle.

Where the above are omitted, the precautionary approach will be to enforce conditions of award of the ECC, which among others, requires the proponent to:

- Compile bi-annual environmental monitoring reports.
- Appoint independent and qualified Environmental Control Officers to undertake bi-annual reports and avail these reports to the public for review and scrutiny.
- Beware that the ECC can only be renewed provided the proponent had been meeting all conditions of award as stated in their ECCs.

3.5.1 Valued ecosystem components

Project activities to be undertaken will have impacts on the essential biological, physical and human components of the environment. These environmental components are also well known as VECs (valued ecosystem components). The first requirement in the Leopold matrix was the identification of VECs as illustrated in the table below.

TABLE 3:

Environmental resource	Valued ecosystem component	Importance of the valued ecosystem component
Air and climate	Air quality	Effects on air for local residents. Health implications for all users. Effects on atmosphere.
	Climate	Contribution to global warming.
Land	Geomorphology and landscape	Change in land morphology. Use of non-renewable energy. Importance to local community. Effects of waste disposal methods.
Water	Ground water quality	Sustainability issues (for e.g. is ground water resource a critical concern locally?). Conflict use (irrigation and drinking).
	River water quality	Sustainability issue. Conflict use (fisheries). Health implications for all users.
Ecology and biodiversity	Terrestrial ecology and biodiversity	Importance to the well-being of all biological content of the ecosystem. Importance for ecosystem well-being and proper functioning. Use to community.
	Aquatic ecology and biodiversity	High biological value (internationally, nationally and regionally). Economic use to community.
Human Environment	Socio-economic &	Economic use to the

	biodiversity	community. Employment opportunities. Community welfare.
	Public health and safety	Operation impacts on community safety. Reduction on gas flaring.
	Noise pollution	Influence on biodiversity. Nuisance to local community and ecosystem.
	Agriculture	Socio-economic importance. National and community value creation.
	Light pollution	Nuisance to local community and ecosystem. Road accidents, theft and property damage.

3.5.3 Impact aspects

The second stage in the Leopold matrix is to identify and map the receiving environment by identifying various environmental aspects that will be affected by each project activities during each phase and this was done using the table below.

TABLE 4 :

Project component	Environmental aspect
Construction activities – site selection and preparation.	Removal of trees and herbaceous vegetation Topsoil clearing and removal and land levelling
	Transport and equipment use
	Purchase and delivery of construction materials and services
	Staff hiring
Construction activities – civil works and mechanical erection.	Workers' temporary accommodation.
	Excavation, earthworks, backfill and compaction.
	Transport and use of vehicles.
	Use of construction equipment.
	Structures for utilities (freshwater pipelines and sewerages).

	Water extraction and water supply.
	Construction of infrastructures (abolition facilities and luxury campsites)
Construction activities – testing, installations and commissioning.	Installation of utilities and connection (freshwater and power supply, drainage of liquid waste, communication services and others)
	Waste disposal, clean-up, landscaping and preparations to make the property ready for use.
Operation activities.	Staff hiring.
	Underground water extraction and operation of freshwater intake pipeline.
	Liquide waste pond operation.
	Solid waste generation and disposal.
	Energy use.
	Traffic operation and public parking.
General operational issues.	Spills and leaks
	Formal reception area and on-site representative available 24-hours, 7 days a week.
	Laundry, dining and entertainment facilities provide within boundary walls of property.

3.5.4 Impacts evaluation

The third stage in the Leopold matrix was evaluation of importance of each impact in order to determine their significance on the receiving environment. Each impact was rated in terms of their level, duration, intensity, probability and significance as illustrated below.

TABLE 5*:*

Assessment of Impact	Rating	Description
Nature	(D) Direct (I) Indirect (I) Cumulative	Caused by the project and occur simultaneously. Associated with project and may not be happen immediately. Combined impacts that could be associated with other existing activities or future activities not related to the project.
Extent	I	Immediate.

	L R N I	Local (Khorixas). Regional (Kunene Region). National (Namibia). International.
Duration	ST MT LT	Short term (0-5 years). Medium term (5-15 years). Long Term (>15 years).
Magnitude	L M H	Low (the natural, cultural and social functions and processes are not affected). Medium (the affected environment is altered but natural, cultural and social functions and processes can continue). High (the affected environment is altered to the extent that natural, cultural and social functions and processes will temporarily or permanently stop).
Probability	LP P HP D	Low probability (possibility of impact occurring is low, below 25%). Probable (there is a distinct possibility that it will occur, approximately 50%). Highly probable (the impact is most likely to occur, 75%). Definite (the impact will occur, more than 100%).
Significance with mitigation measures (WM) and without mitigation measures (WOM)	L M H	Low (where natural, cultural, social and economic functions and processes are not affected). Medium (where the affected environment is altered but natural, cultural, social and economic functions and processes can continue). High (where the affected environment is altered to the extent that natural, cultural, social and economic functions and processes will

		temporarily or permanently stop).

3.5.5 Mapping of significant impacts

The last stage was to provide a detailed evaluation of impacts as well as their summary evaluation, combining magnitude and importance. This summary evaluation highlighted significant impacts that should receive a higher priority during impacts mitigation and was the basis for developing a sound EMP.

This was a critical stage during which EAPs were to probe issues in details, for example by asking the following questions:

- Which impact is most significant?
- Which impact should be prioritised during mitigation?
- Which impacts should be monitored?
- Which activity is critical during which phase?
- Which receiving environment is vulnerable during which phase?
- What are the long term impacts worth monitoring during the operation phase?

3.5.6 Environmental Management Plan and Monitoring & Evaluation Plan

The above questions are very important in the designing of an effective EMP and implementation of the environmental monitoring & evaluation plan. As often argued in literature EIA as a tool for sustainable development is not sufficient in evaluating development projects because it has its weaknesses. These weaknesses include the fact that its scope is limited when measured on a temporary scale. It merely provides a snapshot overview of baseline conditions of a development project and fail to consider indirect environmental impacts or cumulative impacts that may result as result of a development.

Therefore, to make up for this the NEMA (no. 7 of 2007) and its regulations (of 2012) sometimes require preparations of the EMP and environmental monitoring & evaluation plan.

4. ENVIRONMENT AND SOCIAL BASELINE

4.2 Location

Eagle Rock Tented Campsite and Tourism Facilities will be located about 8 km at the De Riet village. De Riet is a rural community located in the Torra Conservancy near near Twyfelfontein. in the Kunene Region of north-western Namibia, within the Khorixas Constituency. It lies at the transition zone between savannah and desert ecosystems, characterised by arid landscapes and unique biodiversity. The community is situated along the ephemeral Hauseb and Aba-Huab rivers, which plays a vital role in the local environment by supporting seasonal vegetation and providing water sources for wildlife.

The surrounding area features rugged mountains, desert plains, and dynamic river systems, contributing to its ecological and scenic significance. De Riet is home to diverse flora and fauna, including desert-adapted elephants and black rhinos, which are central to eco-tourism opportunities in the region.

Despite its natural wealth, De Riet remains underdeveloped, with residents relying on subsistence farming and increasingly on tourism as an alternative livelihood. The community's location near conservation areas and the Hauseb River enhances its potential for sustainable tourism development, offering opportunities to improve local livelihoods while preserving the region's ecological integrity.

The campsite is accessible through C39 gravel road from Khorixas. The area is currently frequent by tourists illegally, who set up temporary shelter. The nearest community is the De Riet which is located about 8 km from the proposed, were a tourist information centre can be found. The area is no development as shown by (***figure 5***), hence available for the proposed development.

4.3 Climate

The targeted areas are situated at an elevation of 1,222.53 meters above sea level, experiences a Mid-latitude desert climate. The area has an average annual temperature of 27.39ºC, slightly warmer than Namibia's average by 2.93%. Precipitation is sparse, with an average yearly rainfall of 55.8 millimeters, and rain occurs on approximately 88.27 days annually, equating to 24.18% of the year.

Generally, Kunene region experience hot, dry conditions for most of the year, with seasonal rainfall primarily between November and April. Temperatures can vary widely, with scorching days and cooler nights. Rainfall, though limited, plays a crucial role in supporting the natural ecosystems and sustaining

wildlife, which are integral to the livelihood of people. These climatic conditions influence both the pastoral and wildlife-based activities that dominate the area.

4.5 Flora diversity

Vegetation in the area primarily comprises of savanna and thorny bushveld vegetation, which are hardy and drought-resistant. Here are some of the key species in the area and their protected status:

Acacia erioloba (Camel Thorn) near endemic is protected under the *Nature Conservation Ordinance No. 4 of 1975*, and plays a crucial role in soil stability and providing shelter for wildlife. *Commiphora spp.* (e.g., *Commiphora africana*), protected under the *Forestry Act No. 12 of 2001*, contributes to the region's dry woodland ecosystem and offers food and medicinal value. The *Boscia albitrunca* (Shepherd's Tree), also protected under the *Nature Conservation Ordinance No. 4 of 1975*, is vital for stabilizing soil and providing nutrition for wildlife. *Sclerocarya birrea* (Marula Tree), protected under the *Forestry Act No. 12 of 2001*, is known for its fruit, which is used by local communities, and its role in preventing soil erosion. Finally, *Acacia mellifera* (Black Thorn), protected under the *Nature Conservation Ordinance No. 4 of 1975*, is essential for sustaining wildlife and livestock during dry periods by providing edible leaves. All these species are classified as "Least Concern" by the IUCN, indicating stable populations, but their protection is vital for maintaining ecological balance and supporting local communities.

Several grass species, particularly those from the *Eragrostis* and *Cenchrus* genera, are vital for grazing by livestock and wildlife, contributing to the region's agricultural and biodiversity stability. These grasses help prevent soil erosion and maintain ground cover in the semi-arid environment, promoting water retention and soil fertility. While grasses such as *Eragrostis lehmanniana* (Lehmann's Lovegrass) and *Cenchrus ciliaris* (Buffelgrass) are not specifically protected under the *Nature Conservation Ordinance No. 4 of 1975 or the Forestry Act No. 12 of 2001*, their role in the ecosystem underscores the need for conservation practices to ensure their availability for future generations.

4.6 Fauna diversity

The fauna diversity in the targeted area of Namibia reflects the region's semi-arid savanna and woodland ecosystems. The overall terrestrial diversity in the area is classified as low to moderate compared to other parts of Namibia. Within and around the MC boundaries:

- **Bird Diversity**: The area has a low to moderate bird diversity, ranging between 51 and 140 species, with high endemism (6 to 10 endemic species). Namibia has a diversity of 644 avifauna species, including over 90 species endemic to the southern African subregion and 13 species endemic to the country (Robertson et al., 1998).

- **Mammal Diversity**: Mammal diversity is moderate to high, with 250 species recorded, including 14 endemic species. Up to four large carnivore species have been documented in the general area (Griffin, 1998).
- **Reptile Diversity**: Reptile diversity is moderate to high, with 88 species recorded to inhabit the region (Bauer et al., 1993), of which 17 to 24 are endemic. This includes 32 to more than 35 lizard species (9 to 11 endemic) and 25 to 34 snake species (9 to 10 endemic).
- **Amphibian Diversity**: Frog diversity is low to moderate, with 14 species recorded (Bauer et al., 1993).
- **Scorpion Diversity**: In general, Namibia has 63 scorpion species, of which 14 are near-endemic and 26 are endemic. 13 of the 63-scorpion species are found in the target areas. With a diversity of low to moderate, with 3 to 6 endemic species.

Table 6: Protected Status and Conservation Status of faunas in the Torra conservancy, Khorixas constituency, Namibia.

Species	Endemic/Non- Endemic	Protected status	Conservation Status
Southern giraffe (*Giraffa giraffa*)	N-End	NC – Nature Conservation Ordinance No. 4 of 1975	LC – Least Concern (IUCN 2022)
Black rhinoceros (*Diceros bicornis*)	End	C2, NC	CR – Critically Endangered (IUCN 2022)
Cape porcupine (*Hystrix africaeaustralis*)	N-End	NC	LC – Least Concern (IUCN 2022)
Black-backed jackal (*Lupulella mesomelas*)	N-End	NC	LC – Least Concern (IUCN 2022)
African elephants (Loxodonta africana)		C2, NC	EN – Endangered (IUCN 2022)
Lion (*Panthera leo*)	N-End	C2, NC	VU – Vulnerable (IUCN 2022)
Impala (*Aepyceros melampus*)	N-End	NC	LC – Least Concern (IUCN 2022)
Springbok (*Antidorcas marsupialis*)	N-End	NC	LC – Least Concern (IUCN 2022)
Common warthog (*Phacochoerus africanus*)	N-End	NC	LC – Least Concern (IUCN 2022)
Springbok (*Antidorcas marsupialis*)	N-End	NC	LC – Least Concern (IUCN 2022)
African Bullfrog *(Pyxicephalus adspersus*)	N-End	NC	LC – Least Concern (IUCN 2022)
African Clawed Frog *(Xenopus laevis)*	N-End	NC	LC – Least Concern (IUCN 2022)

Secretary Bird (*Sagittarius serpentarius)*	N-End	NC, BC	NT – Near Threatened / LC (IUCN 2022)
Lappet-faced Vulture *(Torgos tracheliotos)*	N-End	NC, BC	NT – Near Threatened / LC (IUCN 2022)
Kori Bustard *(Ardeotis kori)*	N-End	NC, BC	NT – Near Threatened / LC (IUCN 2022)
Livestock	N/A	N/A	N/A
Namibia Large-clawed Scorpion (*Opistophthalmus carinatus*)	N-End	NC	Not Evaluated
Common Bark Scorpion (*Uroplectes planimanus*)	N-End	NC	Not evaluated
Black Mamba (*Dendroaspis polylepis*)	N-End	NC	LC – Least Concern (IUCN 2022)
Boomslang (*Dispholidus typus)*	N-End	NC	LC – Least Concern (IUCN 2022)
Puff adder (*Bitis arietans*)	N-End	NC	LC – Least Concern (IUCN 2022)
Zebra Snake (*Naja nigricincta*)	N-End	NC	LC – Least Concern (IUCN 2022)

The rich biodiversity of the Torra area underscores its ecological importance. By actively managing wildlife populations, the Torra conservancy is a vital component of Namibia's conservation landscape. These conservancy protect key species and maintain ecological balance, ensuring the sustainable coexistence of humans and wildlife.

4.7 Hydrology

The proposed project will depend on ground water sources in the Ugab River. Ugab River is the borderline between Erongo and Kunene region and the longest River in the Namib central area, stretching for 486 Km from Otavi highland mountains to the Atlantic Ocean. Although, the Otavi highland mountains are one of the higher rainfall area in Namibia, it does not necessarily contribute to continuous flow of the Ugab River even during periods of higher rainfall, perhaps mainly due to various abstraction activities upstream, and to a lesser extent due to a long distance of the river, as well as the effect of altitude. Upstream developments are located on both sides of the river including farms, lodges and settlements. Downstream and in the vicinity of the Tsiseb Conservancy there exist Uis settlement, Afritin mine, White Lady lodge, Brandberg heritage centre, Ugab Save the Rhino Trust, Brandberg west mine. Anthropogenic activities (mining, tourism, domestic use, urban water supply farming, irrigation, etc)

along the Ugab River compete with ecological water demand needed to maintain biodiversity such as Acacia trees, which are crucial dry season food reserve for game and livestock animals (NEPRU, 2000).

Table 7*:* Characteristics of Rivers in the central Namibia areas (NEPRU, 2000).

River	Size of catchment area, Km^2	Total length of River, Km	Size in the Namib area, Km^2	Namib area in % of total catchment	Length of River in the Namib area, Km	Mouth
Kuiseb	16,200	440	3,350	2.5	140	Delta
Swakop with Khan	31,000	420	5,000	16	120	Funnel shaped
Omaruru	14,050	315	3,200	23	115	Funnel shaped
Ugab	15,400	486	2000	13	110	Funnel shaped

4.7.1 Water resources

In the central Namib area, groundwater serves as the primary water source, accessed through boreholes, wells, and springs. The quantity and quality of groundwater are influenced by several factors, including:

- The geology of the water-bearing strata,
- The depth of the water table from the surface,
- The yield of the borehole, well, or spring,
- The rate of groundwater recharge,
- The chemical composition of the watercourse, and
- The risk of pollution.

Water in Namibia is a scarce and highly valuable resource due to the country's arid and semi-arid climate. Namibia is one of the driest countries in sub-Saharan Africa, with highly variable and limited rainfall averaging between 25 mm in the southwest to around 700 mm in the northeast. Surface water is extremely limited and largely dependent on ephemeral rivers, which flow only after sporadic rains. As a result, groundwater serves as a critical resource for domestic, agricultural, and industrial needs, with major aquifers found in regions like the Cuvelai-Etosha Basin and the Ohangwena Aquifer. Despite its importance, groundwater recharge is minimal, estimated at less than 1% of annual rainfall in most areas. Namibia's water management is guided by the *Water Resources Management Act No. 11 of 2013*, which emphasizes sustainable use, equitable distribution, and protection of water resources. Desalination plants,

cross-border river agreements, and water recycling initiatives are also crucial in addressing water scarcity. Effective management and conservation efforts remain essential to ensure long-term water security for both people and ecosystems in Namibia.

4.7.2 Water consumption

The water usage is prioritised for domestic use, which includes the livestock (both subsistence and commercial farming), and then for economic activities that includes mining, industries and irrigation. Livestock take up the highest amount of water. As a result of the short flow duration, most of the water is abstracted from the alluvial sand aquifers through boreholes, several excavations of dams, springs and hand- dug wells. At least up to 37000 m^3 in the Huab and 52160 m^3 in Ugab is pumped from the groundwater to the irrigation schemes. The potential of surface water for Ugab - Huab Basin is estimated is up to 7.5M CM/annum and 19.5M CM/annum for the alluvial sand aquifer, and the usage from the aquifer is up to a total of 73% per year. At least 19 boreholes exist in Huab and 37 in Ugab catchment, with the estimated yield of 91m^3/h and 612m^3/h.

Table 8*:* Water consumption per sector (Krugmann and Alberts, 2012).

Sector	**% consumption**
Urban (all inclusive)	19.8
Human (rural)	3.1
Agriculture (irrigation)	40.5
Agriculture (stock)	26.0
Mines	4.8
Tourism	5.9
Total	**100**

4.8 Social and Socio-economics

De Riet is a small settlement within the Khorixas Constituency in Namibia's Kunene Region, home to the Riemvasmaker community, descendants of individuals forcibly relocated from South Africa in the 1970s. Despite facing socio-economic challenges such as limited access to health and education services, the

community has remained resilient, preserving its cultural identity while advocating for improved development opportunities.

4.8.1 Local governance

Namibia is divided into 14 regions and 121 constituencies. De Riet village falls within the Khorixas Constituency in the Kunene Region, which is divided into seven constituencies. The Khorixas encompasses the village and its surrounding conservancies, with the Kunene Regional Council responsible for sustainable planning and development to benefit its inhabitants. This includes establishing, managing, and controlling settlement areas while focusing on providing essential services. The Kunene Region spans an area of 115,293 km² (Kunene Regional Development Profile, 2015), of which De Riet settlement plays a crucial part in local economic and social activities.

The political environment in Khorixas reflects the democratic governance of Namibia, with the Khorixas constituency councilor overseeing administrative and developmental function. The councilor, work closely with the chief to address socio-economic challenges and promote sustainable growth as well as the development within the boundary of the constituency. Although faced with a lot of challenges such as water scarcity and limited infrastructure, local governance prioritizes community engagement and sustainable resource management, fostering an inclusive political environment that supports development and resilience in the face of these challenges.

4.8.2 Employment

According to the 2023 population and housing census labour force report, Namibia's unemployment rate stood at 36.9%, reflecting a slight increase from 34.4%. Unemployment rates were slightly higher in rural areas (33.5%) than in urban areas (33.4%) and disproportionately affected females (34.3%) compared to males (32.5%). Youth unemployment was alarmingly high at 46.1%, significantly above the global average, with graduates entering the labor market facing limited opportunities. Regional disparities also exist, with the highest unemployment recorded in Kavango west (52.8%), Ohangwena (47.22%) and Omusati (41.5%). Education plays a crucial role in employment prospects, as those with university degrees experienced the lowest unemployment rate (9.5%) compared to individuals with only primary education (34.6%). Economic challenges since 2016 have exacerbated unemployment, highlighting the need for targeted interventions to address gender, age, education, and regional disparities.

The 2018 Namibia Labor Force Survey reported a total employed population of 725,742, with slightly more females (364,234) than males (361,508) employed. Urban areas accounted for 57.7% of employment, driven by migration, with more males employed in urban settings (50.9%) and more females

in rural areas (51.7%). Agriculture, forestry, and fishing remained the largest employment sector, employing 23% of the workforce, up from 20.1% in 2016. The accommodation and food services sector followed at 11.4%, with wholesale and retail trade increasing to 11.1% in 2018. The least employing sectors included real estate, extraterritorial organizations, and electricity, contributing less than 1% collectively.

De Riet economy is centred around livestock and tourism, but include a variety of other activities and income sources. There is also a community garden that supply maize, watermelons, beans and other vegetables and create an important income for people. These activities are supplemented by income from employment, government pensions and remittances. The conservancy has created new livelihood options, providing direct employment and creating opportunities for local people.

4.8.3 Economic environment

Namibia's tourism sector has experienced a strong recovery in recent years, nearing pre-pandemic levels. In 2023, the country recorded 863,872 international tourist arrivals, representing an 87.4% increase from the 461,027 visitors in 2022. While this surge highlights a significant rebound, it remains slightly below the pre-COVID peak of 1,681,336 arrivals in 2019.

The national room occupancy rate also showed positive trends, reaching 54.48% in 2024—an increase of nearly 3% from 2023 and 1% higher than in 2019. In May 2024, the occupancy rate peaked at 60.3%, marking the highest level since October 2019.

European tourists continued to form the largest share of Namibia’s international visitor profile in August 2024, accounting for 70.28% of all foreign arrivals. Austria, Germany, and Switzerland remained the top contributors, collectively representing 31.68% of all European visitors. Italy showed notable growth, with its market share rising sharply from 4.48% in July to 12.91% in August.

Namibia’s tourism sector remains a critical pillar of the national economy. In 2022, tourism directly contributed N$14.3 billion to the country’s Gross Domestic Product (GDP), accounting for 6.9% of the total economy. The sector also provided 57,571 direct jobs, representing 7.9% of total employment. By 2024, projections estimate that the tourism industry's direct contribution to GDP will reach NAD12.25 billion (3.9% of GDP), with continued expansion anticipated. By 2034, the sector’s contribution is expected to rise to NAD49.91 billion, accounting for 16.0% of GDP.

4.8.4 Education

Khorixas, along with the neighboring communities of Bergsig and De Riet, plays a significant role in shaping the educational landscape of Namibia's Kunene Region. As of 2022, Namibia had a total of 1,947 primary and secondary schools, reflecting an increase from 1,723 in 2013, and collectively serving approximately 822,574 learners.

The Riemvasmaker community, which was forcibly relocated from South Africa in the 1970s, has since established settlements in areas such as Bergsig and De Riet. Despite enduring challenges, including limited access to healthcare services and educational facilities, the community has remained resilient, preserving its cultural identity while actively advocating for recognition and development.

Recent cultural events, such as the 23rd Annual Riemvasmakers Traditional Community Cultural Festival held in De Riet, underscore the community's dedication to unity and progress. These gatherings not only serve as platforms for the celebration of cultural heritage but also highlight the crucial role of education and community development in fostering sustainable growth in the region.

4.9 History and cultural diversity

Riemvasmaak were evicted by the South African government in 1973/1974 to make way for a South African military training site. Those of Xhosa origin were sent to the Transkei and those of Nama descent to Damaraland. The Nama settled in De Riet, Vrede, Bergsig, Khorixas and surrounds. Being small stock farmers, they adapted to their new environment, far from their ancestral home. Torra Conservancy, located in the southern Kunene Region and spanning approximately 3,500 square kilometers, is home to around 1,200 people who speak a mix of Khoekhoegowab (Namidam), Otjiherero, and Afrikaans. While the origins of the Damara people prior to their settlement in Namibia centuries ago remain uncertain, they have inhabited the region for a very long time. The area was significantly shaped by German colonization and later South African administration, during which much land was allocated as white farmland, with some subsequently reincorporated into the reshaped 'homelands' proposed by the Odendaal Commission in 1964. Many Damara are indigenous to the area, while others were forcibly resettled when Damaraland was created, including residents moved from the Nama community of Riemvasmaak near Upington, South Africa, between 1973 and 1974. Today, Torra also hosts recent immigrants from various parts of Namibia. Registered as one of Namibia's first four conservancies in 1998, Torra has become one of the country's most successful conservancies. The Herero people, who first settled in northwestern Namibia about 500 years ago, also contribute to Torra's vibrant cultural heritage. The nearby Twyfelfontein, renowned for its rock engravings, has been a World Heritage site since 2007.

4.10 Heritage Sites

A Heritage Impact Assessment was conducted as a specialist study. This was submitted to the relevant authority for issuance of consent letter.

5. PUBLIC CONSULTATION PROCESS

The role of Interested and Affected Parties (I&APs) in the public participation and consultation process was crucial. According to the Environmental Impact Assessment (EIA) Regulations (Regulations 21 and 23) of the Environmental Management Act (EMA), No. 7 of 2007, any project undertaking a listed activity must obtain an Environmental Clearance Certificate (ECC). The main objectives of the public participation and consultation process were to:

- Provide the public with information about the project, introducing the project concept and planning through a Background Information Document (BID).
- Identify and engage relevant government, regional, and local authorities involved in the project.
- Listen to community concerns, record questions and feedback.
- Explain the EIA process and the timelines involved, while creating a platform for continuous engagement.

5.1 Public notices at public places

Public notices were placed in Bersig settlement at the Torra Conservancy office and local Shop, and at De Riet tourist information centre (appendix C).

5.2 Written notices to key I & APs

The following institutions and organisations were specifically invited to participate in the public participation process, based on either their participation in previous project of similar nature or because they operate within the tourism sectoer: Tsiseb Communal Conservancy, Brandberg Desert Elephant lodge, Namibia Heritage Council, Brandberg White Lady Lodge and Gaingu Heritage & Boma Lodge Safaris cc. Copies of invitation letters were kept for record (see Appendix C for copies of invitation letters). In addition, the BID was prepared and delivered to registered stakeholders as well as institutions and organisations that were invited.

5.3 Public meeting

One public meeting was held in order to capture public view and opinions. The meeting was held on 23 November 2024 in De Riet village (appendix C).

All matters raised were captured, recorded and are summarised below:

- Mr. Tomi Adams the Chairperson of Torra Consservancy, raised a number of issues concerning the development, although he made it clear that he was informed about the intended development. His concern was the source of water for the envisioned project, sought clarification on where the project would get water supply and expressed concerns about the sustainability of water resources in the area, especially given the prolong drought for the past 8 years. He further emphasised that the importance of ensuring that the project aligns with existing tourism activities and supports local enterprises especially the local guides from the De Riet community.
- Mr. Eric Xaweb from the Tsiseb Community Conservancy raised a concern regarding the potential displacement of elephants due to increased tourist movements to and from the proposed project site. He emphasized that such disruptions could force the elephants away from their natural habitat (Huab River), which serves as a critical resource for their survival and a major attraction for eco-tourism in the region. Addressing this issue is vital to ensuring the coexistence of sustainable tourism development and the preservation of key wildlife species. Appropriate mitigation measures should be implemented to minimize disturbances and maintain the ecological balance of the area.

The EAP promised to keep in touch with registered I & APs by sharing draft reports, meeting minutes and other information.

The meeting was well attended registering 28 attendants, including the chairperson of Torra Conservancy and the Acting Chief of the Riemvasmaak.

The meeting was a success in that its aroused discussions and engagements about critical issues that are expected to minimize negative impacts and increase benefits of the proposed project both in the short and long term.

FIGURE 4:

5.4 RELEASE OF DRAFT EIA/SCOPING REPORT

This is important as part of providing feedback to IAPs about the project progress since the last public meeting was held. The draft EIA/scoping report was sent to all registered IAPs by email. In addition, the hard copies were availed for public access at Conservancy offices, De Riet Information centre and Khorixas town council. The time to view the report was from 8:30-13:00 and 14:00 and 14:00-17:00 from Monday (17 February 2025) to Friday (17 March 2015).

6. PREDICTION OF ENVIRONMENTAL IMPACTS

Project activities during each phase are predetermined and described in the table below. Each project activity has impacts on the VECs (valued ecosystem components) as explained in the ***table 7.***

7. IMPACTS ASSESSMENT

7.1. Impacts prediction

Impacts were listed in ***table 8*** and according to this each activity will have a number of impacts on the receiving environment. The increased level of noise as well as dust and gaseous emissions were common because each construction activities is expected to generate noise and dust. Additionally, the machineries and construction vehicles used will emit ***gases*** resulting from fuel combustion. Although these impacts are not significant as they are temporary and localised, they will still need to be mitigated and monitored throughout this project cycle.

7.2. Mapping of significant impacts

During impact assessment (***table 9***) the following impacts came out quite strongly as explained in ***table 10*** and ***11***:

Loss of reptile and amphibian diversity. Geographically, less mobile taxa tend to be aggregated in a narrower range and they show a higher rate of endemism. In Namibia, reptiles and amphibians have a higher rate of endemism recorded at 24% and 12%, respectively. This in comparison to other taxa (plants 17%, insects 24%, insects 12%, mammals 7%), fish 3% and birds 2%). This could mean that reptiles and amphibians are at the higher risk of extinction than species with higher mobility. Certain activities during construction are expected to destroy habitats of reptiles and amphibians including destruction of their shelter as well as feeding, breeding and nursing habitats.

Increased portable water usage. Increased water demand will be one of the main concerns as underground water in the proposed project area is a scarce commodity. This expected water demand will put pressure on underground water sources especially during periods of low rainfall.

Another critical concern is the vulnerability of underground water to pollution through leaching from waste as the water table is shallow.

However, it is important to note that the local type of aquifer is alluvial. Underground water is stored in alluvial aquifers in the intergranular pore spaces of sand deposits in the Huab River bed. Alluvial aquifers have limited storage capacity but recharge really fast during the rainy season.

Loss of topsoil. Topsoil is a scarce resource as it supports vegetation growth and biodiversity. Removal of topsoil may be localised but could have long term consequences as that soil may not be recovered. Removal of topsoil could also affect local geology and landform.

Habitat modification. Although impacts on land forms resulting from earthworks and excavation are low it is important to note habitat modification in the long term could have serious impacts if not monitored.

Sustainability issues. This impact also came out quite strongly and it is important to highlight during monitoring.

Introduction of exotic species. As mentioned before, plants are one of the less mobile taxa with an endemism rate of 17%. Specifically, for this project area, it is important to note that the flora diversity in the project area is extremely endemic. Also, equally significant is that there are no recorded exotic plant species both in the project and Torra Conservation Conservancy areas. This is extremely important and for this reason it is critical that exotic plant species are not used during gardening and landscaping activities.

The above impacts received a higher priority during impacts mitigation and formed part of EMP and monitoring plan as seen in ***table 12***.

Table 7: prediction of impacts and their effects on VECs.

Activity	Description	Receiving environment or VECs
Site selection and clearing	Suitability of a specific site within the project area takes into consideration the existing man-made and natural structures, cost, soil and vegetation type. Also considered are other factors that may increase cost of construction or cause negative environmental impacts. This activity is necessary to prepare the site for construction. It involves removal and disposal of bushes, grass, loose boulders and topsoil. Topsoil removal is necessary because topsoil has a higher concentration of roots, decaying materials and animal burrows that cause instability to concrete structures.	*Air and climate:* dust maybe localised and temporary reduction in air quality may be a result of dust and particulate generation. *Land:* removal of topsoil could affect local geology and landform but could be restored during landscaping. Solid waste resulting from site preparation include tree stumps and rubble. *Ecology and biodiversity:* herbaceous destroyed such as grass, bush or shrubs during this activity negatively influence biodiversity. The main concern are less mobile diversity of reptile, amphibians and small mammals. Birds may be affected but less because they are more mobile. Before construction it is important to estimate the population of reptile, amphibians and small mammals and monitor them during all phases of the project. *Human environment:* employees may suffer from dust and exhaust emissions and it is important that personal protective gear is provided for safety reasons.

Cutting of trees	Depending on the suitability of the site, this activity may not always be necessary but it is important to consider it a different activity mainly because removal of trees is costly both financially and environmentally. Trees are difficult to remove and increase the cost of construction; improper removal of their roots could cause cracks on concrete structures. Even more important trees contribute to biodiversity, provide several valuable ecosystem services and the natural beauty.	*Air and climate:* trees regulate atmospheric composition as sinks of carbon dioxide and sources of oxygen and when cut this function cease to exist. This activity may not be necessary as the number of trees in the project site are limited and will be needed for shading. *Land:* soil and wind erosion, deforestation and land degradation may result as trees are removed. *Human environment:* reduced ecosystem services provided by trees.
Construction of access roads, excavation backfill and compaction for utilities	This activity will lead to temporary air borne transport of particulate (increased dust). Furthermore, heavy equipment such bulldozers and other construction equipment will produce exhaust emissions from diesel engines leading to temporary increase in Sulphur dioxide, Nitrogen oxides, Carbon dioxides, and Carbon monoxide concentrations. Emissions may also occur in the event of emergency. Increased concentration of these gases depends on the content of fuel used and emissions from engines could be reduced by using unleaded fuel for machineries. The proponent should instruct contractor to use unleaded fuel. These gases contribute to air pollution and human health	Air and climate: dust will be temporary but a definite environmental impact. This could be reduced by watering the ground or road surfaces. *Land:* impacts on land forms resulting from earthworks and excavation are low because they could be mitigated when backfilling or levelling. Also, solid waste such as plastics, bottles, building rubbles and others. *Water:* freshwater needed for construction will be extracted from underground water sources in the Ugab river. Water is a scarce commodity and precautionary measures will be implemented to ensure wise us of this resource. Where possible and necessary use of saline water will be encourage (e.g. for cleaning, watering roads, etc). Ecology and biodiversity: when in excess concentration, harmful emissions of Sulphur dioxide, nitrogen oxides, Carbon dioxides, and Carbon monoxide is known to negatively affect flora diversity by damaging foliage and inhibit growth.

Waste generation	Construction waste consist of unwanted materials produced directly or indirectly including insulation, nails, electrical wiring, shingle, and roofing. Such waste may contain lead, asbestos or other hazardous waste. Many construction waste are consist of bricks, concrete and wood.	*Land:* littering. *Water*: leaching.
Testing, installation and commissioning	It will be necessary to run tests before commission to ensure functioning of facilities. This will reduce accidents and increase safety. The final activities is clean up and make the facilities ready for use by consumers in this case tourists.	Air and climate: dust and exhaust will be definite but for a short period. *Human environment:* noise will also be minimal and short-lived.
Operation and management of facilities.		*Land:* littering is probable if not properly mitigated. Under normal conditions, solid waste is not expected t o reach or impact the environment if properly dispose d. The application of prevention measures, in addition to proper handling of hazardous wastes will be mandated to each employees or contractor working at the project site. *Water:* increased water demand will be one of the main concern as underground water in the proposed project area is a scarce commodity. This expected water demand will put pressure on underground water sources especially during times of low rainfall. Another critical concern is the vulnerability of underground water to pollution through leaching from waste as the water table is shallow. However, it is important to note that the local type of aquifer is alluvial. Underground water is stored in alluvial aquifers in the intergranular pore spaces of sand deposits in the Ugab River bed. Alluvial aquifers have limited storage capacity but recharge really fast during the rainy season. *Ecology and biodiversity:* terrestrial ecology and

		biodiversity maybe affected by accidental (non-routine) events such as fire, spills and leaks.
Borehole operation and maintenance	Operation of the freshwater intake may negatively affect a number of VECs.	Appropriate pipe design (for water intake) should eliminate/reduce associated impacts.
Waste generation	Solid waste and liquid waste has the potential of contaminating the surrounding soil and water resources on site. Solid waste may ruin the aesthetics of the area and portray an environmentally unfriendly area therefore negatively impacting on the neighbourhood ambiance. Liquid waste may be associated with the generation of foul odours and may even pose a health hazard. Pests, such as flies and rodents, may also be attracted to the area via the odour and collection of waste, in order to scavenge on the solid or liquid waste if it is not disposed of in the correct manner. Solid and liquid waste will be generated from campsites and ablution facilities on-site. The most common waste being produced will be domestic waste and garden refuse from the site. Wastewater will be generated from the kitchen, showers, and staff ablution facilities.	*Land:* littering and aesthetics pollution. *Water:* contamination of surface and underground water resources.
Energy consumption	Energy scarcity in Namibia means unavailability of power supply in isolated areas such as the project site. This could also be to the advantage because conventional power supply using powerlines have negative environmental impacts on VECs.	*Air and climate:* there is no electricity so the campsite operation may opt to use of generators. When this opted in the long run will increase emissions of Sulphur dioxide, nitrogen oxides, Carbon dioxides, and Carbon monoxide. *Ecology and biodiversity:* when in excess concentration gaseous emissions could negatively affect flora diversity by damaging foliage and inhibit vegetation growth.

		Therefore, the option to use solar as it is at White Lady Brandberg Lodge (also located in the Tsiseb Conservation Conservancy) will an environmentally friendly option.
Gardening and landscaping	Gardening and landscaping is essential to improve property as well as restore landscape that could have been disturbed during construction.	*Water:* increased demand for water will be mitigated through use of waste water for irrigation. *Ecology and biodiversity:* it is important to note that the flora diversity in the project area is highly endemic. Also equally significant is that there are no recorded exotic plant species both in the project and Tsiseb Conservation Conservancy areas. This is extremely important and for this reason it is critical that exotic plant species are not used during gardening and landscaping activities.
Purchase of supplies, deliveries and transportation	Rhino campsite is remotely located and therefore supplies will need to be transported from nearby town of Uis, Omaruru, Henties Bay or even Swakopmund. Tourists will also need to be transported to the campsite either in their rented or own vehicle or vehicle of tourism operators.	*Ecology and biodiversity:* during transportation of supplies, accidents (non-routine) could occur and cause animal deaths, especially of concern are reptile, Amphibia, small mammals and birds. Though this will not be common, with increased traffic this has the potential to increase. *Human environment:* local sourcing of supplies, deliveries and transportation could increase economic activities associated for locals.
Tourism and hospitality	Currently, local are not efficiently benefiting from tourism. The impacts of climate change and variability pose a major threat to agriculture and farmers are finding difficult to survive these difficult climatic conditions. Tourism has the potential to contribute to socio-economic development in the Tsiseb Communal Conservancy; however it is not without environmental impacts.	*Air:* dust and gaseous emission by or from vehicles carrying or used by tourists. *Land:* littering. *Ecology and biodiversity:* effects of dust and gaseous emissions on biodiversity. *Human and environment:* effects of noise, dust and gaseous emissions public health.

Table 8: list of environmental impacts.

Project phase	Activity	VEC	Receiving environment	Impact
CONSTRUCTION PHASE: SITE SELECTION AND CLEARING	Removal of trees and herbaceous vegetation	Flora diversity	Ecology and biodiversity	Loss of trees and vegetation.
		Geomorphology and landscape	Land	Habitat destruction/modification.
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians diversity.
		Small mammals and birds	Ecology and biodiversity	Loss of bird diversity.
	Soil and land levelling	Air quality	Air and climate	Dust, increased gaseous and exhaust emissions.
		Geomorphology and landscape	Land	Removal of topsoil
		Socio-economic activities	Human Environment	Conflict/overlapping land use
		Noise pollution	Human Environment Ecology and biodiversity	Increased level of noise
	Construction of access roads	Air quality	Air and climate	Dust, gaseous and exhaust emissions.
		Geomorphology and landscape	Land	Habitat destruction/modification
		Flora diversity	Ecology and biodiversity	Loss of trees and vegetation
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians diversity
		Small mammals and birds	Ecology and biodiversity	Loss of bird diversity

		Noise pollution	Human Environment Ecology and biodiversity	Increased level of noise
		Socio-economic activities	Human Environment	Employment opportunities Community welfare
		Agriculture	Land	Limited access to land for farming e.g. livestock grazing.
	Transport and equipment use	Air quality	Air and climate	Dust, increased gaseous and exhaust emissions.
		Geomorphology and landscape	Land	Habitat destruction/modification.
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians diversity.
		Small mammals and birds	Ecology and biodiversity	Loss of bird diversity.
		Noise pollution	Human Environment Ecology and biodiversity	Increased level of noise. Nuisance to local community and community.
		Agriculture	Human Environment	Restricted live-stock movement
		Socio-economic activities	Human Environment	Improved road infrastructures.
	Purchase of supplies and services	Air quality	Air and climate	Dust, gaseous and exhaust emissions.
		Agriculture	Human Environment	Increased traffic and possible live-stock traffic-collisions/road kills.
		Socio-economic activities	Human Environment	Increased entrepreneurship opportunities.
	Human resource	Socio-economic activities	Human Environment	Local employment prospect
	Workers'	Water resources and sewerage	Water and land	Increased potable water use and

	temporary accommodation			sewerage disposal.
		Socio-economic activities	Human and environment	Increased economic activity
CONSTRUCTION PHASE: CIVIL WORKS AND MECHANICAL ERECTION	Excavation, foundation, building works and mechanical erection	Air quality	Air and climate	Increased air emissions (exhaust, dust, etc).
		Geomorphology and landscape	Land	Habitat destruction/modification
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians diversity.
		Small mammals and birds	Ecology and biodiversity	Loss of small mammals and bird diversity.
		Socio-economic activities	Human Environment	Increased economic activity.
		Noise pollution	Human Environment	Increased noise levels.
		Agriculture	Land	Degradation of vegetation (exhaust, dust, etc).
	Use of vehicle and construction equipment	Air quality	Air and climate	Increased air emissions (exhaust, dust, etc)
		Geomorphology and landscape	Land	Habitat destruction/modification.
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians diversity.
		Small mammals and birds	Ecology and biodiversity	Loss of small mammals and bird diversity.
		Noise pollution	Air and climate	Increased noise levels.
		Socio-economic activities	Human Environment	Increased economic activity.
	Construction of infrastructures (pipelines, water intake, sewerage, etc)	Geomorphology and landscape	Land	Habitat destruction/modification.
		Reptiles and amphibians	Ecology and biodiversity	Loss of reptiles and amphibians
		Small mammals and birds	Ecology and biodiversity	Loss of small mammals and birds

		Noise pollution	Human Environment	Increased level of noise. Nuisance to local community and community.
		Socio-economic activities	Human environment	Adverse health impacts
		Groundwater quality	Water	Leaching of waste
		Terrestrial ecology and biodiversity	Ecology and biodiversity	Loss of habitat and damage to vegetation
		Public health and safety	Human environment	Adverse health impacts
CONSTRUCTION PHASE: TESTING, INSTALLATION AND COMMISSIONING	Waste disposal	Ground water quality	Water	Leaching of waste
		Terrestrial ecology and biodiversity	Ecology and biodiversity	Loss of habitat and damage to vegetation
		Public health	Human environment	Adverse health impacts
	Testing and commissioning	Air quality	Air and climate	Dust, increased gaseous and exhaust emissions.
		Noise pollution	Human environment	Increased level of noise. Nuisance to local community and community.
		Socio-economic activities	Human environment	Reduced risk of contaminations and accidents
OPERATION PHASE: mining operation and management.	Water resources	Ground water quality	Water	Leaching of waste
		Surface water quality	Water	Water pollution
		Terrestrial ecology and biodiversity	Ecology and biodiversity	Loss of habitat and damage to vegetation
		Air quality	Air and climate	Gaseous emissions
		Noise pollution	Human environment	Increased noise
		Agriculture	Human environment	Sustainability issues (is ground water considered a scarce resource locally?) Effects on local uses (irrigation, drinking, mining, etc)
		Socio-economic activity	Human environment	Increased economic activity
	Waste generation	Solid waste generation	Ecology and biodiversity	Littering

		Public health	Human environment	Adverse health impacts
	Energy consumption	Air quality	Air and climate	Air pollution
	Borehole operation and maintenance	Water quality	Water	Leaching of waste
		Noise pollution	Human environment	Increased level of noise. Nuisance to local community and community.
	Transportation	Air quality	Air and climate	Gaseous emissions.
		Terrestrial ecology and biodiversity	Ecology and biodiversity	Loss of habitat and damage to vegetation Fauna road kills.
		Noise pollution	Human and environment	Increased noise level.
		Socio-economic activities	Human and environment	Increased economic activity.
		Traffic and security	Human and environment	Increased traffic and accidents.
		Agriculture	Human environment	Livestock road kills.
	Gardening and landscaping	Vegetation	Ecology and biodiversity	Introduction of exotic plant species.
	General mechanical maintenance	Used fuel and oil in the workshop	Human environment	Increased risk of skin diseases.
	Cooking (cooking oil)	Liquid waste generation	Human environment	Sewerage blockage.
		Public health and safety	Human environment	Clogging sewerage.

Table 9: **Impacts evaluation.**

Project phase	Activity	Impact	Duration **ST** short term **MT** medium term **LT** long term	Magnitude **L** low **M** medium **H** high	Extent **I** immediate **L** localised **N** national	Type **D** direct **I** indirect	Probability **LP** low probability **P** probability **HP** high probability **D** definite
CONSTRUCTION PHASE: **SITE SELECTION AND CLEARING**	**Removal of herbaceous vegetation**	Loss of vegetation.	**Medium term**	**Low**	**Localised**	**Direct**	**Low probability**
		Habitat destruction/modification.	**Long term**	**Low**	**Localised**	**Direct**	**Probable**
		Loss of reptiles and amphibians diversity.	**Medium term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of bird diversity.	**Medium term**	**Low**	**Localised**	**Direct**	**Low probability**
	Cutting of trees	Loss of trees.	**Long term**	**High**	**Localised**	**Direct**	**Low**
	Soil and land levelling	Dust, increased gaseous and exhaust emissions.	**Short term**	**Medium**	**Localised**	**Direct**	**Definite**
		Removal of topsoil	**Medium term**	**Medium**	**Localised**	**Direct**	**Probable**

		Conflict/overlapping land use	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
	Construction of access roads	Dust, gaseous and exhaust emissions.	**Short term**	**Low**	**Localised**	**Direct**	**Definite**
		Habitat destruction/modification	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of trees and vegetation	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of reptiles and amphibian's diversity	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of bird diversity	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased level of noise	**Short term**	**Small**	**Localised**	**Direct**	**Highly probable**
		Employment opportunities Community welfare	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Limited access to land for farming e.g. livestock grazing.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
	Transport and equipment use	Dust, increased gaseous and exhaust emissions.	**Short term**	**Medium**	**Immediate**	**Direct**	**Definite**
		Habitat destruction/modification.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of reptiles and	**Medium**	**Medium**	**Localised**	**Direct**	**Highly**

		amphibians diversity.	**term**				**probable**
		Loss of bird diversity.	**Medium term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased level of noise. Nuisance to local community and community.	**Medium term**	**Medium**	**Immediate**	**Direct**	**Definite**
		Restricted live-stock movement	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Improved road infrastructures.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
	Purchase of supplies and services	Dust, gaseous and exhaust emissions.	**Short term**	**Medium**	**Immediate**	**Direct**	**Definite**
		Increased traffic and possible live-stock traffic-collisions/road kills.	**Medium term**	**Medium**	**Localised**	**Direct**	**Probable**
		Increased entrepreneurship opportunities.	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
	Human resource	Local employment prospect	**Medium term**	**Medium**	**Localised**	**Direct**	**Probable**
	Workers' temporary accommodation	Increased potable water use and sewerage disposal.	**Medium term**	**Medium**	**Localised**	**Direct**	**Highly probable**

		Increased economic activity.	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
CONSTRUCTIONPHASE: CIVIL WORKS AND MECHANICAL ERECTION	**Excavation, foundation, building works and mechanical erection**	Increased air emissions (exhaust, dust, etc).	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Habitat destruction/modification	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of reptiles and amphibian's diversity.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of small mammals and bird diversity.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased economic activity.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased noise levels.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Degradation of vegetation (exhaust, dust, etc).	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
	Use of vehicle and construction equipment	Increased air emissions (exhaust, dust, etc)	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Habitat destruction/modification.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of reptiles and amphibians diversity.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of small mammals and bird diversity.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**

		Increased noise levels.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased economic activity.	**Short term**	**Medium**	**Localised**	**Direct**	**Probable**
	Construction of infrastructures (pipelines, water intake, sewerage, etc)	Habitat destruction/modification.	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of reptiles and amphibians	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of small mammals and birds	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased level of noise. Nuisance to local community and community.	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Adverse health impacts	**Short term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Leaching of waste	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of habitat and damage to vegetation	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Adverse health impacts	**Long term**	**Medium**	**Localised**	**Direct**	**Low**
CONSTRUCTION PHASE:	**Waste disposal**	Leaching of waste	**Short term**	**Medium**	**Localised**	**Direct**	**Low**
		Loss of habitat and	**Short**	**Low**	**Localised**	**Direct**	**Low**

TESTING, INSTALLATION AND COMMISSIONING		damage to vegetation	**term**				
		Adverse health impacts	**Short term**	**Low**	**Immediate**	**Direct**	**Low**
	Testing and commissioning	Dust, increased gaseous and exhaust emissions.	**Short term**	**Low**	**Immediate**	**Direct**	**Low**
		Increased level of noise. Nuisance to local community and community.	**Short term**	**Low**	**Immediate**	**Direct**	**Low**
		Reduced risk of contaminations and accidents	**Short term**	**Low**	**Immediate**	**Direct**	**Highly probable**
OPERATION PHASE: mining operation and management	**Water resources**	Leaching of waste	**Long term**	**Low**	**Localised**	**Direct**	**Low probability**
		Water pollution	**Long term**	**Low**	**Localised**	**Direct**	**Highly probable**
		Loss of habitat and damage to vegetation	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Gaseous emissions	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Increased noise	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Sustainability issues (is ground water considered a scarce resource locally?)	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**

		Effects on local uses (irrigation, drinking, mining, etc)					
		Increased economic activity	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
	Waste generation	Littering	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Adverse health impacts	**Long term**	**Small**	**Localised**	**Direct**	**Low probability**
	Energy consumption	Air pollution	**Short term**	**Small**	**Localised**	**Direct**	**Low probability**
	Borehole operation and maintenance	Leaching of waste	**Long term**	**Small**	**Localised**	**Direct**	**Low probability**
		Increased level of noise. Nuisance to local community and community.	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
	Transportation	Gaseous emissions	**Long term**	**Medium**	**Localised**	**Direct**	**Highly probable**
		Loss of habitat and damage to vegetation Fauna road kills	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
		Increased noise level	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
		Increased economic	**Long**	**Medium**	**Localised**	**Direct**	**Probable**

		activity	**term**				
		Increased traffic and accidents	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
		Livestock road kills	**Long term**	**Medium**	**Localised**	**Direct**	**Probable**
	Gardening and landscaping	Introduction of exotic plant species	**Long term**	**High**	**National**	**Direct**	**Probable**
	General mechanical maintenance	Increased risk of skin diseases	**Long term**	**Small**	**Localised**	**Direct**	**Low probability**
	Cooking (cooking oil)	Sewerage blockage	**Short term**	**Small**	**Immediate**	**Direct**	**Low probability**
		Clogging sewerage	**Short term**	**Small**	**Immediate**	**Direct**	**Low probability**

Table 10: impacts significance.

Impacts	Cutting of trees	Removal of herbaceous vegetation	Soil and land levelling	Construction of access roads	Transport and equipment use	Purchase of supplies	Human resource	Workers' temporary	Excavation, foundation, building works and mechanical erection	Use of vehicles and construction	Construction of infrastructures (pipelines, water intake, sewerage	Waste disposal	Testing and commissioning	Water resources	Waste generation	Energy consumption	Borehole operation and	Transportation	Gardening and landscaping	General mechanical maintenance	Cooking (cooking oil)	Sum of IF values	Average of IF values
Air and climate																							
Dust, increased gaseous and exhaust emissions	0	1/5	1/5	1/5	1/5	1/5	1/5	1/5	3/5	3/5	3/5	1/5	1/5	0	0	0	0	1/5	0	0	0	19	0.90
Increased level of noise	1/5	1/5	1/5	1/5	1/5	1/5	1/5	3/5	3/5	2/5	1/5	1/5	1/5	0	0	0	0	1/5	0	0	0	20	0.95
Land																							
Loss of topsoil	1/5	2/5	2/5	2/5	0	0	0	2/5	3/5	0	1/5	0	0	1/5	0	0	0	1/5	0	0	0	15	0.71
Habitat destruction/modification	1/5	1/5	2/5	2/5	0	0	0	2/5	2/5		1/5	0	0	1/5	0	0	0	1/5	0	0	0	14	0.67
Land form and geomorphology	1/5	1/5	1/5	1/5	0	0	0	1/5	1/5	0	1/5	0	0	0	0	0	0	0	0	0	0	7	0.33
Conflict/overlapping land use	1/5	2/5	1/5	0	0	0	2/5	0	0	0	0	0	0	2/5	0	0	0	0	0	0	0	8	0.39
Water																							
Surface water quality	0	0	0	0	0	0	1/5	1/5	0	0	0	1/5	0	2/5	2/5	0	0	0	0	0	0	7	0.33

Increased potable water use and sewerage disposal	0	0	0	1/5	0	0	1/5	2/5	1/5	0	1/5	2/5	0	3/5	0	0	2/5		2/5		1/5	16	0.76
Leaching of waste (underground water quality)	0	0	0	0	0	0	0	0	0	0	0	2/5	0	0	0	0	2/5	0	0	0	0	4	0.19
Ecology and biodiversity																							
Loss of trees and shrubs	1/5	0	0	3	0	0	0	0	0	0	0	0	0	1/5	0	0	0	0	0	0	0	5	0.23
Loss of herbaceous vegetation (e.g. grass, herbs, etc)		4/5		3/5	0	0	0	2/5	2/5	2/5	2/5	0	0	1/5	0	0	0	0	0	0	0	16	0.76
Loss of reptiles and amphibians diversity	1/5	2/5	2/5	2/5	1/5	0	0	1/5	5/5	3/5	1/5	0	0	0	0	0	0	1/5	0	0	0	19	0.90
Loss of bird diversity	1/5	1/5	1/5	1/5	0	0	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	5	0.24
Introduction of exotic plant species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3/5	0	0	3/5	5	0	0	11	0.52
Human environment																							
Community welfare	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0.1
Limited access to land for farming e.g. livestock grazing.		1/5	0	1/5	0	0	0		1/5		1/5	0	0	0	0	0	0	0	0	0	0	4	0.19
Restricted live-stock movement	0	0	0	1/5	0	0	0	1/5	1/5	1/5	1/5	0	0	0	0	0	0	0	0	0	0	5	0.24

Improved road infrastructures		1/5	0	2/5	0	0	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	4	0.19
Increased traffic and possible live-stock traffic-collisions/road kills	0	0	0	0	1/5	0	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	2	0.1
Increased entrepreneurship opportunities	0	0	0	0	0	0	1/5	0	0	0	0	2	0	0	0	0	0	1/5	0	0	0	4	0.19
Local employment prospect	0	0	0	0	0	0	2/5	0	0	0	0	1/5	0	0	0	0	0	1/5	0	0	0	4	0.19
Reduced risk of contaminations and accidents	0	0	0	0	0	0	0	0	0	0	0	2/5	3/5	0	0	0	0	0	0	0	0	5	0.24
Sustainability issues (is ground water considered a scarce resource locally?)	0	0	0	0	0	0	1/5	0	1/5	0	0	2/5		2/5	2/5	0	3/5	1/5	0	0	0	12	0.57
Littering	0	0	0	0	0	1/5	1/5	0	0	0	0	2/5	0	0	3/5	0	0	1/5	0	0	0	8	0.38
Fauna road kills	0	0	0	0	1/5	0	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	2	0.1
Increased traffic and accidents	0	0	0	0	1/5	1/5	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	3	0.14
Livestock road kills	0	0	0	0	1/5	1/5	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	0	3	0.14
Sewerage blockage	0	0	0	0	0	0	0	0	0	0	0	1/5	0	0	1/5	0	0	0	0	0	0	2	0.1
Clogging	0	0	0	0	0	0	0	0	0	0	0	1/	0	0	1/	0	0	0	0	0	1/	3	0.14

sewerage												5			5						5		
Sum of IF values	8	17	11	21	7	5	11	17	23	11	13	18	6	13	11	0	7	14	7	0	1/5	IF = 0.40	
Average of IF values	0.28	0.59	0.38	0.72	0.24	0.17	0.38	0.59	0.79	0.38	0.45	0.62	0.20	0.45	0.38	0	0.33	0.48	0.24	0	0.03		

Table 11: summary of impacts.

IMPACTS	**ACTIVITY**	1. Excavation, foundation, building works and mechanical erection	2. Construction of access roads	3. Removal of herbaceous vegetation	4. Waste disposal	5. Workers' temporary accommodation	6. Transportation	7. Water resources	8. Construction of infrastructures (pipelines, water intake, sewerage, etc.)
1. Increased level of noise		3/5	1/5	1/5	1/5	3/5	1/5	0	1/5
2. Dust, increased gaseous and exhaust emissions		3/5	1/5	1/5	1/5	1/5	1/5	0	3/5
3. Loss of reptiles and amphibian's diversity		5/5	2/5	2/5	0	1/5	1/5	0	1/5
4. Increased potable water use and sewerage		1/5	1/5	0	2/5	2/5		3/5	1/5

disposal								
5. Loss of herbaceous vegetation (e.g. grass, herbs, etc)	2/5	3/5	4/5	0	2/5	0	1/5	2/5
6. Loss of topsoil	3/5	2/5	2/5	0	2/5	1/5	1/5	1/5
7. Habitat destruction/modification	2/5	2/5	1/5	0	2/5	1/5	1/5	1/5
8. Sustainability issues (is ground water considered a scarce resource locally?)	1/5	0	0	2/5	0	1/5	2/5	0
9. Introduction of exotic plant species	0	0	0	0	0	3/5	0	0

Table 12: environmental management plan.

Phase	Issue	Mitigation	Monitoring actions and method	Performance Indicator	Responsible personnel
Construction	Access control	Appointed Contractor should submit a detailed method of statement explaining exactly how the construction phase will be implemented and how impacts will be mitigated. Those occupying current campsite should be informed of intended activities prior commencement of construction and subsequent activities.	Contractor, should fence off the perimeter where construction will take place. The location of all underground services and servitudes must be identified and confirmed.	Method statement.	Contractor.

	Delayed construction influenced by rainfall, which has cost implications and causes low user satisfaction	Plan such that delays are factored into construction schedule and communicate this to stakeholders and I & APs. Include the best practical options in the methods statement. Communicate updated schedule with all stakeholders and at community meetings to ensure all are on track with the latest schedules.	Constantly monitor delays and adapt construction plan and update stakeholders and I & APs.	Method statement. Record number of feedback meetings.	Contractor. Resident Engineer (RE). Proponent
	Poor quality materials used.	Only quality materials used for construction, quality finishes. Cheapest instead of reputable contractor used.	RE to include specifications in the construction plan.	Method statement.	Resident Engineer (RE) Proponent
	Safety, health and environmental	The Contractor is responsible to prepare method statement including implementation of the Public Health and Public Safety Plan and submit this to Proponent. The Contractor should appoint a safety, health and environmental (SHE)	Proponent should appoint an Environmental coordinator (ECO) who should ensure method statement is implemented during construction. Regular visual inspections for approval. The work areas must be set	Quarterly written reports by the SHE officer and approved by the RE. Monthly written reports by the ECO and approved by the Proponent. Record number of	RE SHE officer Environmental coordinator (ECO) Proponent

		officer or representative. Construction materials blown to nearby properties and dangerous areas. Safety hazards on site.	out and isolated using danger tape on a daily basis. The demarcated work area may only contain materials, equipment, and personnel required to execute the work. Fire extinguishers must be in close proximity to fuel on site. There should be trained personnel to handle this equipment. Portable toilets should be availed onsite in the following ratio (example): 2 toilets for every 20 females and one for every 20 males. Once the work for the day is completed, the demarcated area must be cleaned of any spilled materials and waste products. This must be disposed of in the allocated containers.	inspections approved.	
	Excavation safety	Excavations should be left open for an absolute minimum time. Excavate short lengths of	Monitor excavation/backfill schedule in the site instruction records.	Record number of trenches backfilled.	RE ECO Proponent

		trenches and box areas for services or foundations in such a way that the trench will not be left unused for more than 24 hours. Apply demarcation standards for work areas as above for all excavation works. Include all soil stockpiles in the demarcated area. Provide additional warning signals in areas of movement and in 'no personnel' areas where workers are not active.			
	Level of noise	Noise should be kept at minimal by using well maintained construction machineries and vehicles. Noise generating activities should be restricted within normal working hours. Use, where possible, local workforce to mitigate noise.	For this project noise should be monitored in different locations using a portable noise monitoring metre. Modern portable noise monitors are left measuring for about 1 week, during which time they run on the internal battery and store all the measurements automatically. After a week the unit can be retrieved and returned to the office or a portable computer	Noise level.	SHE officer. ECO.

			(laptop) can be taken to the site, and all the data is downloaded. If monitoring is ongoing then the battery can be exchanged for a fully charged one.		
	Dust and gaseous emissions	Ground surface should be watered to minimise level of dust. Heavy equipment such as bulldozers and other construction equipment will produce exhaust emissions from diesel engines leading to temporary increase in Sulphur dioxide, Nitrogen oxides, Carbon dioxides, and Carbon monoxide concentrations. Increased concentration of these gases depend on the content of fuel used and emissions from engines could be reduced by using unleaded fuel for machineries. The proponent should instruct Contractor to use unleaded fuel.	Dust and atmospheric contents (or aerosols) should be measured and recorded regularly. Various dust particle measuring devices are used to measure outdoor air quality. For example the PCE-RCM 15 enables the measurements of Carbon dioxide, Carbon monoxide, fine dust, temperature and humidity.	Record measurements of dust particles and gaseous concentrations.	ECO.

	Loss of reptiles and amphibians diversity	Identify habitats of each species and how they utilise them. Avoid construction in areas known to be nesting, feeding, and breeding or nursery habitats of animals.	Erect fencing to exclude reptiles or amphibians from the working areas and relocate any reptiles in the working areas to safe areas. The ecological footprint of car parking should be limited to areas of low to medium value for all species. Create new or alternative basking, feeding and hibernation habitat. Before construction, carry out surveys to assess baseline conditions for reptile and Amphibia biodiversity and monitor this during the construction and operation phases.	Baseline reptile and Amphibia biodiversity survey report. Bi-monthly monitoring survey of reptiles and amphibians. Survey reports.	ECO.
	Loss of herbaceous	Although recovers really quickly, herbaceous vegetation clearance should be kept at minimal. Removal of species of certain ecological value should not be done without	Baseline herbaceous biodiversity survey report. Bi-monthly monitoring survey of reptiles and amphibians. Survey reports.	Baseline reptile and Amphibia biodiversity survey report. Bi-monthly monitoring survey of reptiles and	ECO.

		approval from relevant authority. Species of certain species of ecological value should be removed and planted elsewhere.		amphibians. Survey reports.	
	Loss of topsoil	Topsoil should be removed and stored somewhere for rehabilitation after construction. Rehabilitate with plants that are not exotic in the area.	Before construction carry out a soil assessment survey to determine soil types and composition. Monitor types and soil composition throughout the project phase.	Types of soil and composition.	ECO.
	Habitat modifications	Avoid disturbing sensitive areas. This could be achieved when selecting suitable sites for construction of campsites. Carry out baseline survey to assess reptile and amphibian populations in the project area before and after construction. Continue to monitor reptile and amphibian populations.	Carry out survey to establish baseline conditions and compare this to conditions during and after construction.	Habitat conditions before and after the project.	ECO.

	Sustainability and socio-economic issues Conflicts that may arise as a result of resources use such as water and land need to be rectified within relevant and applicable laws. Increased HIV/AIDS and associated healthy and social problems including fatigue, low productivity, and absenteeism and fatality.	Do not fence off the property or campsites in order to allow free movements of animals especially elephants that frequently roam in the area. Fence off important heritage sites (if any) and graveyard. When recruiting consider current occupants working for Rhino Trust Fund who are unemployed. This will limit number of outsiders who might bring with them social ills. No alcohol will be allowed on site.	The Contractor is responsible to plan for and coordinate the implementation of the Public Health and Public Safety Plan. Daily monitoring by Contractor and RE. Daily monitoring by Contractor. Spot checks. Suspension without payment and immediate removal from site.	Record number of court cases submitted. Record number of incidents. Site employment record.	Contractor SHE officer
Operation	Traffic and safety				

	Road use	Enforce speed limit to reduce animal road kills. Road signs should be placed to indicate speed limit. Where less speed is required put stop or yield signs. All drivers should have driver's licence.	Install speed cameras.	Record number accidents and causes.	Campsite manager.
	Water resources				
	Water pollution	All grease, oil, and similar wastes should not be discarded in the river. These should be contained and temporarily stored before disposing off properly. During borehole installation or maintenance care should made to avoid polluting underground water. The sewage septic tanks should be carefully lined to avoid leaching. Dish	Water quality monitoring to determine contamination.	Use a combination of multi-parameter, titration methods and other analytical procedures to measure and record basic water parameters such as pH, BOD, total alkalinity, TDS, TSS, Nitrates, Nitrites, total Phosphate, Chlorine, as well as total hardness, hardness due to Calcium and Magnesium.	ECO.

		washing and laundry detergents should be biodegradable.		Contaminated water has a pH lower than 6 and pH higher than 8. The TDS of normal water is below 500 mg/l. Water with low BOD is not fit for human consumption. Good quality water should have the following properties: conductivity (<75 mS/m), turbidity (<12 NTU), TDS (<500 mg/l), TSS (<100 mg/l), COD (<100 mg/l), BOD (<30 mg/l), SO_4 (<40 mg/l), Cl (25 mg/l), F (1.5 mg/l), Nitrate (10 mg/l), CaCO3 (300 mg/l), Ca (150 mg/l), Mg (70 mg/l), Na (100 mg/l), K (200 mg/l), Fe (0.1 mg/l) and Mn (0.05 mg/l).	

	Water use				
		Campsite should implement effective maintenance and water saving measures to prevent wastage and conserve water. Among others the following should be applied: -Install water efficient appliances. -Fit appliances with water efficient devices. -Water-saving fittings: shower heads and taps should be fitted with aerators or specific water-saving fittings. -The typical flow-rate of a water-saving shower head should be less than 10 liters per minute.	Monitor monthly water consumption. Check monthly water bill.	Monthly water consumption.	Campsite manager.

		-No 'towel change' option should be offered to guests. Guests need to be informed on how to opt for this service i.e. to hang towels up if no change is required by housekeeping, or leave on the floor if a change is required.			
	Waste generation	All waste materials must be contained and disposed of according to the relevant legal requirements. Waste must be stored in such a manner that no pollution of the environment occurs at any time. All domestic waste generated must be disposed of in a proper manner at the Local Authority Landfill site. Spill clean-up kits and absorbent materials must be kept on site to assist in immediate clean-up of any hazardous material spills.	Monitor volume of waste generated and volume disposed off monthly.	Record volume of waste generated and dumped.	Campsite manager.

	Solid waste	For each campsite, waste collection bins should be provided. Since campsite will not be fenced, animal proof garbage bins should be used. For example garbage could be secured in cages at each campsite. In addition, garbage bins will be located at each ablution block. Garbage bins should be collected routinely and solid waste transported and disposed at an authorised solid waste facility.	Monitor volume of solid waste generated and volume disposed off monthly.	Record volume of solid waste generated and dumped.	Campsite manager and ECO.
	Liquid waste	Ensure regular maintenance of sewerage dump stations to prevent overflow or clogging that may occur as result of poor maintenance. Other issues will include bathing, toilets, garbage collection, sewage dump stations and fire protection.	Monitor liquid waste leakage. Monitor liquid waste volume generated and dumped.	Tidiness.	Campsite manager.
Energy	Solar energy	Invest in solar energy and limit usage of firewood.	Atmospheric air content composition.	Percentage usage of solar energy.	ECO and Campsite

		Install energy saving light sensors Appliance such as TV, DVD and others should be switched off (and not left on stand-by mode).		Substitution of fossil fuel as a source of energy.	manager.
	Generators	Where necessary generators should make use of unleaded fuel.			Campsite manager and proponent.
Gardening and landscaping	Introduction of exotic species	Plants used should be carefully selected to prevent introduction of exotic plant species. Canopy structures of plants used should not protrude into any pedestrian walkways, and should not be more than 2.1 m. Where steps en-route to facilities, a no-step route to be provided.	Monitor growth of exotic plant species. Cut down any suspected exotic plant species.	Zero tolerance for exotic plant species.	ECO and Campsite manager.
General operational issues		On-site representative must be contactable 24 hours, 7 days a week. Where applicable, any meal/s and beverages must be provided from outlets within the boundary walls of the property. Servicing of rooms 7 days	Investigate whether are satisfied.	Results for guest suggestion box.	Campsite manager.

		a week (this includes linen/towel change, removal of rubbish and cleaning). Formal reception area must be provided. Provide onsite parking with security for guests. Provide full housekeeping and laundry services provided.			

8. INTRODUCTION TO ENVIRONMENTAL MANAGEMENT PLAN

Generally, many developments that took place without EIAs would have had impacts on the environment already. It is possible that even for those developments that were preceded by proper EIAs could have cumulative or indirect impacts that may not be easily predicted or evaluated during the EIAs process. The appropriate way to deal with situations where damage would have occurred or is indirect occuring already is to apply mitigation or remedial measures. EMPs are the best tools that be used to mitigate or remedy these impacts.

There has been a shift from merely requiring developments to undergo EIAs. It is noted that many proponents or developers merely conduct EIAs to fulfil legal requirements and thereafter little is done to actually ensure that implementation of the EMP. The aim of EMPs is to provide guidance how environmental impacts should be managed in order to deal with impacts throughout the life cycle of an activity. EMPs provide a base upon which activities are continuously managed and monitored.

The main challenge of EMPs is that since they are introduced later in the project operations as remedial actions they may not effectively influence project impacts. Moreover, EMPs are ongoing and in-houses processes with a virtual lack of public pressure and accountability. In other words, proponents or developers may still do what they want. In order to avoid this proponents or developers should appoint professional and independent ECO (environmental coordinator officers) who together with the inspectors from the Environmental Commission/MET should implement the EMP.

9. DISCUSSIONS AND CONCLUSIONS

Sustainability is necessitated by global environmental challenges such as resources over-utilisation, biodiversity loss, pollution, alien invasive species and climate change and variability. The core objectives of sustainability are to: satisfy needs of the present and future generations, strike a balance between developments and reduce inequality. These are difficult to achieve, for example how can we determine needs of the future generations?

Even a more important challenge is: *how do we design tools that can best promote sustainability?* Various tools that had been developed over years to promote sustainability include EIA, EMP, SEA

(strategic impact assessment), M & E (monitoring and evaluation), LFA (Logical Framework Analysis), sustainability indicators, social analyses, poverty analyses and many others.

In order to answer the question which tools above best promote sustainable development, one first needs to understand the weaknesses and strengths of each tool of sustainability. Presently, Namibian laws and legislations place more emphasis on EIA and less on EMP and M & E. It is true EIAs shape development projects to meet people's needs by informing and influencing decisions and by providing scientific recommendations and viable alternatives. It is also true EIAs are based on strict procedures but is also important to understand the weaknesses of EIAs. For this project, for example infrastructures were already built without conducting an EIA and if there is any damage, that damage cannot be reversed. Furthermore, it is clear from field visits that cumulative impacts on underground water resources could not be evaluated because there is no baseline water quality data and also because time to undertake the EIA study was limited. In addition, it is possible that some grasses and herbaceous vegetation were not sufficiently enumerated because it was dry during the field visit. It is however, environmentally unfair to extend EIA studies over a longer time period because doing this limit satisfying need of the people. Indeed, it violates the first principle of sustainable which states that needs of the people should be at the centre of any development (Munasinghe, 2009).

In order to rectify weaknesses of the EIAs, EMPs and M & E tools are recommended in order to assess development progressively throughout the project life cycles. The main disadvantage of EMPs is that they are introduced later when damage is already done. So it is important, to introduce EMPs immediately after EIAs so that they can supplement each other (Abaza, Bisset and Sadler 2004; Connelly & Richardson 2004).

In conclusion, there are no best tools that can promote sustainability; therefore, there is a need to integrate tools and create a framework that can best promote sustainability. This shift toward non-reductionist approach is also supported by Gasparatos & Horner (2008). Therefore, this EIA should not be the only tool to assess and evaluate the proposed project.

10. RECOMMENDATIONS

In the proposed area there exist no development infrastructures but generally the area is not disturbed because of the type of building structures used that are environmentally friendly. Furthermore, extreme harsh climatic conditions in the area pose a critical threat to water, soils, land and biodiversity. Local people depend directly on these critical resources for survival and without these their livelihood is

impossible. The current difficult climatic conditions including below average rainfall had forced people to adapt other ways of living. Consequently, there is an observed change, locally, from a livelihood strategy dependent on farming and natural resources harvesting to a livelihood strategy which depend on other sectors such as tourism, mining, horticulture, aquaculture, etc. It is possible that this paradigm shift in livelihood strategies could have impacts (both negative and positive) on the environment. While the need to diversify and venture into other economic activities exist as farming is no longer working, it is important at the same time to document and monitor environmental impacts of these new activities.

The proposed plan to develop the Eagle Campsite will benefit existing efforts to save the rhino population while generating revenues for the Torra Conservancy. However, this proposed development should be done in line with principles of sustainable development, international best practices and indeed relevant Namibian environmental laws and policies.

Therefore, based on the above, the main conclusion is the ECC should be granted on conditions that:

- The proponent develops an environmental monitoring plan as part of the EMP, which should be prepared and submitted prior to commencement of construction activities;
- A dedicated baseline monitoring survey (focusing on grasses, reptiles, insects and amphibians) should be conducted before construction to establish baseline conditions;
- A follow up monitoring survey (focusing more on grasses, reptiles, insects and amphibians) should be conducted during construction to monitor activities and mitigate negative impacts;
- Continuous monitoring survey should be conducted during the operation phase for monitoring and mitigation purposes but also to compare conditions before after construction, and
- Current rhino monitoring activities should be scaled up and intensified.

The above monitoring activities will be very critical to establish baseline conditions and detect any future ecological changes that may occur as a result of the proposed project activities. Ideally, the operators of the proposed activities should, prior to construction activities, implement this plan by appointing an independent qualified Environmental Co-ordinator (ECO) to undertake these activities. Upon completion of constructing facilities, operation activities should be monitored frequently and reports submitted to the relevant authorities.

BIBLIOGRAPHY