

APP: 002126

BRANDBERG DESERT ELEPHANT LODGE

SCOPING/ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

To Support Application for ECC for

The

**Construction and operation of Lodge and tourism facilities along Ugab River, Kunene Region,
Namibia**

Prepared on behalf of

**BRANDBERG DESERT ELEPHANT (trading as Ushivi Safaris cc)
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SCOPING/ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Construction and operation of Lodge and Tourism Facilities, Kunene Region, Namibia

Prepared

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ACRONYMS

BID	Background information document
BDEL	Brandberg Desert Elephant Lodge
CBNRM	Community based natural resources management
CNW	Central North Western
EAPs	Environmental Assessment Practitioners
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
ECD	Early Childhood Development
ECO	Environmental Co-ordinator
EIA	Environmental Impact Assessment
EMP	Environmental management plan
ENSO	El Nina Southern Oscillation
GRN	Government Republic of Namibia
IAPs	Interested and affected parties
ITCZ	Intertropical Convergence Zone
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
NEMA	Namibia's Environmental Management Act
NSA	Namibia Statistical Agency
ONI	Oceanic Nino Index
RE	Resident Engineer
SEA	Strategic Environmental Assessment
SHE	Safety health & environment
WMO	World Meteorological Organization

PROJECT DETAILS

1. PROJECT TITLE

Construction and operation of a lodge and tourism facilities along the Ugab River, Kunene and Erongo Regions, Namibia

2. KEY STAKEHOLDERS

Ministry of Environment, Forestry and Tourism (MEFT)

Tsiseb Communal Conservancy (TCC)

Sorri-Sorris Communal Conservancy (SSCC)

Daure Daman Traditional Authority

Daures Constituency Office

3. KEY LEGAL INSTRUMENTS

Environmental Management Act (No. 7 of 2007) and EIA regulations of 2012.

4. PROPONENT

Brandberg Desert Elephant Lodge.

5. TARGET ECONOMIC SECTOR

Tourism.

6. PUBLIC PARTICIPATION PROCESS

SEPTEMBER 2023 (phase I):

- 2 x adverts in the *Namib Times newspaper*: 8 September 2023 and 15 September 2023.
- 2 x adverts in the *Villager Newspaper*: 8 September 2023 and 15 September 2023.
 - Release of BID to registered IAPs & stakeholders: 18 September 2023.
 - Upload of BID on EIA portal and project screening: 18 September 2023.
 - Notification to key IAPs and stakeholders about the project.

OCTOBER 2023 (phase II):

- Release of draft EIA and EMP Reports and availability to IAPs & stakeholders for review
 - Request for consent letters: October 2023

NOVEMBER 2023 (phase III):

- General public meetings in Uis and Anixab: Leg 1 (17-18 November 2023)
- More follow up meetings (Leg 2) with key IAPS & stakeholders (28 November 2023).
 - Upload all outstanding documents on the EIA portal: 29 November 2023.
 - Waiting period for GRN/MEFT and the EC to issue a Record Decision.

7. OPERATIONAL WINDOW

- Construction of Lodge and tourism facilities (phase IV): January 2024.
- Commissioning & operation of Lodge and tourism facilities (phase V): April 2024.

EXECUTIVE SUMMARY

Background – Central North-western (CNW) Namibia, with its breath-taking landscapes, rich cultural heritage, and diverse wildlife, has become a ‘hotspot’ for tourism development in the past few years. This area which encompasses south-western Kunene, western Otjozondjupa and northwest Erongo regions offer an exceptional blend of natural beauty, including deserts, mountains, and coastal areas, making them attractive for both local and international tourists and travellers. Recognizing the potential for tourism development in the CNW Namibia, there is a need for sustainable tourism development in order to satisfy needs of all stakeholders along the tourism value sector. One of the recognized tools for sustainable tourism development is the tourism route development.

The proponent proposes the construction and operation of a lodge and associated tourism facilities within in the CNW area. The proponent aspires to contribute to Namibia's tourism infrastructure while simultaneously promoting the conservation of its fragile ecosystems. The envisioned tourism establishment of a lodge and tourism facilities aligns with the principles of sustainable tourism, ensuring minimal negative impact on the environment and local communities while offering tourists an authentic and enriching experience.

Project motivation – The CNW is blessed with unparalleled tourism assets, from the otherworldly landscapes of the Namib Desert to the diverse ecosystems along the coastline. The project aims to create a sustainable tourism destination that allows visitors to experience these wonders while actively participating in their conservation.

Economic Development: Namibia's tourism sector plays a vital role in the economy, providing employment opportunities and economic growth. By establishing a lodge and associated facilities, this project seeks to contribute to the local economy, create jobs for residents, and support small businesses locally.

Cultural Enrichment: In particular, the rich cultural diversity in the CNW is a significant asset. The project aims to celebrate and preserve local traditions and heritage, offering tourists a chance to engage with and learn from the vibrant communities that call CNW a home.

Sustainable Tourism: Responsible tourism is at the heart of this project's motivation. The goal is to set an example of sustainable development by implementing eco-friendly practices, reducing the carbon footprint, and minimizing negative impacts on the environment. By doing so, the project seeks to inspire other developments to follow suit.

Conservation and Education: The lodge and tourism facilities will serve as platforms for environmental education and conservation initiatives. Visitors will have the opportunity to learn about the fragile ecosystems and wildlife of the region, fostering a sense of responsibility and stewardship.

Inclusive tourism development: The project aims to collaborate closely with local communities, engaging them in decision-making processes, providing training and capacity-building opportunities, and ensuring that the benefits of tourism are shared equitably among residents without the exclusion of youths and women.

Detailed project description- The proposed lodge and tourism facilities will consist of four sections, the reception area, parking area, the lodge, tented campsites, swimming pool, lounge, ablution facilities and staff houses. The proposed lodge will employ a total of 12 permanent employees which will include 1 x campsite Manager, 1 x Assistant Manager, 6 x labourers, 1 x receptionist and 2 x tour guides and 1 bar tender. Other temporary jobs that will also be created include: contractors, RE (residential engineer), SHER (safety health and environment representative) and ECO (environmental compliance co-ordinator).

Baseline environmental conditions and biological diversity- Although the project area is found in the savannah and desert transition zone, conditions are strongly influenced by the Benguela current upwelling system, more characterised by low air temperatures. When low air temperature cools the overlying atmosphere, the resulting stable temperature inversion layer prevents moist air that originates from the Atlantic Ocean from rising higher to form rainfall clouds. Favourable conditions in the Brandberg and its surrounding inselbergs support 66% of Namibian endemic plants. Endemic species in the project area is a vital sign that necessary precautionary measures are needed to ensure that endemic species are protected. Even more important the absence of alien plant species is a good indication of an ecosystem in a pristine or near pristine state. Fauna diversity, include the free roaming desert dwelling Black Rhinoceros (*Diceros bicornis*) and African Elephant (*Loxodonta Africana*). The black rhinoceros (*Diceros bicornis*) is considered the most important in terms of conservation status (critically endangered). In the area, is also influenced by tropical climate regime present north-east of the region and this perhaps affects more mobile taxa such as mammals and birds.

Project impacts- Among others, many project activities will negatively affect grasses and other herbaceous cover, reptiles, insects, and amphibians. Impacts on the water table will also be a critical concern due to current water shortage. Although, environmental impacts of dust as well as noise will be common, they will be more localised, short-lived, and insignificant as they are caused more by construction activities than operation activities. All properties will be build using locally occurring building materials as much as possible and no building will be taller than tree heights. In mitigating environmental impacts, the emphasis will be on monitoring and evaluation; first by carrying out baseline survey before construction and continuously monitoring throughout the project cycle.

Conclusions and recommendations- Extreme harsh climatic conditions are a critical threat to livestock production locally. There is an observed change, locally, from a livelihood strategy dependent on farming and natural resources harvesting to a livelihood strategy which depends on other sectors such as tourism, mining, horticulture, aquaculture, etc. Explicitly, there is a need to diversify to other economic activities as farming is no longer an economically viable option. Given a higher potential for tourism as well as demand or visitation rate, it will be unfair to local people if the area is not developed to generate needed revenues. This will violate the principle of sustainable that states development should be promoted if it meets needs of the people. However, it is important at the same time to document and monitor environmental impacts of each development project. Therefore, it is recommended that the ECC should be granted on conditions that the proponents:

- Prepares and submits an EMP detailing how negative environmental impacts will be mitigated,
- Should carry out, prior to construction, a baseline biodiversity and environmental survey,
- Should continue to monitor the environment during construction phase, and
- Continue to monitor the environment during the operation phase.

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1. PROJECT INTRODUCTION AND BACKGROUND

1.1. Introduction

The project's target area is the central northwest (CNW) Namibia, covering the western parts of Otjozondjupa region, south-west Kunene and north-western parts of Erongo region. Since the turn of the 2000s until mid-2000s, a rapid migration had been observed among local residents in the CNW moving away from rural areas to urban settlements. Although forces driving this urbanization process could be related to job opportunities and better amenities in urban areas, there is evidence to suggest that climate risks (e.g. drought), water scarcity and human-wildlife conflicts are the main contributing factors. Critically, a decline in agricultural activities significantly contribute to this migration trend.

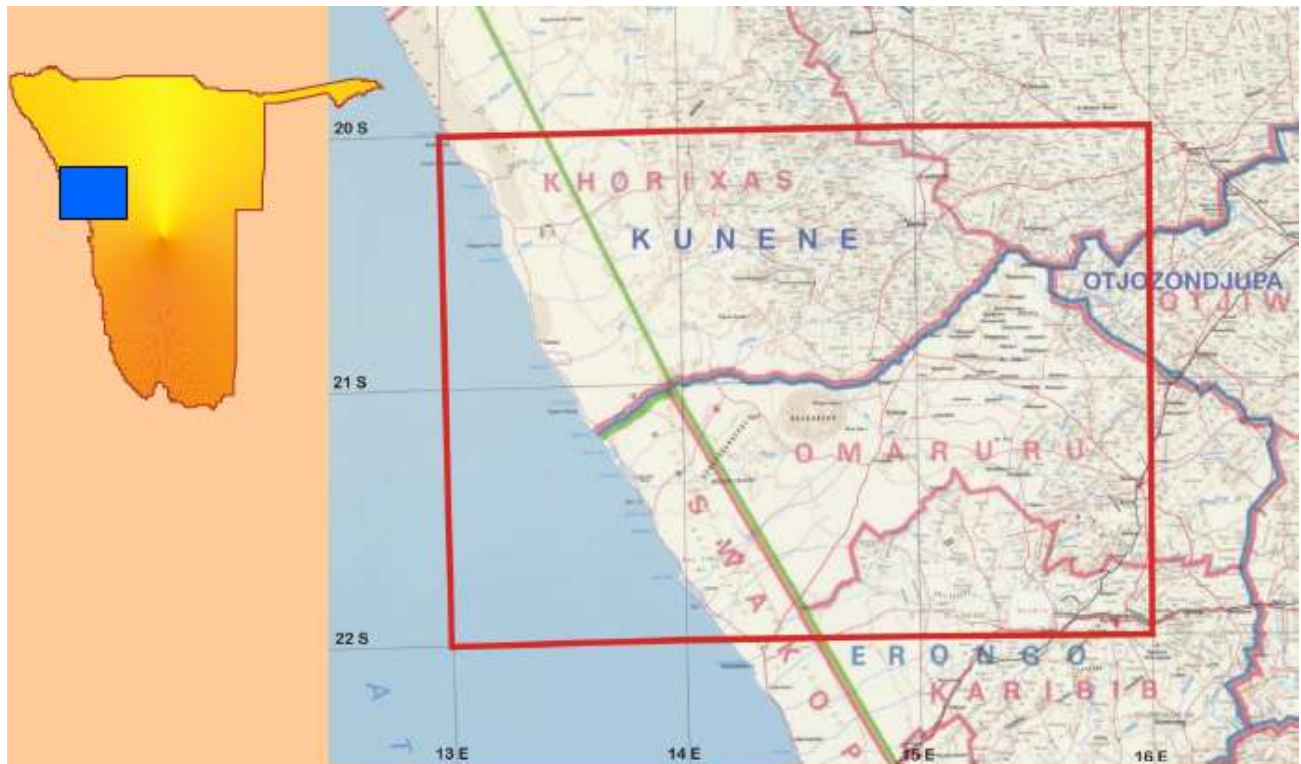


Figure 1: central north western (CNW) Namibia covering parts of Erongo, Kunene and Otjozondjupa region.

The Government Republic of Namibia (GRN) promotes rural transformation through financial access. Through this effort, GRN put emphasis on infrastructure development such as roads, electricity, water supply, mobile telecommunications and housing development (Lazarus, 2023).

Road infrastructure development in the CNW Namibia include upgrading of the C35 Road to bitumen standard, connecting Henties Bay and Uis (Erongo region) to Khorixas and Kamanjab (Kunene region). The C35 Road is an important tourism route which branches from the C34 Road in Henties Bay; stretching up to Ruacana; thereby connecting the CNW to the Namibian-Angolan border.

1.2. Background and problem statement

Climate change and variability continues to threaten livelihoods of local people in CNW Namibia and many residents in rural areas are more vulnerable. Vulnerability to climate risks such as drought and water scarcity is measured by comparing proportion of food items purchased using cash against proportion of food items directly harvested through farming. Since the early 2000s, Namibians in general had been consuming food purchased using cash and this food was mainly imported from other countries. When narrowed down to individual regional and local levels, the general CNW Namibia are the most affected by drought in the last 10-15 years.

The rainfall had improved since 2020 in other regions in Namibia but not in the CNW Namibia and here the drought risk continues to threaten rural livelihoods. Although CNW Namibia has a unique floral and faunal diversity as well as beautiful landscapes, the tourism sector is not well developed.

In the absence of agriculture, the tourism sector could be a climate resilient solution. Therefore, there is a need to invest in tourism infrastructures to be able to meet specific requirements of all stakeholders and offer diversified tourism products such as accommodation, gastronomy, cultural tourism, agro-tourism, etc. Stakeholders along the tourism value chain including residents, communal conservancies, traditional authorities, GRN, tour guides, tour operators, investors and local business owners have different needs. Sustainable development of the tourism sector is focused on meeting specific requirements of all stakeholders. Unfortunately, this will depend on various factors including the enabling environment, funding and willingness by investors to invest in local tourism establishments. It will also depend on local entrepreneurs to be innovative, enter into smart partnerships and take advantage of available opportunities.

1.3. Objective

The proponent intends to construct and operate Brandberg Desert Elephant Lodge (BDEL). In order to achieve this the proponent would like to apply for ECC.

1.4. Terms of references (ToRs)

The proponent understands that one of the requirements for application for ECC is the preparation of the EIA and EMP reports. For this reason, Consultants (consulting as Envirodu Consulting & Training Solutions cc) were appointed to prepare the EIA and EMP Reports for the proposed activities.

Consultants propose the following to be the ToRs (terms of references):

- Visit the site;
- Undertake a comprehensive literature review;
- Identify activities which will have impacts on the biological, physical and human environmental components during the construction and operation phases;
- Mitigate impacts of project activities on the biological, physical and human environmental components;
- Guide and assist the proponent to be able to ensure that construction and operation activities would be conducted in an environmental responsible manner;
- Advise that once approved the EMP will be a legally binding document and when ECC is granted; this will imply the proponent, employees, contractors, sub-contractors and service providers will be required to abide to conditions stipulated in the EMP, and
- Present the EMP comprehensively such that for each activity/process and related aspects and impacts, management actions required to address the impacts arising directly and directly from the various aspects of construction and operation are listed.

2. ANALYSIS OF TOURISM SECTOR

Namibia's tourism sector is resilient to externalities such as COVID-19, geopolitical instabilities and global economic crises. This is mainly because Namibia's tourism assets (attraction sites/landscapes, accommodation facilities, biological diversity, cultural and heritage resources) do not depreciate over time. In 2020, the sector contributed 11.1% to total employment compared to 15% in 2019. This was a mere reduction by 3.9%; implying that even impacts of COVID-19 had not have serious consequences on performance of the tourism sector.

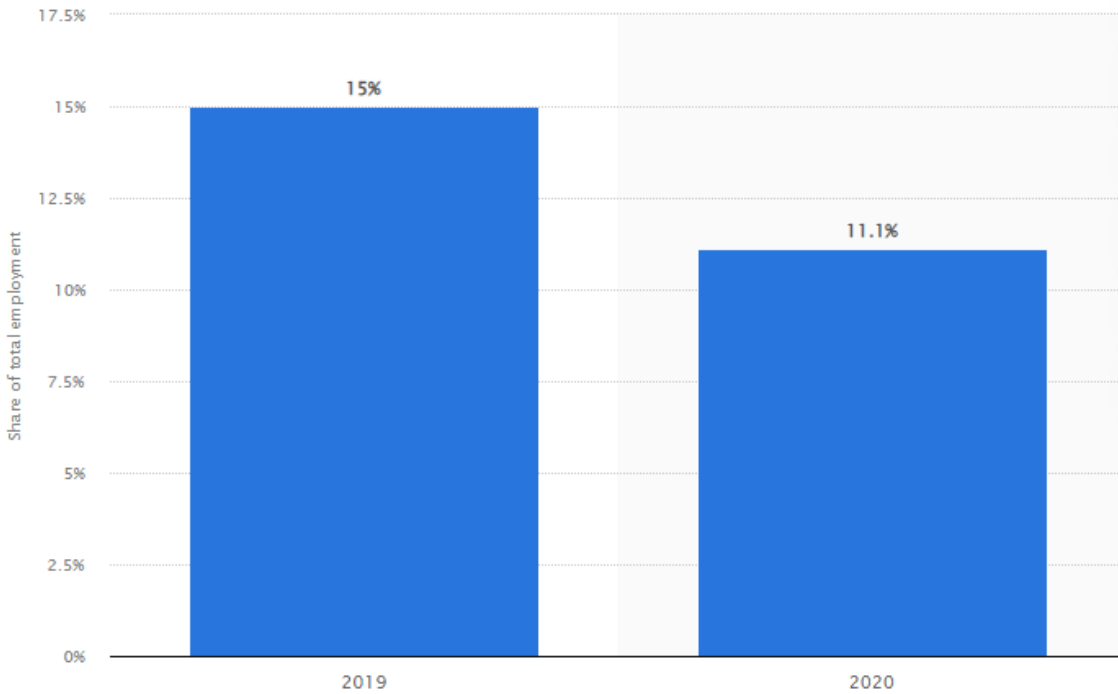


Figure 2: Total employment generated by the Namibian tourism sector (*Statistica, 2022*).

2.1. Tourism route development concept

Tourism route development concept brings together tourism assets under a unified theme; thereby stimulating tourism entrepreneurial opportunities through development of additional products and services (Lourens, 2007) to meet needs of all stakeholder along the tourism value sector chain. GRN has made comprehensive investments in biodiversity conservation and natural resources management and adoption of the CBNRM (Community Based Natural Resources Management) approach allows establishment of conservancies and landscape areas in Namibia. Landscapes and conservancies are areas where communities are allowed to manage and benefit from biodiversity resources. The following conservancies are found near the proposed project area:

- Sorri-Sorris, and
- Tsiseb

2.1.1. Sustainable tourism development

The mandate of communal conservancies is to promote sustainable utilization of natural resources for the benefits of all stakeholders while minimising environmental impacts. This is taking into consideration that if some stakeholders are excluded, this tends to compromise on certain environmental values.



Therefore, a sustainable tourism development should consider both socio-economic and environmental interests of stakeholders:

- GRN institutions,
- Regional Councils and local authorities,
- Traditional authorities,
- Rural youths and women,
- Tourism information shops,
- Miners or traders of precious and semi-precious stones,
- Arts and craft traders,
- Coffee shop owners,
- Restaurant owners,
- Service station owners,
- Retail shop owners,
- Owners of lodge and campsites,
- Tour guides and operators,
- Civil societies, and
- Tourists.

2.2. Conceptual approach

The proponent recognizes the lack of tourism facilities along the routes & tracks in the CNW despite the striking beauty of this part of Namibia which is unexplored. For this reason, the

proponent intends to construct and operate BDEL at a site located north of the Ugab River which is about 10 Kilometres north-east of the Brandberg Mountain. Initially, the proponent intended to construct and operate other tourism facilities including campsites and accommodations for staff at a site located south of the river but this will be put on hold after consultative meetings. However, it will be part of phase 2 of this development after establishing lodging facilities in Sorri-Sorris.

The proposed approach is to use the tourism route development concept to achieve value tourism activities of higher value and impact. This concept aims at linking together a series of tourism assets in order to promote local tourism by encouraging tourists to easily travel from one location to another while creating enterprise development opportunities to local eco-entrepreneurs and investors. Currently, GRN is in the process of establishing Brandberg Geopark. Once approved, the proposed proclamation of the Brandberg Geopark will create new tourism business opportunities to all stakeholders such as local eco-entrepreneurs and investors by developing all the 7As (or 7 Assets) of tourism along the Brandberg/Geopark Landscape routes & tracks as follow:

- Attractions,
- Accommodations,
- Accessibility,
- Amenities,
- Activities,
- Affinity,
- Actors and
- Acts.

2.3. Linking tourism assets

Previously, Consultants have undertaken extensive works in the CNW area; promoting tourism route enterprise development including:

- Preparation of reports required to support application for ECC for construction and operation of Ugab Rhino Campsite (**April 2019**) – this ECC is now expired but when renewed, and once Ugab Rhino Campsite is operational it will establish linkage to other tourist routes & tracks thereby creating new business opportunities for locals.
- Preparation of reports required to support application for ECC for construction and operation of a private air-strip (tourism operations) at Brandberg White Lady Lodge

(September 2022 to May 2023) – once the airstrip is operational, tourists will be able to fly in and drive by road to other tourism destinations within the Brandberg/Geopark Landscape Area and beyond.

- The proponent is busy supporting application for ECC for a Fuel Facility at Spitzkkope. This amenity will be essential in contributing to tourism route development in the proposed Brandberg Geopark.

3. GOALS AND OBJECTIVES

This proposed project's ultimate goal is to diversify tourism products along the tourism routes & tracks in the proposed Brandberg Geopark. Specific objectives are to:

- Obtain permit and right to construct and operate Brandberg Desert Elephant Lodge,
- Contribute to employment creation and income generation activities, and
- Offer diverse tourism products involving ecotourism, synergies, cultural festivals, archaeology, gastronomy and entertainment.

3.1. Location

The proposed project is located along the Ugab River at -21.010654°S and 14.721243°E. The area is located within the Sorri-Sorris Communal Conservancy and is about 10 km north-east of Brandberg Mountain. The Proponent for this proposed project would like to undertake construction and operation activities for a lodge at an identified area measuring approximately 50 ha. The lodge is about halfway between Sorris-Sorris Lodge and White Lady Lodge near the old windmill.



Figure 3: Project location.

4. CONCEPTUAL APPROACH AND PROJECT DESCRIPTION

The proposed project is a joint venture between Brandberg Desert Elephant Lodge (trading as Ushivi Safaris cc) with a total estimated total value of N\$25 million. Brandberg Desert Elephant Lodge (BDEL) will be a lodge of choice strategically linking the coastal tourism routes to Brandberg and Ombonde People's Landscape Areas as well as Etosha National Park. The area features the highest Mountain in Namibia – the Brandberg – as well as a rich and diverse history of rock painting, culture and biological diversity. Hence, BDEL will offer tourists a truly remarkable experience while at the same creating tourism business development opportunities along the tourism tracks and routes including cultural tours, gastronomy, trading of precious stones, information shops and other activities.

4.1. Proposed site plan

4.1.1. Attractions

The theme of the BDEL in linking the existing tourism assets in 2 communal conservancies bordering multiple climatic regions will be the first to bring about unification to demonstrate that tourism enterprises could co-exist without competing while meeting specific requirements of all stakeholders in the tourism sector.



Figure 4: The proposed site with relation to the surrounding tourism attraction sites and routes including a private airstrip at Brandberg White Lady Lodge.

Table 1: Mapping of tourism assets in the targeted area.

Tourism Asset	Type of Asset	Tourism 7A category
Brandberg Mountain	Mountain	Attraction
Ugab River	River	Attraction
Brandberg White Lady Lodge	Lodge	Accommodation
Brandberg White Lady Lodge (game drive)	Biodiversity asset	Activity
Brandberg White Lady Lodge (swimming pool & bar)	Entertainment	Amenity/affinity
Brandberg White Lady Lodge (airstrip)	Airstrip	Amenity
Rastplatz	Scenic point	Attraction
Brandberg picnic spot	picnic spot	Affinity
Starting point Brandberg Camino	Hiking point	Activity

Ugab Campsite	Campsite	Amenity/accommodation
Sorri-Sorris Lodge	Lodge	Accommodation
Brandberg Heritage sites	Heritage Asset	Attraction

4.1.2. Accommodation facilities

Lodge

The proposed lodge will consist of 10 rooms. The rooms will be made of thatched roofs and the walls will be built either with rocks or bricks found in the area (*figure 5*). All power requirements will be solar powered, and the water will be recycled.



Figure 5: Example of thatched roof rooms.

Tented campsite

The proposed tented campsite will be 10 in total and will each consist of a small kitchen, shower, and water closet. Each campsite will be under the shade from the trees with a demarcated barbeque area.



Figure 6: Example of tented campsite.

Campsites

The proposed campsites phase 2 will be 15 in total and will each consist of a small kitchen, shower, and water closet. Each campsite will be under the shade from the trees with a demarcated barbeque area.



Figure 7: Example of campsite.

4.1.3. Accessibility

When approaching from the coast, the proposed site could be accessed through the C35 road which connects Henties Bay and Uis. From the C35, the proposed site could either be reached through the D2359 via the Brandberg White Lady Lodge or the tracks that branches off the D2319.

The site will bring together **4 main routes & tracks** when accessed through the:

1. D2359 Road from Uis through Brandberg White Lady Lodge,
2. C35 Road from Khorixas through Oruhito,
3. D2319 Road from Khorixas through Anixab, and
4. C35 Road from Uis through the D2319.



Figure 7: Accessibility to the proposed site.

4.1.4. Amenities

The following amenities will be provided:

- 10 x thatched roof rooms,
- 15 x tented campsites,
- 15 x Campsites
- Swimming pool,
- Lounge, and
- Staff houses.

Locally, the following amenities are available:

- Access roads,
- Private airstrip at Brandberg White Lady Lodge,
- Clinic at Anixab,
- Shopping centre and fuel centre in Uis, and
- Craft centre and information shops.

4.1.5. Activities

Locally, the following tourism activities are available:

- Mountain climbing,

- Game drive,
- Rock paintings,
- Sight-seeing, and
- Swimming.
- The following tourism activities are not available:
- Hiking trails,
- Free guided walking tours, and
- Ride the cable car.

4.1.6. Affinities

Konigstein is the highest point of the Brandberg Mountain and the most breath-taking or affinity point. The other affinity is the Brandberg picnic spot.

4.1.7. Actors and acts

Actors to expect are Himba people, goat farmers and frequently desert elephants and rhinos.

4.2. Tourism products

4.2.1. Accommodation

10 tented house units will be designed either with view of the Ugab River or the Brandberg Massif. Stillness in the night will remind tourists of the remoteness but yet true bush experience in the 'Damaraland'. Yet the morning sunrise will be a reminder of the existing life in this seemingly deserted area. During mornings and afternoons, tourists will occasionally see elephants, rhinos, zebras, giraffes and other games on the way to water points.

4.2.2. Rock climbing

Rock climbers can ascend using a variety of technical climbs, but to reach the top includes a certain amount of effort and patience, mainly to clamber over the huge boulders and rock faces that block the Tsiseb and Numas ravines.

4.2.3. Rock paintings

The Brandberg Massif offers one of the richest collections of rock paintings in the world. Drawn on rock faces and overhangs, in caves and on boulders by San shamans, it is a biggest open-air art gallery. Among all paintings the famous 'White Lady' is the most detailed human figure which

features a human character with questionable sex and race who is neither white/black/coloured, nor female or male. To reach this painting requires about 45-60 minutes hiking over a rough terrain.

4.2.4. Game drive

A game drive will be provided by experienced tour guide along the river and several areas to see game animals and view various landscapes.

4.2.5. Cultural tours

The general north-western Namibia remains unexplored. Although the surrounding area is inhabited by Damara speaking people, there are also Herero and Ovahimba people. In order to know about local cultural diversity, tourists will be driven around by experienced tour guides.

4.3. Labor requirements

A total of 6 permanent employees will be needed which include 1 x campsite manager, 1 x labourers, 1 x receptionist and 2 x tour guides and 1 bar tender. Other temporary jobs that will be created are: contractors, RE (residential engineer), SHER (safety health and environment representative) and ECO (environmental compliance co-ordinator).

4.4. Potable water supply

Water will be supplied from boreholes locally. Potable water will be pumped and stored in elevated 10,000 litre water tanks and distributed to facilities and other water points where it is needed.

4.5. Off-grid wastewater management

A septic tank will be used to treat wastewater from all facilities. A number of alternatives will be considered about location of the septic tank. Wastewater treatment in a septic tank will involve various physical (but also chemical and biological) stage and processes such as sedimentation, Flotation (scum), Clarification and Anaerobic digestion of the organic material.

4.6. Power supply

The nearest power line at Anixab is far and it will be expensive to connect Brandberg Desert Elephant Lodge to this power grid. The proponent proposes to use the off grid solar energy system. There are various off grid solar energy systems including solar module, storage battery, controller, inverter, mounting brackets, etc. The Ministry of Mines and Energy (MME) has a list of

approved and registered installers and suppliers available at <http://www.mme.gov.na/energy/pdf/ListofSolarServiceProviders.pdf>

5. METHODOLOGY AND APPROACH

5.1. Desk studies and literature review

Desk studies and literature reviews were undertaken 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, Erongo region population Census report, 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).

5.2. Public participation process

The role of IAPs (interested and affected parties) in the public participation process (PPP) is extremely significant. EMA regulations (regulations of 2012), and specifically section 21 is explicit in guiding the public consultation process. According to section 21(2), notices were given as explained below.

5.2.1. Public notices in newspapers and at public places

Public notices were placed at several public sites in Uis and Anixab. Notices were placed in 2 (two) local newspapers, namely The Villager and Namib Times newspapers once a week for 2 consecutive weeks on 08 and 15 August 2022.

5.2.2. Notifications to key IAPs and stakeholders

Notications were send to key IAPs and stakeholders Daure Damara Traditional Authority, Tsiseb and Sorri-Sorris Communal Conservancy offices and Daures Constituency office.

5.2.3. Public meetings

The public meeting was held as follow:

- Uis (17 November 2023) at Uis town community hall,
- Anixab (18 November 2023) at Anixab community hall, and
- Sorri-Sorris (28 November 2023) at Sorri-Sorris Communal Conservancy's office.

5.3. Release of draft EIA/Scoping report

This was important to provide feedback to IAPs and stakeholders about the project progress. The draft EIA/scoping report was distributed to all registered IAPs by email. In addition, the hard copies were availed for public access at the offices of the communal conservancies at Sorri-Sorris and Tsiseb Conservancy.

5.4. Environmental impact assessment method

5.4.1. Leopold matrix method

The Leopold matrix assessment was used in the evaluation of impacts. This is a qualitative environmental impact assessment method, and it involved a series of stages including impacts prediction, description, and assessment as described below.

5.4.2. 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 is the identification of VECs as illustrated in the table below.

Impacts were evaluated using the Leopold Matrix by looking at environmental resource sensitivity and the scope and coverage of impact as well as their magnitude, probability and significance.

Table 2: Sensitivity of environmental resources

SENSITIVITY RATING		CRITERIA
1	Negligible	The environmental resource is resistant to impacts or has less environmental value.
2	Low	The environmental resource could either absorb impacts or is able to rebound its original state after the impacts, or is of low environmental or social value or is of local importance.
3	Medium	The environmental resource is either unable to absorb impacts or after impacts is unable to rebound to original state, or is of high environmental or social value, or is of national importance.
4	High	The environmental resource has moderate capacity to absorb impacts, has some environmental or social value, or is of regional importance.
5	Very high	The environmental resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.

Table 3: Magnitude of impacts

0	No observable impact
1	Low impact
2	Tolerable impact
3	Medium high impact
4	High impact
5	Very high impact

Table 4: Duration of impacts

T	Temporary
P	Permanent

Table 5: Geographic coverage

L	Localized impacts or limited to location
O	Impact of importance to municipality

R	Regional impacts
N	National impact
I	International

Table 6: Probability.

LP	Low probability (possibility of impact occurring is low, below 25%).
P	Probable (there is a distinct possibility that it will occur, approximately 50%).
HP	Highly probable (the impact is most likely to occur, 75%).
D	Definite (the impact will occur, 100%).

Table 7: Significance

	ENVIRONMENTAL RESOURCE CHARACTERISTICS				
IMPACT SEVERITY [Magnitude, duration, extent, probability]	Very high 5	High 4	Medium 3	Low 2	Negligible
Very high 5	Major [5/5]	Major [4/5]	Moderate [3/5]	Moderate [2/5]	Minor [1/5]
High 4	Major [4/5]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor [1/4]
Medium 3	Major [3/5]	Moderate [3/4]	Moderate [3/3]	Minor [2/5]	None [1/3]
Low 2	Moderate [2/5]	Moderate [2/4]	Minor [2/5]	None [3/2]	None [1/2]
Negligible 1	Minor [2/5]	Minor [2/5]	None [3/1]	None [2/1]	None [1/1]

5.4.3. Mapping of significant impacts

The last stage is 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.

During this stage, EAPs probe issues in detail, for example by asking the following questions:

- Which impact is most significant?
- Which impact should be prioritized 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?

5.4.4. Environmental Management Plan and Monitoring & Evaluation Plan

The above questions are very important in the designing 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.

6. LEGAL FRAMEWORK

The Proponents understand the value of the environment and related environmental legislations including the Namibian Environmental Management Act (no. 7 of 2007) and its regulations of 2012. In

this regard the Proponents first would like to conduct a Scoping/EIA study and compile EMP which will be used to support application for ECC (Environmental Clearance Certificate).

6.1. The Namibian Constitution

The Namibian Constitution is the highest legal document in the country. Its relevancy to natural resources management is two-fold, first it is indirectly interpreted in the Bill of Rights (chapter 3, Article 8) and secondly, it is directly interpreted under the Principles of State Policy (chapter 11, Article 95).

Worldwide, the Bill of Rights in any Constitution is very critical as it contains fundamental human rights. Indirectly, article 8 in the Bill of Rights of the Namibian Constitution can be interpreted as protection of human health against environmental degradation (Bill of Rights 1990). Directly, Article 95(l) is interpreted as promotion of human welfare by protecting the environment, ecological function and integrity.

The Namibia Constitution sets a legal foundation for environmental management and sustainable development upon which the following Acts and policies are based.

6.2. Environmental Management Act No. 7 of 2007

The EMA (Environmental Management Act No. 7 of 2007) was endorsed by the head of state in December 2007. This legislation is exclusively dedicated to protect Namibia's precious environment. It is based on 12 Principles, which in summary seek to (NEMA no. 7 2007):

- Promote use of renewable resources to benefit present and future generations;
- Involve community in natural resources management;
- Protect functional integrity of ecological systems;
- Encourage developers to choose options that cause least damage to the environment;
- Undertake impact assessment to mitigate negative impacts and enhance benefits;
- Consider concerns and interests of affected and interested parties in development, and
- Prevent damage to the environment.

6.3. EMA regulations (of 2012)

This legal document guides on how the EMA (no. 7 of 2007) should be implemented. In summary it:

- Lists and describes all activities that require EIAs;
- Explains in details duties of proponents and general requirement of EAPs (Environmental Assessment Practitioners);
- Clarifies the public consultation process in details, which specifically requires:
 - Placements of public notices at public places,
 - Written notices to owners of land, local authority, regional councils or organs of state, and
 - Advertises in 2 local newspapers once a week for 2 consecutive weeks.
- Provide format of the EIA/scoping report which follows after the public consultation process, and
- Guides the application process to obtain the ECC.

6.4. Namibia's Environmental Assessment Policy

Among others, this policy:

- Promotes sustainable development;
- Underscores the need to undertake Environmental Assessments for all policies, programmes and development projects in Namibia;
- Encourages developers to practice "reduction-at-source" in pollution control and waste management;
- Describes the Environmental Assessments process, and
- Emphasizes on the need to incorporate international accepted norms.

7. BASELINE ENVIRONMENT

7.1. Namibia climate in general

Although the project area is found in the savannah and desert transition zone, climatic conditions are more strongly influenced by the Benguela current upwelling system than by the tropical climate. Locally, low air temperature cools the overlying atmosphere, resulting in a stable temperature inversion layer. This layer prevents moist air that originates from the Atlantic Ocean from rising higher and only form fog clouds giving rise to a temperate climate regime (Mann and Lazier, 1996).

Apart from local influence of the cold Benguela current upwelling system, at a large scale the north-eastern part of the project area is a sub-tropical/tropical regime; being influenced by the global ENSO (El Niña Southern Oscillation).

7.1.1. El Niña Southern Oscillation

The global ENSO (El Niña Southern Oscillation) depicts a rise and fall trend expressed as Oceanic Niño Index (ONI) as shown in **figure 7**. In 2008-2010 and 2011-16 the Oceanic Niño Index (ONI) was negative (blue) and positive (red), respectively, and in southern Africa this indicated wetter and drier than normal conditions, respectively. The flood (2007-2010) and drought (2013-16) events that took place during similar periods coincided with negative and positive ONI values, respectively.

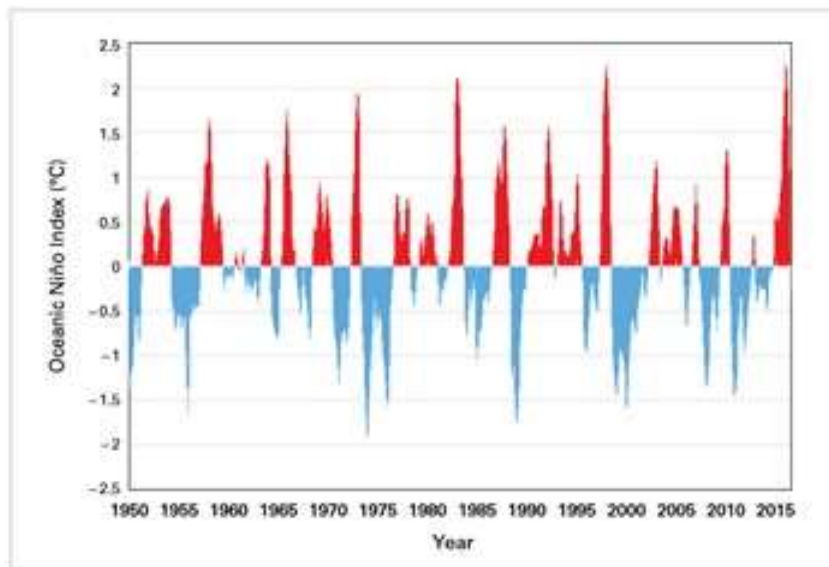


Figure 8: Oceanic Nino index (Source: World Meteorological Organization, 2018).

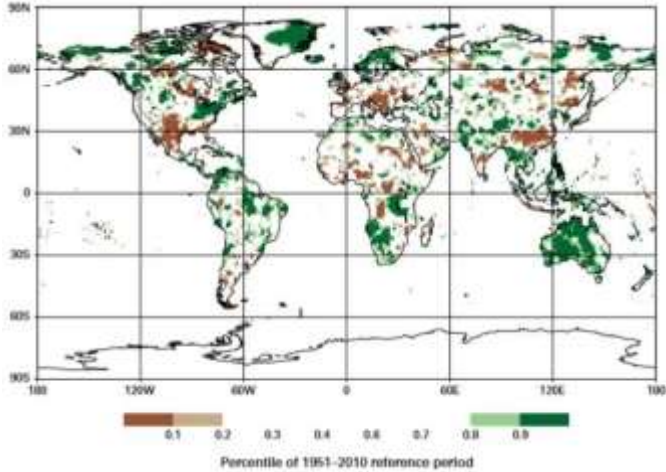


Figure 9: the graph shows yearly total rainfall expressed in percentile with reference to the 1951–2010 time series. Southern Africa is marked in a pale to dark green color, indicating a wetter than normal conditions during the referenced time series for 2011 (Source: World Meteorological Organization, 2018).

Each year, prior to La Niña year, La Niña precursor conditions begins to develop in early October when the ITCZ (intertropical convergence zone) shifts south of the equator. Average temperature anomalies drop significantly to a lowest average and by December, low air pressure system would have fully developed and La Niña conditions could be easily predicted.

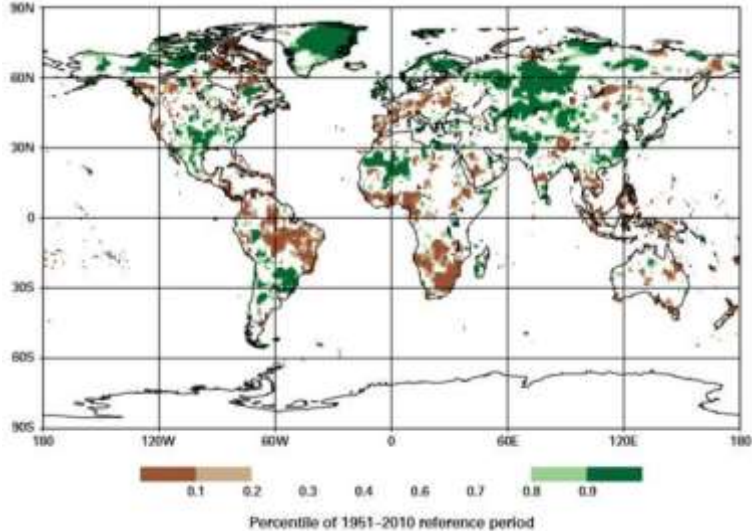


Figure 10: *The graph shows yearly total rainfall expressed in percentile with reference to the 1951–2010 time series (Source: World Meteorological Organization, 2018).*

La Niña conditions cause above average rainfall conditions in southern Africa which spread further across south-west of the southern Africa sub region. In some year record of floods could be observed as early as December in Malawi, Mozambique and Zimbabwe and by mid-January wet conditions would have advanced further south-west of the southern Africa sub region. In contrast, the El Niña conditions causes drought in Namibia and the southern African region.

Ecosystem diversity

Namibia's biomes can be loosely divided into five categories comprised of: coastal/marine, desert, Karoo, Broad-leafed and shrub savannah Acacia savannah, and wetlands savannah (MET, 2010). Ecosystem diversity in the project area is extremely variable and shows larger differences at micro-climate level. These differences are due to influences of the tropical to subtropical conditions from inland and the cold Benguela current upwelling system from the coast.

Seemingly, the project area is found in a transitional zone between at least the savannah and desert biomes. When approaching from the eastern part of the area there is a rapid transition from mopane savannah into gravel plains of the Namib Desert. The most dominating habitats locally are Brandberg Mountain and inselbergs, rocky ridges, Rivers, catchments, gravel plains and sand dunes. Biological diversity and richness in each habitat change with distance from the coast showing that climate plays an extremely important role in community structures of both plants and animals. Brandberg mountain and the surrounding inselbergs are important as a biodiversity 'hotspots' of higher endemism and the biological diversity seem to be independent of local climatic setting.



Figure 11: Biomes in Namibia (MET, 2010).

7.1.2. Desert climate regime

According to long term climatic trend, the project area receives >100 mm rainfall and has up to 5 fog days annually. Rainfall shows a distinct gradient with more rain in the north-eastern areas (up to 150 mm annually) which decreases to as low as 50 mm per year in the south-west of the area. This decrease in rainfall is mainly due to influence of cold Benguela current upwelling current, which is a source of dry cold air masses, with limited precipitate in the form of fog.

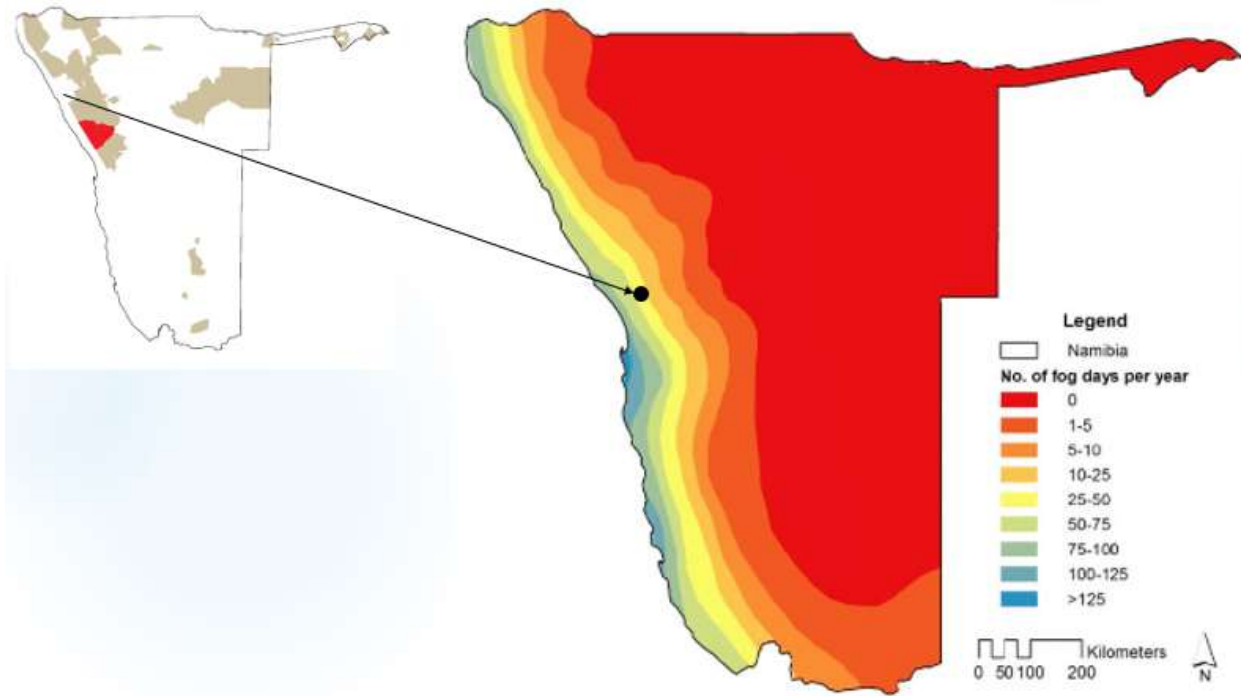


Figure 12: Number of fog days per year (modified from: University of Cologne 2003).

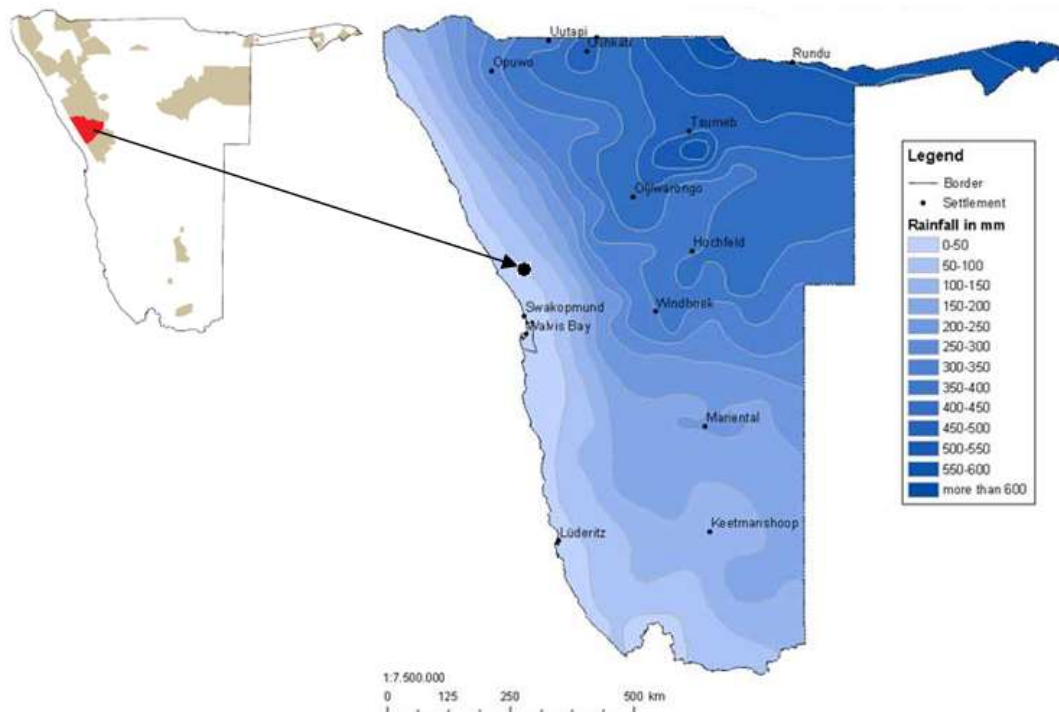


Figure 13: Erongo rainfall data map (modified from: University of Cologne 2003).

7.1.3. Coastal climatic zones

Coastal conditions are characterised by:

- Precipitation in the form of fog.
- Low temperatures.
- Higher humidity, and
- Low evaporation rate.

These conditions predominate throughout the year at the coast and is now a steady macroclimatic force that has been acting on the Namib Desert for millions of years. Macroclimatic forces mean the biome can be subdivided into microclimatic zones. The Namib Desert is plain flat without any elevated landscapes. As such, there are no elevated landscapes to disrupt influence of the cold Benguela current.

The following climatic zones are distinct as one approaches the coast from the east:

- Eastern zone (70-90 km from the coast): 5 fog days.
- Middle zone (50-70 km): up to 25 fog days.
- Cool foggy coastal zone (20-60 km): 50-100 fog days.
- Foggy interior zone (20 km): >125 fog days.

7.2. Flora diversity

A list of plants that occur or are reasonably expected to occur in the project area is provided in appendix A (**table 17 to 19**).

The microclimatic regime is strikingly unique resulting in rare floristic diversity. Locally, endemism is higher, compared to the rest of the central Namib Desert area. There are no exotic species recorded in the area and this extremely critical because the project is expected to increase anthropogenic activities in the project area. Anthropogenic activities are not only associated with introduction of exotic plants but more with local establishment and expansion of exotic species

(Lozon & Maclsaac, 1997). Absence of exotic species recorded in the project area, however, does not necessarily mean that the area is immune to exotic species. There it is important to, during the project life cycle, to prevent growth of exotic species and when this occurs the problem should be mitigated immediately.

7.2.1. Conservation status

This section provides a brief analysis of species diversity in terms of conservation status. The dominating vegetation of shrubs include a wide variety of species, but their IUCN conservation status is either not evaluated or of least conservation concern.

Based on desk studies and literature review there were no alien plant species in the project area. Furthermore, no plant species was endangered, threatened or of any conservation concern. However, project activities will have significant impacts on grass and herbaceous vegetation. More emphasis in this report was give on grass species as discussed in the next section.

Grass is important as food to grazers (e.g., zebras, antelopes, springboks, locusts, etc), small mammals (e.g., rats, hares, etc). Apart from food, grass also provide shelter to other animals such reptiles, amphibians, and birds. The project area is blessed with a wide variety of grasses, many of which are endemic to the area. During construction, removal of grasses and other herbaceous vegetation cover will be inevitable. Grasses and other herbaceous are well adapted to disturbances (removal, cutting, grazing, or burning). Grasses and other herbaceous store reserve nutrients in their roots and culm bases and this allows them to regrow rapidly after disturbances.

7.2.2. Endemism

In the project area, Brandberg Mountain and surrounding inselbergs are the biodiversity 'hotspots' that are perhaps worth considering in this report. Favourable conditions in the Brandberg and its surrounding inselbergs support 66% of Namibian endemic plants (Craven, 1997; Maggs et al., 1998). There are more several endemic plant species namely, herbs (*Nicorella nordenstamii* and *Hermannia merxmulleri*), succulents (*Lithops gracilidelineata brandbergensis*), shrubs (*Pentzia tomentosa*, *Plumbago wissii*, *Ruellia brandbergensis*, and *Felicia guneliae*).

In addition, there are other endemic plants species that may not exclusively occur within the Brandberg mountain habitat but confined within its immediate surroundings and inselbergs.

These include: *Othonna brandbergensis*, *Cucumella clavipetiola*, *Eragrostis aristida*, *Nicotiana Africana* and *Euphorbia monteiroi brandbergensis*.

Endemic species in the project area is a vital sign that necessary precautionary measures will need to be undertaken to ensure that endemic species are protected. Even more important the absence of alien plant species is a good indication of an ecosystem in a pristine or near pristine state. Again, this call for this project monitoring activities to avoid introduction of alien species into the project area to preserve or improve the current conservation state. Environmental awareness to visitors, contractors and employees will most likely be used to achieve this. In addition, when landscaping, care should be taken not to introduce alien plants.

7.3. Fauna diversity

An important feature in the surrounding project area and in the proposed area. Apart from being the highest Mountain in Namibia it is the only highly elevated landscape in the central Namib Desert area. Cold and moist air mass from the cold Benguela upwelling current that reach it is trapped by the mountain and when mixed with the warm air mass they contribute to a unique micro-climate regime in the Brandberg Mountain and surrounding inselbergs. This microclimate which is different from the rest of the central Namib Desert area and is also different from the tropical climate regime inland. It therefore, supports a rare faunal diversity of higher endemism especially reptiles, insects and amphibians.

Higher endemism is higher among fauna species that are less mobile than those with higher mobility. Reptiles and insects show higher endemism rate (both at 24%) than amphibians (12%) and mammals (7%). Lower endemism rates of birds (3%) and fish (2%), are due their higher mobility and this suggest that they tend to be less vulnerable to ecological disturbances. Impact assessment during this project should give a higher priority on less mobile taxa viz. reptiles, insects, amphibians and mammal species of conservation concern as the probability is higher that they will be significantly affected.

Although many reptiles live in rocky habitats where construction and other activities may not take place; it is important to note possible impacts on their feeding and breeding habitats.

7.3.1. Reptiles

Table 20 provides a list of reptiles that occur or are reasonably expected to occur in the project area. Reptiles are of particular concern as they show higher endemism rate (24%). Due to

immobility their distributions are restricted and localised. During construction, habitats of reptiles will be destroyed and this will have significant impacts on their population.

The Brandberg Gecko (*Pachydactylus gaiasensis*) is a medium sized gecko which is only found in the Brandberg Mountain and nowhere else in the world (Griffin 2003). This gecko is however not evaluated in terms of conservation status and this is similar to all other reptiles locally recorded.

Seven reptile species that are strictly endemic to the Brandberg area and are expected to be present in the project area according to literature reviewed. The Albert's burrowing skink (*Pepsina alberti*) is a light, green skink with a bright tail that is found in the northern area of the Tsiseb Conservancy. Other reptile species in the area are the Husaben sand lizard (*Pedioplanis husabensis*), Namaqua spinytail lizard (*Cordylus namaquensis*), Campbell's spinytail lizard (*Cordylus pustulatus*), Albert's skink, and Nama padloper (*Homopus sp.nov*) (Griffin 2003).

There are a lot of lizards scurrying around. They're tricky to photograph since they don't sit still for long, but the colours on some of them were really impressive like for the one in the figure below:

7.3.2. Insects

Generally, insects are important as indicator species mainly due to their short carbon turnover as well as rapid response to pollution, habitat modification and a wide range of other ecological disturbances. Unlike mobile taxa, insects are biogeographically limited and tend to be highly endemic.

Spiders – about 11 species of spiders had been recorded in the Brandberg and inselbergs area, many of which are endemic and only two species occur elsewhere in Namibia. These are: *Aelurillus mirabilis* *Evarcha acuta* *Habrocestrum namibicum* *Heliophanus montanus* *Langona pilosa* *Langona vitiosa* *Pseudicius adustus* *Mashonams brandbergensis* *Pellenes tharinae* *Phlegra karoo* *Phlegra fenelle*.

Scorpions – the only species that is endemic or near endemic locally is the *Brandbergia haringtoni* named after the Mountain. A list of scorpions that occur or are reasonably expected to occur locally is provided in **table 7**.

Table 7: Scorpion diversity.

Scientific names	Common names	Namibian conservation status
<i>Bothriuridae Brandbergia haringtoni</i>	-	-
<i>Parabuthus brevimanus</i>	Sand combs	
<i>Parabuthus gracilis</i>	-	-
<i>Parabuthus granulatus</i>	Granulated thick-tailed scorpion	Endemic
<i>Parabuthus kraepelini</i>	-	Endemic
<i>Parabuthus namibensis</i>	-	Endemic
<i>Parabuthus villosus</i>	Black hairy thick-tailed scorpion	Near endemic
<i>Uroplectes gracilior</i>	Less thick-tailed scorpion	Near endemic
<i>Uroplectes otjimbinguensis</i>	Less thick-tailed scorpion	Near endemic
<i>Uroplectes planimanus</i>	Less thick-tailed scorpion	Near endemic
<i>Hadogenes hahni</i>	-	Near endemic, not evaluated
<i>Opisththalmus carinatus</i>	Robust burrowing scorpion	Near endemic, not evaluated
<i>Opisththalmus coetzei</i>	-	endemic, not evaluated
<i>Opisththalmus gibbericauda</i>	-	Near endemic, not evaluated
<i>Opisththalmus jenseni</i>	-	Near endemic, not evaluated

<i>Opisthophthalmus lamoral</i>	-	endemic, not evaluated
<i>Opisthophthalmus ugabensis</i>	-	Near endemic, not evaluated

7.3.3. Amphibians

A list of species that locally occur or reasonably expected to occur are provided in **table 8**. The special marbled rubber frog (*Phrynomantu annectans*) is found in the Brandberg Mountain and inselbergs. The other frog species are found in the Ugab riverbed. Only two amphibian species are known to be endemic to the project area namely, the Okahandja toad (*Bufo hoeschi*) and the Mossamedes toad (*B. grandsonae*) (Griffin 2003).

During the dry season frogs dig themselves into the substratum below the pools and could be vulnerable to any activities that reduce the water levels for longer periods than their tolerance limit. In addition, activities during construction are expected to destroy breeding and feeding habitats of frogs.

Table 8: Amphibian diversity

Species Name	Common name	Namibian conservation and legal status
<i>Phrynomantus annectan</i>	Marbled rubber frog/ Okahandja toad	Endemic, secure
<i>Bufo hoeschi</i>	Damara dwarf toad:	Endemic, secure
<i>Bufo grandisonae</i>	Mossamedes toad	Endemic, secure
<i>Tomopterna cryptotis</i>	Sand frog	not endemic, secure

7.3.4. Mammals

A list of the mammals that occur or are reasonably expected to occur in the area is presented in appendix B. The data provided in appendix A. (**table 21**) is for the general north-western area of Namibia, of which the project area is a small part of and therefore it is a general representation of the project area. This means it is possible that not all mammals presented in **table 21** may be found in the project area.

Many mammals are endemic locally, especially small mammals which are less mobile when compared to large mammals. Mammals are ecologically important as grazers, browsers and predators. They control populations of plants and other animals in the ecosystem. Mammals also have an intrinsic value that significantly contribute to tourism. Negative impacts on mammal populations include poaching and risks of climate. Poaching was a serious threat between the 1980s and early 1990s and accounted for a greater loss of mammal diversity. The situation had been improving since the early 2000s due to implementation of the CBNRM concept; resulting in stable or growing population trends for most species between 2003 and 2012. Unfortunately, the risks of climate particularly longer drought spells contributed to a steady decline in populations of many mammals.

Successes of the above interventions are difficult to observe due to risks of climate experienced over the years, for example the drought spells between 2013 and 2019 resulted in loss or shifts of mammals away from drought prone areas. However, when years of drought are excluded in the analysis there is a clear increasing trend in mammal populations between 2003 and 2010 as compared to a steady decline in mammal populations.

Generally, mammals are highly mobile species with a wider habitat range and based on this they are less vulnerable to these project's activities.



Figure 16: Mighty hyrax (Source: thirstyjourneys.com)

7.3.5. Birds

The Brandberg inselbergs and the Ugab River are home to a number of bird species. The flat plains below the Brandberg Mountain are home to about five bird species including the *Ardeotis kori* (Kori bustard) which is the largest flying bird native to southern Africa. Some species that are near endemic to Namibia are found in the gorges and valleys around the Brandberg Mountain such as the *Francolinus Hartlaub* and *Agapornis roseicollis* (Bernard 1998).

Birds are highly mobile species with a wider habitat range and based on this they are less vulnerable to this project's activities.

Table 9: Avian diversity that occur or expected to occur in the surrounding project area.

Common names	Scientific name	Namibian conservation and legal status
Southern Pale Chanting Goshawk	<i>Melierax canorus</i>	Common resident. Near-endemic. Least concern.
Common Kestrel	<i>Falco tinnunculus</i>	Least concern
Kori bustard	<i>Ardeotis kori</i>	Near threatened

Ludwigs bustard	<i>Nestis ludwigii</i>	Endangered
Ruppell's korhaan	<i>Eupodotis rueppelli</i>	Least concern
Double- banded courser	<i>Rhinoptilus africanus</i>	Least concern
Grays lark	<i>Ammomanopsis gray</i>	Least concern
Starks lark	<i>Eremalauda starki</i>	Least concern

Other development characteristics in the region are summarized below (NSA, 2014):

- Education.** At constituency level, the highest proportion of the population aged 0-4 years old who attend ECD programmes are in Swakopmund (30.8%) and Walvis Bay urban (27.8%). Karibib (14.5%) and Dâures (10%) constituencies rank the lowest. Literacy rates for the population above 15 years is low in rural areas in Dâures (65.8%), Karibib (70.9%) and Omaruru (91.6%). Labour force is low in many parts of the region but more in rural areas (70.4%), specifically in the Dâures constituency (65.8%).
- Impacts of climate change and other externalities.** Climatic factors limit agriculture, and the effects are more on small holder farmers in rural areas. Livestock farming depends heavily on the rainy season, with the average rainfall varying from below 100 mm in the far west to about 300 mm in the far eastern part of the region. Higher annual average temperatures contribute to surface water loss due to evaporation. With proximity to the Atlantic Ocean underground freshwater sources are susceptible to contamination by seawater and this effect could be exacerbated by sea level rising, which is again linked to climate change. These difficult climatic conditions are expected to increase due to climate change and variability. In the last 3-4 years (2018-2021) Namibia experienced a period of extremely low rainfall. This was followed by economic downturn which negatively affected the major economic sectors such mining and fishing in Erongo region in general. However, despite these shocks the tourism sector has remained relatively resilient. This is perhaps more because depreciation of the Namibian dollar against the global currencies is in favor of international tourists as they find it cheaper to travel in Namibia.

8. BRANBERG MOUNTAIN NATIONAL MONUMENT

8.1. Description

The Brandberg mountain is a National Monument that is situated approximately 30 km north west 21°10' S and 14°25' E of the small town of Uis and it is the highest mountain in Namibia. The Brandberg Mountain stands out as an imposing feature in flat gravel plains of the central Namib Desert as a large, almost circular inselbergs that is visible from space since it rises more than 1800 m above the surrounding plains and its highest peak is 2573 m. The Brandberg Mountain as a National Monument in Namibia has an exceptionally rich palaeo-archaeological heritage with a high concentration of prehistoric rock arts that are more than 43 000 paintings and 900 sites. The two genres of rock art which are engravings and paintings are found in close association in the Brandberg and more than 120 archaeological sites have been recorded. The Brandberg is home to the famous rock art painting, the "White Lady" as well as other numerous paintings of exceptional quality. The mountain forms part of numerous destinations along prehistoric migration routes of people who migrated seasonally between the coast and the interior. Excavations revealed intensive and repeated human occupation on the higher elevations of the Brandberg Mountain from about five thousand years ago. Adequate water and shelter may have served as aggregation areas for otherwise dispersed groups of hunter-gatherers or herders at the onset of increased aridity in the region at that time. Increased social ritual activity associated with human aggregation probably resulted in the accumulation of rock art, and thus the rock art is evidence of an intricate social and environmental fabric (Namibia National Commission for UNESCO, 2002).

8.2. Geological formation

According to the Namibia National Commission for UNESCO, 2002, the Brandberg was clearly an important focus of culture and socio-economic activity for the indigenous people of Namibia. The Brandberg is one of a series of ring complexes of the Etendeka volcanic succession which intruded into the surrounding bedrock of the current Namib peneplain, composed of mica schists of the Damara sequence and sedimentary rocks of the Karoo sequence, at the breakup of western Gondwanaland into the African and South American continents more than 130 million years ago. The Brandberg Mountain itself is composed of a circular series of granitic intrusions which marks the remains of an enormous volcano which was reduced by a hundred million years of erosion following the establishment of the South Atlantic Ocean and uplift associated with the new continental margins.

8.3. Ecological importance

Ecologically, the Brandberg lies in the transition zone between the Namib Desert and the Savannah regions of the central Namibian interior. Its close proximity to a coast with almost permanent high-pressure conditions causes weather fronts, originating from the South Atlantic anticyclone, to sweep much further during the austral winter, resulting in the climatically unique occurrence of winter rainfall within the tropical zone on the high plateau of the Brandberg. As a result, the site is endowed with a rich biological diversity which represent 40% of the mammal and reptile species and 10% of plant species recorded from Namibia. The 480 vascular plant species include 7 species endemic to the Brandberg and another 100 species endemic to Namibia. Furthermore, the fauna includes 82 species of mammals, 128 species of birds, 86 species of reptiles, 5 species of amphibians, at least 89 species of spiders, and more than 2000 species of insects. More than 50% of the mammal, reptile, and amphibian species are endemic to Namibia, while more than 200 endemic insect species have been recorded from the Brandberg alone. Endemic animal species to the Brandberg included a new order of insect to the world, as well as a new tribe of insect to Africa, which illustrates the ecological importance and uniqueness of the site. The Brandberg is a gazetted national monument with an area of more than 450 square kilometres. The local community still exploits the rich resources of the area and thus derives a living from it. Community participation in the managing of the site is in place as the local population organized themselves into a community-based tourism project (Namibia National Commission for UNESCO, 2002).

8.4. Rock paintings

The rock art in the Brandberg National Monument Area of Namibia is astonishing. The Brandberg has a high concentration of prehistoric rock arts. There are about 900 sites featuring over 43,000 paintings and engravings. It is commonly known this rock art was painted by Bushmen about 2,000 years ago. The most noticeable rock art is the White Lady rock painting which is located on a rock face with other art work in the Tsiseb Ravine at the foot of the mountain. The ravine contains more than 1,000 rock shelters, as well as more than 45 000 rock paintings.



Figure 17: A zebra painting (Source: thirstyjourneys.com)



Figure 18: A herd of cattle and a calf painting. (Source: thirstyjourneys.com)

Some of the paintings may go as far back as 5,000 years. These are monochromatic, using shades of red and brown. The polychromatic paintings, such as that of the White Lady, are more recent, around 2,000 years old. There's a lot to explore in the Brandberg, and it's definitely a

worthwhile excursion. The rock art is just one draw, as the unique landscape is also enjoyable on its own.

8.5. Heritage significance

A historic site or heritage site is an official location where pieces of political, military, cultural, or social history have been preserved due to their cultural heritage value. Historic sites are usually protected by law, and many have been recognized with the official national historic site status. Heritage sites are recognized as being of outstanding international importance and therefore as deserving special protection. Sites are nominated to and designated by the World Heritage Convention.

The Brandberg National Monument Area was added to the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Tentative List on October 2002 in the Mixed Cultural as well as Natural categories.

Although the proposed development is far from the Brandberg Mountain, during construction and operation a representative from the National Heritage Council of Namibia will be needed to observe and ensure that proposed activities will not affect rock and the heritage sites.

9. PUBLIC PARTICIPATION PROCESS

As provided in the EMA (no. 7 of 2007) the public participation process forms a critical component of any EIA process and for this project this stage was important in completing this EIA/Scoping report.

9.1. Public notices

Notices were placed in 2 (two) local newspapers, namely *The Villager* and *Namib Times* newspapers once a week for 2 consecutive weeks on 08 September 2023 and 15 September 2023.

9.2. Public invitations

The following institutions and organizations were specifically invited to participate in the public participation process:

Damara Traditional Authority,

Sorri-Sorris Communal Conservancies,

Tsiseb Communal Conservancy,

White Lady Lodge, and

National Heritage Council.

9.3. Public meetings and consent letters

The public meeting were held as follow:

- Uis (**17 November 2023**) at Uis town community hall,
- Anixab (**18 November 2023**) at Anixab community hall, and
- Sorri-Sorris (**28 November 2023**) at Sorri-Sorris Communal Conservancy's office

Consent letters were obtained as follows:

- Damara Traditional Authority, and
- Sorri Sorris Communal Conservancy.

10. ENVIRONMENTAL IMPACT ASSESSMENT

10.1. Impacts prediction

This chapter predicts, determines, and assess impacts of the proposed activities on the environment. Mapping the receiving environment entails classification into various environmental resources that will be affected. Additionally, the environmental resources are subdivided into various environmental components which are well known as VECs (valued environmental components).

Impacts are listed in **table 10** and according to this, each activity will have a few impacts on the receiving environment. The increased level of noise as well as dust and gaseous emissions are 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 localized, they will still need to be mitigated and monitored throughout this project cycle.

10.2. Mapping of significant impacts

During impact assessment the following impacts came out quite strong:

Positive impacts:

- The construction and operation of the lodge and tourism facilities will stimulate economic growth in the Kunene and Erongo Regions by creating jobs, supporting local businesses, and increasing tourism-related revenue.
- The construction of lodge facilities may lead to improved infrastructure, such as roads and utilities, benefiting both tourists and local residents.
- The project can fund and support conservation initiatives, including wildlife protection and habitat restoration.

Negative impacts and mitigation measures:

- The construction and operation of tourism facilities may disrupt local ecosystems and wildlife habitats.

Mitigation Measures: Conduct thorough environmental impact assessments and implement habitat restoration and protection measures. Implement sustainable land-use planning to minimize ecological disturbance.

- Increased water usage by the lodge and tourists may strain local water resources in this arid region.

Mitigation Measures: Implement water-efficient technologies, such as rainwater harvesting and wastewater treatment systems. Promote water conservation practices among guests and staff.

- Tourism-related waste generation, including plastic waste, can harm the environment if not properly managed.

Mitigation Measures: Implement a comprehensive waste management program, including recycling and waste reduction strategies. Encourage responsible waste disposal among guests and staff.

- Increased tourist traffic and noise levels can disturb local ecosystems and disrupt the tranquillity of the area.

Mitigation Measures: Implement traffic management plans, designate quiet zones, and enforce noise restrictions to minimize disturbances to wildlife and local communities.

Table 10: Prediction of impacts and their effects on VECs.

Activity	Description	Receiving environment or VECs
<p>Site selection and clearing</p>	<p>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.</p> <p>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.</p>	<p>Air and climate: dust maybe localised and temporary reduction in air quality may be a result of dust and particulate generation.</p> <p>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.</p> <p>Ecology and biodiversity: herbaceous destroyed such as grass, bush or shrubs during these activities 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,</p>

		<p>amphibians and small mammals and monitor them during all phases of the project.</p> <p>Human environment: employees may suffer from dust and exhaust emissions, and it is important that personal protective gear is provided for safety reasons.</p>
Cutting of trees	<p>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.</p>	<p>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.</p> <p>Land: soil and wind erosion, deforestation and land degradation may result as trees are removed.</p>

		<p>Human environment: reduced ecosystem services provided by trees.</p>
<p>Construction of access roads, excavation backfill and compaction for utilities</p>	<p>This activity will lead to temporary air borne transport of particulate (increased dust).</p> <p>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.</p> <p>Increased concentration of these gases depends on the content of fuel used and emissions from engines could be</p>	<p>Air and climate: dust will be temporary but a definite environmental impact. This could be reduced by watering the ground or road surfaces.</p> <p>Land: impacts on landforms 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.</p> <p>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 use of this resource. Where possible and</p>

	<p>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</p>	<p>necessary use of saline water will be encouraged (e.g. for cleaning, watering roads, etc).</p> <p>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.</p> <p>Artefacts, archaeological high value components:</p> <p>Destruction or affecting paleontological and archaeological artefacts</p>
Waste generation	<p>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 constructions waste consist of bricks, concrete and wood.</p>	<p>Land: littering.</p> <p>Water: leaching.</p>
Testing, installation, and commissioning	<p>It will be necessary to run tests before commission to ensure functioning of facilities. This will reduce accidents and increase safety. The final activities are clean up and make the facilities ready for use by consumers in this case tourists.</p>	<p>Air and climate: dust and exhaust will be definite but for a short period.</p> <p>Human environment: noise will also be minimal and short-lived.</p>

Borehole operation and maintenance	Operation of the freshwater intake may negatively affect several VECs.	Appropriate pipe design (for water intake) should eliminate/reduce associated impacts.
Waste generation	<p>Solid waste and liquid waste have 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, to scavenge on the solid or liquid waste if it is not disposed of in the correct manner.</p> <p>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.</p>	<p>Land: littering and aesthetics pollution.</p> <p>Water: contamination of surface and underground water resources.</p>
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	Air and climate: there is no electricity at the project site thus operation may opt to use of generators. This option in the long run will increase emissions of

	<p>supply using powerlines have negative environmental impacts on VECs.</p>	<p>Sulphur dioxide, nitrogen oxides, Carbon dioxides, and Carbon monoxide.</p> <p>Ecology and biodiversity: when in excess concentration gaseous emissions could negatively affect flora diversity by damaging foliage and inhibit vegetation growth.</p> <p>Therefore, the option to use solar as already used at the Brandberg White Lady Lodge will be an environmentally friendly option.</p>
<p>Purchase of supplies, deliveries, and transportation</p>	<p>The project site 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.</p>	<p>Ecology and biodiversity: during transportation of supplies, accidents (non-routine) could occur and cause animal deaths, especially of concern are reptile, Amphibian, small mammals, and birds. Though this will not be common, with increased traffic this has the potential to increase.</p> <p>Human environment: local sourcing of supplies, deliveries and transportation could increase economic activities associated for locals.</p>

<p>Tourism and hospitality</p>	<p>Currently, locals 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.</p>	<p>Air: dust and gaseous emission by or from vehicles carrying or used by tourists.</p> <p>Land: littering.</p> <p>Ecology and biodiversity: effects of dust and gaseous emissions on biodiversity.</p> <p>Human and environment: effects of noise, dust and gaseous emissions public health.</p>
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Table 11: Sensitivity of environmental resources.

IMPACTS	CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT																
	i. Air quality	ii. Soil	iii. Grazing land	iv. Water quality	v. Land scenery	vi. Aves	vii. Amphibians	viii. Anthropoda	ix. Fish	x. Small mammals	xi. Large mammals	xii. Reptiles	xiii. Grasses	xiv. Shrubs and bushes	xv. Trees	xvi. Palaeo-rchaeological rock paintings	xvii. Heritage sites	xviii. Tourism sector	xix. Food production	xx. Human welfare												
	<table border="1"> <thead> <tr> <th colspan="2">SENSITIVITY RATING</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Negligible</td> </tr> <tr> <td>2</td> <td>Low</td> </tr> <tr> <td>3</td> <td>Medium</td> </tr> <tr> <td>4</td> <td>High</td> </tr> <tr> <td>5</td> <td>Very high</td> </tr> </tbody> </table>																				SENSITIVITY RATING		1	Negligible	2	Low	3	Medium	4	High	5	Very high
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2. Noise from construction																																

3. Release of GHGs from fuel combustion	Green	Light Green	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Grey
4. Exclusion from grazing land	Grey	Grey	Green	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Grey
5. Water contamination	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
6. Waste pollution	Grey	Green	Grey	Green	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Brown	Brown	Grey	Grey	Grey
7. Removal of grasses	Grey	Grey	Green	Green	Grey	Grey	Grey	Grey	Grey	Green	Grey	Grey	Grey	Grey	Grey	Grey	Green	Grey	Grey
8. Habitat modification	Grey	Grey	Grey	Grey	Green	Green	Green	Grey	Green	Green	Green	Green	Green	Grey	Grey	Grey	Grey	Grey	Grey
9. Loss of endangered or protected species	Grey	Grey	Grey	Grey	Green	Green	Green	Green	Green	Green	Green	Green	Green	Grey	Grey	Grey	Grey	Grey	Grey
10. Accident road kills by vehicles	Grey	Grey	Grey	Grey	Green	Green	Green	Green	Green	Green	Green	Green	Green	Grey	Grey	Grey	Grey	Grey	Grey
11. Disturbance of holy sites	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Green	Grey	Grey	Grey	Grey
12. Traffic and safety	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Grey	Green	Grey

Table 12: Magnitude.

IMPACTS	CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT																
	i. Air quality	ii. Soil	iii. Grazing land	iv. Water quality	v. Land scenery	vi. Aves	vii. Amphibians	viii. Anthropoda	ix. Fish	x. Small mammals	xi. Large mammals	xii. Reptiles	xiii. Grasses	xiv. Shrubs and bushed	xv. Trees	xvi. Palaeo-rchaeological	xvii. Heritage sites	xviii. Tourism sector	xix. Food production	xx. Human welfare												
<table border="1"> <tr> <td>0</td> <td>No observable impact</td> </tr> <tr> <td>1</td> <td>Low impact</td> </tr> <tr> <td>2</td> <td>Tolerable impact</td> </tr> <tr> <td>3</td> <td>Medium high impact</td> </tr> <tr> <td>4</td> <td>High impact</td> </tr> <tr> <td>5</td> <td>Very high impact</td> </tr> </table>	0	No observable impact	1	Low impact	2	Tolerable impact	3	Medium high impact	4	High impact	5	Very high impact																				
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11. Disturbance of holy sites																				
12. Limited access to holy sites																				
13. Traffic and safety																				

Table 13: Duration.

IMPACTS	CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT					
	T P	Air quality	Soil	Grazing land	Water quality	Land scenery	Aves	Amphibians	Anthropoda	Fish	Small mammals	Large	Reptiles	Grasses	Shrubs and	Trees	Palaeo-	Heritage sites	Tourism sector	Food	Human welfare
1. Dust																					
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Table 14: Geographical coverage.

IMPACTS		CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT					
		i. Air quality	ii. Soil	iii. Grazing land	iv. Water quality	v. Land scenery	vi. Aves	vii. Amphibians	viii. Anthropoda	ix. Fish	x. Small mammals	xi. Large mammals	xii. Reptiles	xiii. Grasses	xiv. Shrubs and bushed	xv. Trees	xvi. Palaeo-rchaeological rock	xvii. Heritage sites	xviii. Tourism sector	xix. Food production	xx. Human welfare	
L	Localized impacts or limited to location																					
O	Impact of importance to municipality																					
R	Regional impacts																					
N	National impact																					
I	International																					
1.	Dust from construction																					
2.	Noise from construction																					
3.	Release of GHGs from fuel combustion																					
4.	Exclusion from grazing land																					
5.	Water contamination																					

Table 15: Probability.

IMPACTS	CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT													
	i. Air quality	ii. Soil	iii. Grazing land	iv. Water quality	v. Land scenery	vi. Aves	vii. Amphibians	viii. Anthropoda	ix. Fish	x. Small mammals	xi. Large mammals	xii. Reptiles	xiii. Grasses	xiv. Shrubs and bushed	xv. Trees	xvi. Palaeo-rchaeological rock	xvii. Heritage sites	xviii. Tourism sector	xix. Food production	xx. Human welfare									
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1. Dust from construction																													
2. Noise from construction																													
3. Release of GHGs from fuel combustion																													
4. Exclusion from grazing land																													
5. Water contamination																													

Table 16: Significance.

IMPACTS	CLIMATE, LAND AND WATER RESOURCES					BIODIVERSITY RESOURCES										HUMAN ENVIRONMENT													
	i. Air quality	ii. Soil	iii. Grazing land	iv. Water quality	v. Land scenery	vi. Aves	vii. Amphibians	viii. Anthropoda	ix. Fish	x. Small mammals	xi. Large mammals	xii. Reptiles	xiii. Grasses	xiv. Shrubs and trees	xv. Trees	xvi. Palaeo-archaeological sites	xvii. Heritage sites	xviii. Tourism sector	xix. Food production	xx. Human welfare									
<table border="1"> <tr> <td>Major 5/5</td> <td style="background-color: red;"></td> </tr> <tr> <td>Moderate 4/5</td> <td style="background-color: brown;"></td> </tr> <tr> <td>Minor 2/5</td> <td style="background-color: lightgreen;"></td> </tr> <tr> <td>None 1/1</td> <td style="background-color: green;"></td> </tr> </table>	Major 5/5		Moderate 4/5		Minor 2/5		None 1/1																						
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11. CONCLUSIONS AND RECOMMENDATIONS

The Environmental Impact Assessment (EIA) for the Construction and Operation of a Lodge and associated facilities in Kunene has yielded several key conclusions. The assessment has identified potential environmental impacts associated with the project, including changes in local ecosystems, water resources, air quality, and noise levels. These impacts, while manageable, require careful planning and mitigation measures to minimize adverse effects. The project is expected to have socio-cultural implications, including increased tourism-related activities and potential changes in local communities' ways of life. It is crucial to engage with and address the concerns of local stakeholders to ensure that the project benefits both the tourism industry and the communities it affects. Considering the proposed site's past and present uses, it was cautioned at public meetings, residents would like to continue to use the area without much restrictions in movement. Delimitations such as fencing off lodge facilities will be limited to only when extremely necessary.

The lodge and tourism facilities are anticipated to bring economic benefits to the region, including job creation, increased revenue for local businesses, and opportunities for entrepreneurship. These economic benefits can contribute to the sustainable development of the Kunene and Erongo Regions. The project's commitment to sustainable tourism practices, including responsible resource management, waste reduction, and community involvement, is commendable. These practices align with international and national sustainability goals.

Therefore, based on the above, the ECC should be granted on the 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, and
- Monitoring of noise, waste, biodiversity and livelihood of local residents should be conducted during the operation phase.

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APPENDIX A – FLORA DIVERSITY

Table 17: Trees.

Species Name	Namibian conservation and legal status	Brief notes on species	Reference
<i>Vachelia erioloba</i>	Widespread, not a concern.	Also well known as <i>Acacia erioloba</i> or camel tree is common in southern Africa tree. In the project area, these plant are common along the River bank. Very common in the project area.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Acacia montis-usti</i>	Namibian endemic, near threatened.	Locally known as Brandberg acacia as it occur only in the Brandberg mountain and inselbergs area. Preferred habitats in the rocky hills and rocky outcrops. In the general project area a health population has been reported.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Faidherbia albida</i>	Widespread, not a concern.	See also <i>Acacia albeida</i> . Locally known as Anaboom or wither-thorn. Mostly found in river systems and sometimes gravel plains. Common in nort-western and central-western.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).

<i>Dombeya rotundifolia</i>	Namibian, endemic and least concern.	Semi-deciduous shrub or multi-stemmed tree. Occurs in hill slopes, outcrops and plains.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Rhus marlothii</i>	Namibian, endemic. Conservation concern not recorded.	Shrub often grow under other trees. Distribution in the north west and north-east, mainly in hill slopes, rivers and plains. Roots are of medicinal value.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Ozoroa crassinervia</i>	Namibian, endemic	Attractive, drought-tolerant deciduous tree which is near-endemic.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Olea europaea subspecies Africana</i>	Namibian, endemic	Shrub or tree with termite resistant wood. Found in plain and rivers. Scattered all over Namibia.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Tamarix usneoides</i>	Widespread, not evaluated.	Generally found in many river systems in the Namib and north-west. Very common in the Deserts, water efficient and form dense thickets. It is common in the Namib central Desert. It is named after a suburb (Tamarikia) in Swakomund. Very poor combustion	Mendelsohn, Jarvis, Roberts, & Robertson (2003).

		properties and could be used to prevent further spread of fire.	
<i>Salvadora persica</i>		Dominant in the sandy plains and in many river systems in the north-west but has been recorded in the Swakop river as well. Local name (in Damara) is 'Xoris' and associated with the name the Khorixas. In the project area this plant dominates with a plant cover of approximately 30% in the sandy terrain or riverbed and 25% in the rocky terrain.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Moringa ovalifolia</i>	Widespread, potentially threatened.	Locally known as Moringa or Srokiesboom. Generally widespread in western Namibia. Grow mainly in the hills slopes and outcrops.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Cyphostemma currorii</i>	Namibian, endemic. Potentially threatened.	Deciduous tree with large succulent trunk. Found in hillslopes and outcrops.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).

Table 18: bushes and shrubs.

Species Name	Namibian conservation and legal status	Remarks	Reference
<i>Acanthosicyos horridus</i>	Namibian, endemic. Least concern.	Commonly known as! Nara. Scattered localities within the Namib Desert. Occur on dunes and in dry river beds.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Petalidium englerianum</i>	Namibian. Near-endemic	Savanna, bushveld. Perennial.	www.biodiversity.org.na
<i>Petalidium luteo-album</i>	Namibian, endemic	Savanna, bushveld. Perennial.	www.biodiversity.org.na
<i>Barleria damarensis</i>	Namibian, endemic. Not evaluated.	Tree or large woody shrub.	www.biodiversity.org.na
<i>Montinia caryophyllacea</i>	Widespread.	Also known as wild clove bush. Widespread over north-western and central Namibia mainly occupying hill slopes, outcrops and rivers.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Sesomothamnus spp.</i>	Endemic.	Semi-deciduous shrub. Widespread over north-western and central Namibia. Occurring in hill slopes, plains and rivers.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Salvadora persica</i>	Widespread.	Dominant in the sandy plains and in many river systems in the north-west but has been recorded in the Swakop River. Local name (in Damara) is 'Xoris' and associated with a local town name	Mendelsohn, Jarvis, Roberts, & Robertson (2003).

		Khorixas. Used to strengthen gums and prevent tooth decay.	
<i>Euphobia avasmontana</i>	Namibian, near endemic	Cactus-like succulent plant. Fairly widespread throughout Namibia. Hillslopes and outcrops.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Euphobia damarana</i>	Namibian, endemic. Listed in the CITES appendix II.	Widespread in the central to north-western Namib Desert. Hill slopes and plains.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Euphobia guerichiana</i>	Southern Africa, endemic. Listed in the CITES appendix II.	Deciduous shrub or tree. North-west and central Namibia. Occur in the hillslopes.	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Euphobia monteiroi</i> <i>subspecies</i> <i>brandbergensis</i>	Namibian, endemic. Listed in the CITES appendix II.	Savannah bushveld.	www.biodiversity.org.na
<i>Euphobia monteiroi</i> sub. <i>monteiroi</i>	Southern Africa, listed in the CITES appendix II.	Savannah bushveld, succulent and perennial plant. Found mainly on sandy soils in the wild	www.biodiversity.org.na
<i>Euphobia namibiensis</i>	Namibian, near endemic, listed in the CITES appendix II.	Small woody shrub. Found in sparse cover desert, calcrete, gentle slope in full sun, and in sand	www.biodiversity.org.na

<i>Euphobia peplus</i>	Wide spread	Wide spread in Europe, northern Africa, and western Asia, an erect, annual plant growing in vegetable gardens, heap of earth, wasteland, and loading areas	Mendelsohn, Jarvis, Roberts, & Robertson (2003).
<i>Euphobia phylloclade</i>	Namibian, near endemic, listed in the CITES appendix II.	Terrestrial desert plant and perennial woody shrub, in the central-Namibia	www.biodiversity.org.na
<i>Euphobia stapelioides</i>	Namibian, near endemic. Listed in the CITES appendix II.	Terrestrial, succulent and perennial small woody shrub.	www.biodiversity.org.na
<i>Ricinus communis</i>	Namibian, near endemic. Listed in the CITES appendix II.	Soft woody shrub or small tree. Perennial plant. Widespread in Northern Namibia	Mendelsohn, Jarvis, Roberts, & Robertson T. (2003).

Table 19: Grasses species that occur or are reasonably expected to occur locally.

	Namibian conservation and legal status	Notes	Reference
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Species Name			
<i>Sporobolus virginicus.</i>	Endemic	Mat-forming perennial, grow well on dunes, beaches and tidal streams, as well as on sand.	van Wyk and van Oudtshroon (2012)
<i>Enneapogon scaber</i>	Endemic	A short, densely tufted perennial grass with hairy leaves and culms. Grows on rock outcrops, usually between rocks.	van Wyk and van Oudtshroon (2012)
<i>Cymbopogon pospischilii</i>	Endemic	Grows in open patches and I heavier soils in bushveld regions. The leaves are narrow and often blue-green colour.is distributed in southern Africa.	van Wyk and van Oudtshroon (2012)
<i>Fingerhuthia Africana</i>	Endemic	A perennial tufted grass with unbranched culms. Spikelet are prominently flattened with two curved awns on the side. It grows well in gravelly soil, and found in warm sunny places.	van Wyk and van Oudtshroon (2012)
<i>Enneapogon desvauxii</i>	Endemic	A short, densely tufted annual or short-lived perennial grass with a ring of hairs around the nodes. Leaves are usually short and rolled and culms are knee-like bent. Usually grows in shallow water in overgrazed veld.	van Wyk and van Oudtshroon (2012)

<i>Aristida congesta</i> subsp, <i>congesta</i>	Endemic	A short-lived perennial tufted grass with long white hairs present where the leaf blade and leaf sheath join. Associated with disturbed soil, but mostly in loam soil.	van Wyk and van Oudtshroon (2012)
<i>Polypogon monspeliensis</i>	Endemic	A sparse tufted annual grass, sometimes with creeping culms. Inflorescence is attractive, dense and silver-green panicle. Spikelets are exceptionally small and abundant with two long, thin awns. Grows in disturbed soil and saline soil.	van Wyk and van Oudtshroon (2012)
<i>Centropodia glauca</i>	Endemic	A perennial tufted grass with shrub-like growth form. The culms are brittle and break easily and spikelet have papery glume. Grows mainly in deep sandy and gravelly soil.	van Wyk and van Oudtshroon (2012)
<i>Setaria verticillata</i>	Endemic	A soft, annual, tufted grass with loose culms. The inflorescence has numerous barbs on the bristles that stick to clothes and the leaf blade is open, soft and covered with velvety hairs. It grows under trees in damp fertile soil.	van Wyk and van Oudtshroon (2012)
<i>Stipagrostis namaquensis</i>	Endemic	A hard, shrub-like tufted grass with stolons and rhizomes. It has hard needle-like leaves and forms cluster of leaves at the nodes. The spikelets are	van Wyk and van Oudtshroon (2012)

		yellowish. Usually grows in dry riverbeds and along roadsides.	
<i>Enneapogon cenchroides</i>	Endemic	A perennial tufted grass with dense shrub-like growth form and have narrow and rolled leaves.	van Wyk and van Oudtshroon (2012)
<i>Tricholaena monachne</i>	Endemic	A sparsely tufted perennial grass, usually with slanted culms. Culms are mostly branched, with knee-like bent nodes. Spikelets are hairless and usually have purple-blue tint and have long thin stalks. Usually grows in disturbed soil and mainly occurs in bushveld and in grassland regions.	van Wyk and van Oudtshroon (2012)
<i>Melinis repens</i>	Endemic	A short lived, perennial tufted grass with attractive hairy inflorescences and velvety hairy nodes. Spikelets fade from red to white as they mature. It grows mainly in disturbed soil.	van Wyk and van Oudtshroon (2012)
<i>Eragrostis cilianensis</i>	Endemic	A sparse, annual, tufted grass with slanting culms and usually knee-like bent nodes. The culms are branched from the lower nodes and spikelets are grey-green. It grows in disturbed soils and occurs in gardens and cultivated lands.	van Wyk and van Oudtshroon (2012)
<i>Eragrostis lehmanniana</i>	Endemic	A tufted grass with the culms often branched and strongly knee-like bent nodes. The lower leaves are	van Wyk and van Oudtshroon (2012)

		peppery and straw-coloured. It grows in disturbed soil and in undisturbed sandveld in arid region. occurs in bushveld and karoo regions.	
<i>Sporobolus festivus</i>	Endemic	An attractive, delicate and reasonably dense tufted grass. Inflorescence is multi-branched fine open panicle and reddish in colour. Basal leaf sheaths breaks up into fibres. Grows in poorly drained and rocky places. Occurs in bushveld, grassland and karoo regions.	van Wyk and van Oudtshroon (2012)
<i>Stipagrostis hirtigluma</i>	Endemic	A dense, perennial or annual tufted grass with rolled and stiff leaves, mostly at the base. Culms are mostly branched. Have long, feathered awns spikelets with shades of purple. Grows in dry, warm parts and on rocky outcrops. Occurs in bushveld, karoo and desert regions.	van Wyk and van Oudtshroon (2012)
<i>Stipagrostis uniplumis</i>	Endemic	A tufted perennial grass with numerous hard culms. The plant often has a shrub-like growth form and leaves are usually rolled and tough. It has long white hairs at the upper parts of the leaf sheath. It grows in sandy and gravelly soil and occurs in arid regions.	van Wyk and van Oudtshroon (2012)

<i>Eragrostis nindensis</i>	Endemic	It grows in shallow and gravelly soil and in other places particularly in sandy soil. Is a short, dense tufted perennial grass with leaves concentrated at the base Their culms are sturdy and erect. It occurs in southern Africa and northwards.	van Wyk and van Oudtshroon (2012)
<i>Schmidtia kalihariensis</i>	Endemic	An annual tufted grass that can form dense stands. The entire plant is finely hairy and it has a sour smell, is sticky and can irritate the skin during extended contact. It grows mainly in sand soil and occurs in arid and desert regions.	van Wyk and van Oudtshroon (2012)
<i>Schmidtia pappophoroides</i>	Endemic	A perennial tufted grass with a shrub-like growth form. It often has stolons or root formation on the lower nodes. The leaves are blue-green to grey-green and are often densely hairy. Grows in sandy to loam and gravel soil and occurs in dry grassland and bushveld regions.	van Wyk and van Oudtshroon (2012)
<i>Stipagrostis obtuse</i>	Endemic	A short, dense tufted grass usually with erect culms. Nodes are dark-coloured and leaves are short, rolled and curled mostly concentrated at the base. It grows in sandy soil and occurs in arid regions.	van Wyk and van Oudtshroon (2012)

<i>Stipagrostis ciliate</i>	Endemic	An erect perennial tufted grass with a ring of long white hairs around the nodes. Leaves are mostly concentrated around the base and culms are typically yellow. It usually grows in coarse sandy soil on gravel plains and river beds. Occurs in arid regions.	van Wyk and van Oudtshroon (2012)
<i>Eragrostis echinochloidea</i>	Endemic	A sparse tufted grass, the nodes of which are often knee-like bent, spikelets are densely packed against each other. Nodes are purple in colour. Grows in lime soil and gravelly soil and found at the edge of the pans. Occurs in bushveld and karoo regions	van Wyk and van Oudtshroon (2012)
<i>Eragrostis rotifer</i>	Endemic	A tufted perennial grass with relatively erect culms. Inflorescence a big open panicle with lax branches and its spikelets are purple in colour. Grows in dry riverbeds on the edge of the pans and drainage canals. Occurs in bushveld and karoo regions	van Wyk and van Oudtshroon (2012)
<i>Brachiaria deflexa</i>	Endemic	An annual tufted grass often with branched culms. The entire plant is bright green when young. The base of the leaf blade is rounded and covered in velvety hairs and spikelets are arranged in pairs. Grows mostly in shade in disturbed places. Occurs throughout tropical and subtropical Africa	van Wyk and van Oudtshroon (2012)

<i>Cladoraphis spinosa</i>	Endemic	A hard, perennial tufted grass with a shrub-like growth form and many branches. The leaves are exceptionally short or are absent. Leaf sheaths usually separate from the culm. Grows in sand soil, occurs in karoo, desert and fynbos regions.	van Wyk and van Oudtshroon (2012)
<i>Cynodon dactylon</i>	Endemic	A short, mat-forming grass that spreads by means of stolons and rhizomes. Spikelets are flat and without awns, leaves point upward. Grow in disturbed soil. It is widely distributed and occurs in all regions.	van Wyk and van Oudtshroon (2012)
<i>Chloris virgate</i>	Endemic	Inflorescence contracted and digitate, with hairy spikelets. The leaf blade is folded open, with a prominent midrib and rough margin and flattened leaf sheath. It grows in damp and disturbed soil. Is distributed over virtually all warm and moderate climatic regions of the world.	van Wyk and van Oudtshroon (2012)

APPENDIX B – FAUNA DIVERSITY

Table 20: list of reptiles that occur or reasonably expected to occur in proposed area.

Species Name	Common name	Namibian conservation and legal status	Remarks	Reference
Geckos				
<i>Ptenopus carpi</i>	Carpis' Barking Gecko	Endemic	Slender gecko with long legs and weakly fringed toes. Live in shallow burrows with a few side tunnels dug in very hard soil. Inhabit flat barren plains.	Branch (1998)
<i>Ptenopus garrulous</i>	Common Barking Gecko	Endemic	Small barking gecko with swollen nostrils and strongly fringed toes. Briefly become active after sunset as indicated by their call signals. Desert to semi-desert on various soil substrates.	Branch (1998)
<i>Ptenopus kochi</i>	Common Barking Gecko	Endemic	Have large bulging eyes and swollen nostril. They have flattened fringed toes with elongated scales and body longer than the tail of reddish-brown colour. Desert in the burrows	Branch (1998)
<i>Rhoptropus afer</i>	Common Namib day gecko		Small species with relatively short stout toes. Occupy dry gravel plains with sheet rocks and exfoliating flakes. Restricted to the coastal of the Namib Desert from the Kuiseb river and extending up to the north-western.	Branch (1998)
<i>Rhoptropus boultoni</i>	Bourton's Namib Day Gecko		Larger and stocky with slender toes. They feed on vertical granite, basalt boulders and	

			Baobab trees. Feed mainly on ants, spiders and beetles.	
<i>Rhoptropus bradfieldi</i>	Damara Namib day gecko	Endemic, not evaluated	Have 11 undivided scansors beneath the fourth toe and tail longer than the head and body. Hang on the shaded vertical surfaces of large, dark rocks on sunny day. Prefer semi-desert regions and found from the Kuiseb River to Tweyfelfontein in W. Damaraland.	Branch (1998)
<i>Pachydactylus fasciatus</i>	Damaraland banded gecko	Endemic,	A medium-sized, slender, flattened gecko with irregular rows of enlarged, rounded and keeled tubercles separated by scales on the back. Have thin tail longer than the body. Terrestrial that lives in small tunnels of sandy soils. Prefers arid mopane <i>Acacia</i> savannah	Branch (1998)
<i>Pachydactylus gaiasensis</i>	Brandberg gecko	Endemic,	A medium-sized, flattened gecko with large head. The tail is shorter than the body and segmented. Emerge at night underneath sandstone boulders. Arid sandy veld and vicinity of Brandberg in Namibia	Branch (1998)
Lizards				

<i>Pepsina alberti</i>	Albert's burrowing skunk	Endemic, evaluated	not		
<i>Pedioplanis husabensis</i>	Husab sand lizard	Endemic, evaluated	not	Small species with small tympanic shield, and eight opaque scales in each lower eyelid, bear dark dots and bars. Prefers expanses of flat rock on exposed bedrock in rocky desert.	Branch (1998)
<i>Cordylus namaquensis</i>	Namaqua spinytail lizard	Endemic, evaluated	not	A small girdled lizard with flattened body and a triangular, flat head with rough shields. The nasals are slightly tabular and in contact separating rostral and frontonasal. Lives in semi-desert in rock cracks and crevices of mountains	Branch (1998)
<i>Cordylus pustulatus</i>	Campbell's spinytail lizard	Endemic, evaluated	not	Smallish finely scaled lizard with flattened body and a triangular head with rough head shields. Tail has whorls of range of spine, lives in arid savannah.	Branch (1998)
<i>Homopus sp.nov</i>	Nama padloper	Endemic, vulnerable		Small tortoise that lack hinge and nuchal and paired gulars. Lives in rocky semi-desert in rock cracks and beneath boulders.	Branch (1998)

<i>Meroles reticulatus</i>	Reticulated desert lizard	Endemic, evaluated	not	Small-sized desert with rounded snout and lack sharp edge on the upper lip. Live in arid savannah to desert on flat gravel and sandy plains	Branch (1998)
<i>Cordylosaurus subtessellatus</i>	Dwarf plated lizard	Endemic, evaluated	not	Short head with large head shields and no prefrontal and each nostril is pierced between two nasals and first labial. Lower eyelids have transparent disc. Lives in succulent and small veld on small rocks	Branch (1998)
Snakes					
<i>Leptotyphlops labialis</i>	Damara worm snake	Endemic, evaluated	not	Large, fairly slender with scales around the tail. Have supraoculars fused with oculars. Arid savannah species.	Branch (1998)
<i>Telescopus semiannulatus polystictus</i> <i>crf.</i>	Damaraland tiger snake	Endemic, evaluated	not	A thin-bodied snake with distinct head and large eyes with vertical pupils. Terrestrial savannah and sandveld.	Branch (1998)

Table 21: Mammal species that occur or reasonably expected to occur.

Species Name	Common name	Namibian conservation and legal status
<i>Myotis seabrai</i>	Angola hairy bat	Endemic, vulnerable
<i>Galerella swalius</i>	slender mongoose	-
<i>Petromyscus shortridgei</i>	rock mose	-
<i>Laephotis namibensis,</i>	Bat	Endemic, endangered
<i>Aepceros melampus petersi</i>	Black face impala	Endemic, vulnerable
<i>Equus zebra hartmannae</i>	Hartmann's mountain zebra	Endemic, endangered
<i>Xerus princeps</i>	Mountain ground squirrel	Endemic, secure
<i>Petromus typicus</i>	Dassie rat	Endemic, secure
<i>Gerbillurus setzeri</i>	Namib bushy-tailed gerbil	Endemic, threatened
<i>Otocyon megalotis</i>	Bat –eared fox	Endemic, secure
<i>Tragelaphus strepsiceros</i>	Kudu	Endemic, secure
<i>Panther pardus</i>	Leopard	Vulnerable

<i>Acinonyx jubatus</i>	Cheetah	Vulnerable
<i>Loxodonta Africana</i>	Elephant	Endangered
<i>Struthio camelus</i>	Ostrich	Endemic Secure
<i>Oryx gazelle</i>	Gemsbok	Endemic Secure
<i>Antidorcas marsupialis</i>	Springbok	Endemic Secure
<i>Raphicerus campestris</i>	Steenbok	Endemic Secure
<i>Diceros bicornis</i>	Black rhino	Endemic Critically endangered
<i>Canis mesomelas</i>	Black backed Jackal	Endemic Secure

<i>Panthera leo melanochaita</i>	Desert lion	Endemic, vulnerable
<i>Madoqua kirkii</i>	Damara dik-dik	Endemic, vulnerable

Table 22: avian species that occur or reasonably expected to occur.

Scientific name	Common names	Namibian conservation and legal status
<i>Nelierax canonis</i>	Pale chanting goshawk	Least concern
<i>Falco tinnunculus</i>	Common Kestrel	Least concern
<i>Ardeotis kori</i>	Kori bustard	Near threatened
<i>Nestis ludwigii</i>	Ludwigs bustard	Endangered
<i>Eupodotis rueppelli</i>	Ruppell's korhaan	Least concern
<i>Rhinoptilus africanus</i>	Double- banded courser	Least concern
<i>Ammomanopsis gray</i>	Grays lark	Least concern
<i>Eremalauda starki</i>	Starks lark	Least concern
<i>Cercomela tractrac</i>	Tractrac chat	Least concern

<i>Fringilla monticola</i>	Hartlaub's spurfowl	Least concern
<i>Agapornis roseicollis</i>	Roxy faced lovebird	Least concern
<i>Tockus monteiri</i>	Monteiros hornbill	Least concern
<i>Poicephalus rueppellii</i>	Ruppell's parrot	Least concern
<i>Turdoides gymnogenyo</i>	Bare-cheeked babbler	Least concern
<i>Phoeniculus damarensis</i>	Violet wood hoopoe	Least concern
<i>Namibornis herero</i>	Herero chat	Least concern
<i>Achaetops pycnopygius</i>	Rockrunner	Least concern
<i>Moniticola brevipes</i>	Short toed rock thrush	Least concern

Table 23: annual total number of mammals in the north-west of Namibia.

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Baboon	108	116	203	135	555	165	567	239	310	390	172	510	548	192	334	667	302	356	5869

Cheetah	5	1	7	7	14	2	4	7	6	3		5	3	11	5		6	1	87
Duiker	12	6	3	5	18	3	8	0	7	6	11	3	14	9	6	11	2	5	129
Eland	63	19	0	12	10	12	45	5	30	0	13	2	0	5	45	21	5	9	296
Elephant	40	24	45	17	107	5	36	44	72	31	73	39	34	74	64	41	94	31	871
Gemsbok	161	269	348	274	350	261	389	260	265	275	223	324	241	179	124	151			426
	6	8	3	9	6	2	8	9	2	5	8	4	3	1	7	0	856	782	59
Girafee	215	232	189	281	213	296	268	231	253	441	362	420	336	256	346	504	354	418	561
																			5
Hyaena	2	0	0	1	7		4	3	1	10	2	1	9	1	5	4	8	3	61
Jackal	45	84	60	82	78	94	108	59	81	119	68	91	104	83	89	87	86	51	146
																			9
Klipspringer	3	14	20	17	34	15	24	5	19	21	10	45	27	21	9	20	14	11	329
Kudu	189	297	241	316	413	324	576	207	337	327	190	329	269	221	200	296	88	53	487
																			3

Ostrich	577	659	815	871	903	741	902	666	124 7	832	772	102 7	911	752	630	706	610	545	141 66
Springbok	116 06	145 60	167 34	105 09	142 27	117 46	121 35	187 29	124 11	156 01	128 18	171 1	758 6	753 1	587 6	107 44	682 3	645 6	197 803
Steenbok	49	85	122	203	154	101	245	85	117	149	88	261	325	167	218	197	110	70	274 6
Warthog	6	14	8	7	13	11	13	2	2	3	6	8	12	3	8	4	5	4	129
H. Zebra	121 0	127 4	141 4	137 6	173 8	183 8	168 4	213 6	300 4	324 8	336 1	258 3	279 0	264 8	181 2	208 4	167 1	210 5	379 76
Total	157 46	200 83	233 44	165 88	219 90	179 65	205 17	250 27	205 49	239 36	201 84	102 79	153 81	137 65	108 94	168 96	110 34	109 00	315 078

APPENDIX C: Registration form for IAPs.

 ENVIRODU CONSULTING & TRAINING SOLUTIONS CC website: www.ecutsnamibia.com	
Mobile: +264 816343170 Email: nelumbu@gmail.com	
Title:	
First name(s):	
Surname:	
Organisation/Affiliation:	
Profession:	
Contact number:	
Email:	
I would like to attend the public meeting	

Comments:

Please list and explain issues of concerns here:

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APPENDIX D: The public notice advertised in the newspapers.



Brandberg Desert Elephant Lodge

PUBLIC NOTICE

**SCOPING ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED
CONSTRUCTION AND OPERATION OF A LODGE AND TOURISM FACILITIES ALONG
UGAB RIVER AT A SITE CUTTING ACROSS ERONGO AND KUNENE REGIONS, NAMIBIA**

Brandberg Desert Lodge cc (Or the Proponent) recognises the lack of tourism facilities along the routes & tracks in the Brandberg/Geopark Landscape despite the striking beauty of this part of Namibia which is unexplored. For this reason, the Proponent intends to construct and operate a Lodge and Tourism Facilities at a site located along the Ugab River and about 10 KM north-east of Brandberg Mountain. One part of the site is located north of the Ugab River and the other part is located north of the River, meaning that the site cuts across two regions; viz. Kunene and Erongo regions.

PUBLIC NOTICE: The Proponent understands these activities may not be undertaken without approval of the Environmental Clearance Certificate (ECC). This public notice is in terms of the Environmental Management Act (No. 7 of 2007) and its Regulations of 2012 that application for an ECC will be launched with the Environmental Commissioner/Ministry of Environment, Forestry and Tourism.

APPOINTED CONSULTANT: The appointed Consultant (**ENVIRODU CONSULTING & TRAINING CC**) shall facilitate the public participating process and prepare Reports required to support an application for the ECC.

INVITATION TO PARTICIPATE: Interested & Affected Parties (I & APs) are notified to register in order to participate in the public participation process.

In order to receive information about this project, kindly register as I & APs by contacting:

Ms. Naemi Nelumbu

Email: nelumbu7@gmail.com

Mobile: +264 816343170

APPENDIX E: Curriculum Vitae of Lead EAP.

Name of Consultant: Naemi Nelumbu
Profession: Project Administrator
Date of birth: 13 July 1995
Nationality: Namibian

Key Profile:

Ms. Naemi Nelumbu's multiple skills are invaluable to ECUTS in providing both administrative and project management support to all Services listed under ECUTS' Founding Statement. She is able to do this due to her numerous qualifications in 3 key disciplines viz. environmental management, education/training and fisheries management. Ms. Nelumbu holds a Degree (with Honours) in Fisheries and Aquatic Sciences (University of Namibia, 2018); a Postgraduate Diploma in Environmental Management (University of Stellenbosch, 2018) and a Postgraduate Diploma in Education (International University of Management, 2020). She is currently pursuing her Degree Master of Philosophy in Environmental Management (Stellenbosch University). From 2020 until now, she has been consulting on behalf of ECUTS both as a Project Administrator and an Environmental Assessment Practitioner. She has provided various project services and supported project activities including public facilitations, communication engagements with external stakeholders and Government Entities as well as travel logistic support to regional and international Consultants. She has contributed to compilations of Environmental Impact Assessment and Environmental Management Plan Reports leading to approval of ECCs for projects of higher impacts and value.

Education:

Table 1: Formal qualifications.

Qualification/Duration	Subject/major/thesis title/institution
Postgraduate Diploma in Environmental Management	Development Planning and Environmental Analysis. Stellenbosch University
Postgraduate Diploma in Education	Major: Biology and Physical Science. International University of Management
Bachelor of Science in Fisheries & Aquatic Sciences (Honours) (2014-2017)	Trace metal concentration in the Walvis Bay Lagoon. University of Namibia

Table 2: Continuous skills and capacity development.

Skills and competencies	Institution	Qualification	Completion Date
Introduction to Marine Biofouling: Impacts and Management of Risks eLearning Course.	International Maritime Organisation	Certificate of Attendance: <i>Marine Biofouling: Impacts and Management of Risks eLearning Course.</i>	June 2023
Teach for Education for Sustainable Development (ESD)	Namib Desert Environmental Education Trust (NaDEET)	Certificate of participation: Improving ESD teaching and learning experience in Namibia	2021-2022

Employment Record:

2019 to present ENVIRODU CONSULTING & TRAINING SOLUTIONS CC as Project Administrator/Environmental Assessment Practitioner

Responsible for coordinating project activities, managing schedules, follow up on status of ECCs and ensure Government Entities delivers on approvals of ECCs and other environmental certificates/licences. Support project activities, analyse risks and provide documentations. Support travel logistics to regional and international Consultants.

2019 to present Monica Geingos Secondary School as a Teacher

Responsible for teaching Biology, Physics and Life Science as well as co-ordination and facilitation of a school Environmental Club.

Language:	Speaking	Reading	Writing
English	Good	Good	Good
Oshiwambo	Good	Good	Good
Afrikaans	Fair	Fair	Poor
Khoekhoegowab	Fair	Poor	Poor

Certification: I, the undersigned, certify that to the best of knowledge and belief, these data correctly describe me, my qualification and experience.

Date: 11 September 2023

Naemi Nelumbu 