

**ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT PLAN FOR THE  
PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY IN  
SPITZKOPPE, ERONGO REGION, NAMIBIA**

**PREPARED ON BEHALF OF**

**SARI-DAO MINI MARKET AND FUEL CENTRE**



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*This EIA and EMP is prepared to support the application for an environmental clearance certificate in compliance with the Environmental Management Act (EMA, no. 7 of 2007) and EMA's regulations for the proposed construction and operation of a Fuel Retail Facility in Spitzkoppe, Daures Constituency, Erongo Region, Namibia.*

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## **IMPORTANT NOTICE**

*“Despite any other law to the contrary, a person may not undertake a listed activity, unless the person is a holder of an environmental clearance certificate in relation to that activity” Environmental Management Act, No. of 2007).*

## PROJECT DETAILS

<b>Title</b>	Environmental Impact Assessment and Management Plan for the Proposed Construction and Operation of a Fuel Retail Facility In Spitzkoppe, Erongo Region, Namibia.
<b>Author</b>	Mr. Tobias Endjambi (Lead EAP) – Portal Research and Engineering CC.
<b>Project Team</b>	Mr. Michael Mateus- Envirodu Consulting & Training Solutions CC
<b>Client</b>	Sari-Dao Mini Market & Fuel Centre
<b>Report Status</b>	Scoping/Environmental Impact Assessment and Environmental Management Plan for submission to stakeholders.

## **EXECUTIVE SUMMARY**

SARI-DAO Mini Market & Fuel Centre proposes to construct and operate a Fuel Retail Facility on a communal land in Spitzkoppe Village in Erongo region, Namibia. The proponent appointed Portal Research and Engineering CC in conjunction with Envirodu Consulting & Training Solutions CC, to conduct an Environmental Impact Assessment (EIA) in order to apply for an Environmental Clearance Certificate (EIA) from Namibia's Ministry of Environment, Forestry, and Tourism (MEFT), as required by the Environmental Management Act (EMA, No. 7 of 2007) and its regulations of 2012. The proponent appointed consultants to prepare this EIA and Environmental Management Plan (EMP) in accordance with the EMA, No. 7 of 2007. The EIA process included preparation of a Background Information Document (BID), public adverts in local newspapers, invitation and participation of the interested and affected parties (I & APs), public meeting assessment of the impacts and identification of impact mitigation measures.

### **Project description**

A Fuel Retail Facility is proposed for Spitzkoppe Village, Daures Constituency, Erongo Region. Spitzkoppe Village is a settlement near the Spitzkoppe Rest Camp. The Village is governed through a traditional authority but is also within the #Gaingu conservancy. The proponent identified a land measuring 160 m<sup>2</sup> next to SARI-DAO Mini Market. This means the proposed Facility will be operated as part of the SARI-DAO Mini Market. The SARI-DAO Mini Market is located on a land measuring 210 m<sup>2</sup> and together with the proposed Facility, the two establishments will cover 370 m<sup>2</sup>. The proposed Facility will be comprised of four underground petrol storage tanks and two above-ground diesel storage tanks. The area is devoid of vegetation or rare plant species and wildlife animals.

### **Methodology**

The environmental impact assessment (EIA) methodology employed for the proposed construction and operation of the fuel retail facility consisted of several key steps. Firstly, baseline information was gathered to establish the existing environmental conditions in and around the project area. Secondly, public participation process played a crucial role in undertaking this the EIA. A public meeting was held to provide an opportunity for stakeholders, including local communities, environmental organizations, and governmental bodies, to express their concerns, provide input, and ask questions related to the project's potential environmental impacts. To assess the environmental impact of the project, a Leopold matrix was utilized. The Leopold matrix is a tool that enables the systematic

evaluation of the potential impacts of a project on the environment. Based on the findings of the impact assessment, an environmental management plan was developed. This plan aimed to identify mitigation measures to minimize or offset any adverse environmental impacts resulting from the construction and operation of the fuel retail facility.

## EIA process

### *EIA Timeline Summary*

<b>EIA PROCESS AND TIMELINES</b>	
<b>MARCH 2023 (phase I):</b>	
•	1 x advert in the Confidente newspaper: 04 March 2023.
•	1 x advert in the Confidente newspaper: 10 April 2023
•	1 x advert in The Villager newspaper: 03 March 2023.
•	1 x advert in The Villager newspaper: 10 April 2023
<b>APRIL 2023 (phase I):</b>	
•	Release of BID to registered I&APs: 08 May 2023
•	Public meeting at the site in Spitzkoppe, 13 May 2023.
<b>JULY 2023 (phase II):</b>	
•	Release of draft EIA and EMP Reports and availability to IAPs for review: 08 – 14 July 2023.
•	Feedback from IAPs and finalization of EIA and EMP Reports.
•	Launch application with MEFT and upload all outstanding documents on the EIA portal.
<b>JULY 2023 (phase III):</b>	
•	Waiting period for GRN/MEFT and the EC to issue a Record Decision.

## EIA Key Findings

The assessment identified several impacts of significant importance emanating from the construction and operation of the proposed Facility in Spitzkoppe. These include dust and gaseous emissions, noise pollution, human health and accident risks, habitat and land modification groundwater pollution, loss of topsoil, as well as potential loss of diversity for small animals such as reptiles and amphibians. However, these impacts had low to medium probability occurrence and most are expected to be temporal. The assessment also found that the project have a potential of boosting the economy of the Spitzkoppe Village and surrounding areas through increased tourism along the tourism routes and tracks, employment creation and entrepreneurship opportunities as well as improved social wellbeing of the surrounding communities.

## **Conclusion**

The environmental impacts assessment and development of the Environmental Management Plan have demonstrated a proactive approach to environmental stewardship and sustainable development. By adhering to the EMP while constantly reviewing it, the proposed Facility in Spitzkoppe has the potential to contribute positively to the community's well-being while ensuring the preservation of the natural and cultural heritage of the area. Therefore, it is recommended that an Environmental Clearance Certificate (ECC) be granted to the Proponent (SARI-DAO MINI MARKET AND FUEL CENTRE) for its proposed development in Spitzkoppe, Daures Constituency, Erongo region, Namibia.



## **ACKNOWLEDGMENT**

We would like to thank the community members of Spitzkoppe Village for their contribution to this assessment through the public participation process.

## **DISCLAIMER**

### **Duties of proponent**

*The proponent must designate an environmental assessment practitioner (EAP), to manage the assessment process, provide the EAP with access to information at the disposal of the proponent regarding the application whether or not the information is favourable to the proponent, and ensure that the environmental assessment procedures, specified in the Act, these regulations and guidelines, for the proposed activity are followed (Environmental Impact Assessment Regulations: Environmental Management Act, 2007).*

### **Duties of Environmental Assessment Practitioner (EAP)**

*An EAP designated in terms of regulation 3, must perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant, comply with the Act, these regulations, guidelines and other applicable laws and disclose to the proponent, competent authority and the Environmental Commissioner all material information in the possession of the EAP that reasonably has or may have the potential of influencing -*

- (i) Any decision to be taken with respect to the application in terms of the Act and these regulations; or*
- (ii) the objectivity of any report, plan or document to be prepared by the EAP in terms of the Act and these regulations”( Environmental Management Act, 2007); regulations of 2012).*

**Therefore, The EAP has completed this work to the best knowledge and information provided for by the Proponent, available information in literature and filed observations, to provide the best advice possible.**

## DECLARATION

I ...**Tobias Endjambi**... hereby declare that I am the lead EAP (Environmental Assessment Practitioner) for this project and consulting under Portal Research and Engineering CC. I further, declare that I have no business, financial, personal or other interests in the proposed project, application or appeal in respect of which I was appointed other than fair remuneration for work performed. Therefore, there are no circumstances that compromise the objectivity of this assessment and recommendations, thereof.

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## LIST OF ABBREVIATION/ ACRONYMS

BID	Background information document
CRS	Climate resilient solutions
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
ITCZ	Inter-Tropical Convergence Zone
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
TORs	Terms of References
VECs	Valued Ecosystem Components



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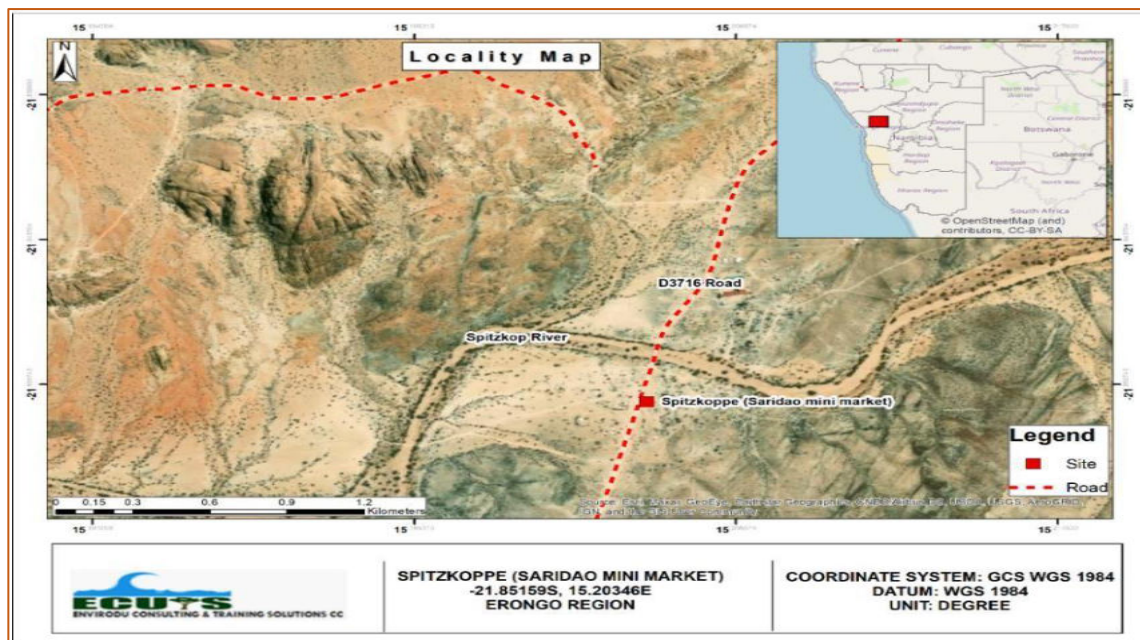
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# 1 INTRODUCTION, BACKGROUND AND SCOPE OF THE PROJECT

## 1.1 Project Overview

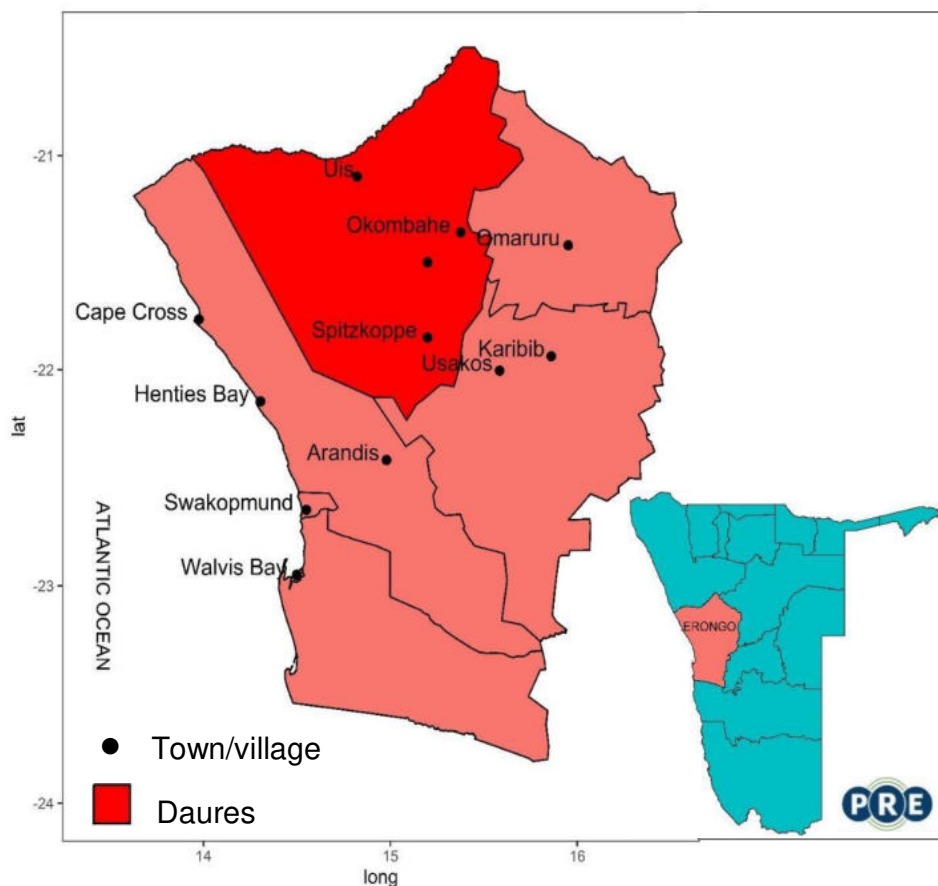
SARI-DAO Mini Market and Fuel Centre (or the “Proponent”) takes pride in providing basic services such as food items, commodity and lodging facilities to locals and tourists in Spitzkoppe. The proponent seeks to expand its services to include a fuel retail facility within the Spitzkoppe Village due to a lack of a fuel facility and also the rising tourism and motorists in the area. The only nearest fuel retail outlet is in Uis and this makes refuelling difficult to tourism operators while travelling in the area. Hence the Proponent, has interests in constructing and operating a Fuel Retail Facility. In terms of the Environmental Management Act (EMA) No 7 of 2007, the proposed Facility is a listed activity and may not be undertaken without an environmental clearance certificate. For this reason, the proponent appointed consultants to facilitate the EIA scoping process and compile required reports to support application of the ECC.



*Figure 1: Locality Map with the position (-21° 51' S; 150° 12' E) of the site*

## 1.2 Description of the Location

Spitzkoppe Village is located in Daures constituency of Namibia's Erongo region (*Figure 2*). Daures Constituency is one of the Erongo region's rural areas that is less developed and most reliant on agriculture. However, with current climate change and climate variability resulting in unpredictable rainfall patterns in the area, farming is no longer sustainable as a means of supporting the populace's subsistence. This necessitates the need for adaptive innovation strategies to mitigate climate change effect on farming activities in the area. Ecotourism is one of the climate change mitigation measures being implemented by farmers in the Daures constituency. Tourism activities have also increased, particularly around Spitzkoppe. This approach demands support and encouragement from all stakeholders including government efforts focused at improving livelihood of the people in the region.



*Figure 2: Namibian map depicting the location of Daures Constituency and Study Area (Spitzkoppe).*

Spitzkoppe Village has a population of about 500 inhabitants who rely primarily on livestock farming and tourism. Development around Spitzkoppe Village, includes a school, a church, tourism facilities such as camping sites, lodging facilities, and a settlement. The breathtaking natural scenery and landscapes surrounding Spitzkoppe attract tourists for a variety of activities such as climbing, hiking, birding, camping, and stargazing in a completely distinct environment. Due to poor road infrastructure and harsh climatic conditions, the village is one of Namibia's least explored places. Drought conditions have resulted in low agricultural production and low population density in recent years, prompting some community farmers in the area to relocate to areas with more water supplies and good graze pasture fields. However, not all farmers are able to relocate their livestock. This means, they need to find alternative survival strategies such as tourism. Fortunately, spitzkoppe has significant tourism potential, however, this opportunity is not well developed due to limited infrastructures and services.



**Figure 3:** Photographs taken around Spitzkoppe village.

### **1.2.1 Climate**

Spitzkoppe's climate is typically dry and arid and climate variability is common as it is in most part of Namibia. Rainfall seasons have become shorter and less predictable over time, affecting livestock farmers in the region by reducing rangeland regeneration. Furthermore, rainfall is critical to human communities in the area because most of the water used comes from boreholes. The current mitigation measures for climate change and variability have been primarily focused on relief efforts. However, this does not provide a long-term solution. As a result, other strategies for improving human adaptation to climate change are required.

Climate resilient solutions (CRS) are one of the most effective climate change mitigation strategies, particularly for agriculture. However, few local farmers are aware of CRS, and those who are aware are ill-equipped and/or lack the mandate to conduct comprehensive CRS. Drought-tolerant livestock and crops, innovative weather-based insurance, and tourism are some of the widely recognized CRS (Syroka and Baur, 2015; Agyeman, 2019; Rice and Curtis, 2021). The proposed construction of a fuel retail facility in Spitzkoppe will boost tourism in the area.

### **1.2.2 Tourism**

Tourism as a climate resilient solution (CRS) allows rural farmers to supplement their agricultural activities by participating in ecotourism activities such as cultural village tours, gastronomy, and entertainment. More importantly, because the value of Namibia's landscapes and cultural diversity that does not depreciate, tourism is one of the few sectors in Namibia that can be sustainable. Due to poor road infrastructure and other accessibility factors, Spitzkoppe Village is one of Namibia's least explored places, despite its unique scenery and cultural diversity. Usakos, the nearest town, is approximately 60 km from Spitzkoppe. The road to Spitzkoppe is gravel, and there is no fuel retail facilities to cater for the growing number of tourists and motorists (*Figure 3 & 4*). Furthermore, it is noteworthy to mention that there are few fuel retail facilities located either in Uis or Usakos. This necessitates the need to urgently construct more fuel facilities in other part of the constituency to cater for the growing tourism and local inhabitants. As a result, the proponent plans to construct a fuel retail facility in the village to provide service to the local communities and boost the tourism sector, which is a significant economic activity for the local people.



*Figure 4: Gravel road through Spitzkoppe village.*

### **1.3 Environmental impacts**

The construction of the proposed facility may pose negative effects on the natural environment and its inhabitants. The possible environmental impacts of such development can emanate from construction to the fuel retail facility's operational activities. These potential consequences may include, but are not limited to, a rise in traffic, noise, pollution, and groundwater contamination. Petroleum is inextricably linked to many societal aspects, such as transportation, heating, and commerce. Waste oil has a significant environmental impact because it can contribute to climate change and harm the environment. Furthermore, the combustion of petroleum products emits harmful gases such as carbon monoxide, nitrogen oxide and methane, which pollute the air and can cause acid rain, which results in dead trees, acidified lakes, and coral reefs in the oceans. Furthermore, waste oil can contaminate water sources. As a result, an Environmental Impact Assessment (EIA) is requisite to determine the extent and significance of possible environmental impacts associated with the planned construction of a fuel retail facility at Spitzkoppe village in Namibia's Erongo region.

### **1.4 Purpose of Environmental Impact Assessment**

The proponent, SARI-DAO Mini Market and Fuel Centre intend to construct and operate a fuel retail facility in Spitzkoppe, Daures Constituency, Namibia. According to the Environmental Management Act No. 7 of 2007, an EIA must be conducted for development activities linked to energy generation, transmission, and storage, as well as the construction of facilities for refining gas, oil, and petroleum products, which is relevant to this study.

Consequently, this study was carried out to investigate the potential impact of the proposed development on the environment as well as the socioeconomic elements of the impacted populations. The EIA was conducted in compliance with the Environmental Management Act No. 7 of 2007 and its 2012 regulations to inform the Environmental Commissioner on the findings of the EIA study.

The EIA process comprised an assessment of potential impacts identified by the Environmental Assessment Practitioner (EAP) as well as the completion of the statutorily mandated participation with interested and affected parties. Furthermore, the assessment took into account both the ecological and socioeconomic components of the environment in and around Spitzkoppe village, as well as to a greater extent in the Daures Constituency. In addition to the EIA findings, this report also presents the Environmental Management Programme (EMP) which provide mitigation measures to the identified impacts of the proposed construction of a fuel facility in Spitzkoppe village

### **1.5 Terms of References**

The proponent has appointed Portal Research and Engineering CC in collaboration with Envirodu Consulting & Training Solutions CC, to facilitate the EIA process in accordance with environmental management regulations, with the following terms of reference (TORs):

- Prepare adverts for placement in local newspapers;
- Visit the proposed site and prepare BID;
- Conduct an EIA/Scoping study for the planned fuel retail facility in accordance with the EMA (no. 7 of 2007) and its Regulations of 2012;
- Carry out the public consultation process;
- Compile the EIA/scoping and EMP reports for submission to relevant authority, and assist the proponent to apply for ECC.



## **1.6 Deliverables**

Deliverable of this project are:

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

## **1.7 Objectives**

The objectives of this project were to conduct an Environmental Impact Assessment (EIA) of the proposed construction of a fuel retail facility in Spitzkoppe, provide EIA and Environmental Management Plan (EMP) reports, and file an application for an environmental clearance license with the Environmental Commissioner in the Ministry of Environment and Tourism.

## 2 DESCRIPTION OF THE DEVELOPMENT

### 2.1 Construction site and surrounding land use

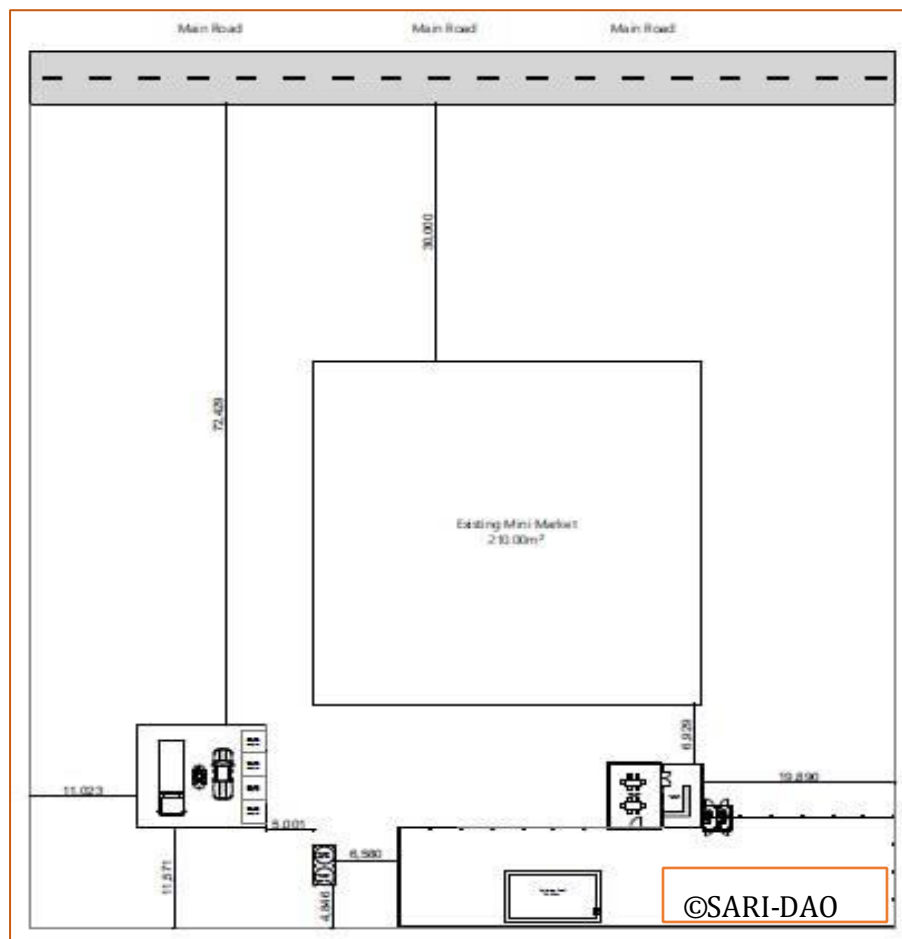
A petroleum retail facility is proposed for Spitzkoppe Village, Daures Constituency, Erongo Region, on a portion of communal land. The proposed facility will measure 160 m<sup>2</sup> and is located next to the proponent's SARI-DAO Mini Market (*Figure 5*). The construction site is located in the heart of Spitzkoppe Village, and the nearest development around the proposed site is residential properties. The surrounding area is devoid of vegetation. As a result, no vegetation will be cleared at the proposed site. However, rare plant species can be found in the surrounding area and adjacent settlements. Furthermore, wildlife animals are uncommon in the area.



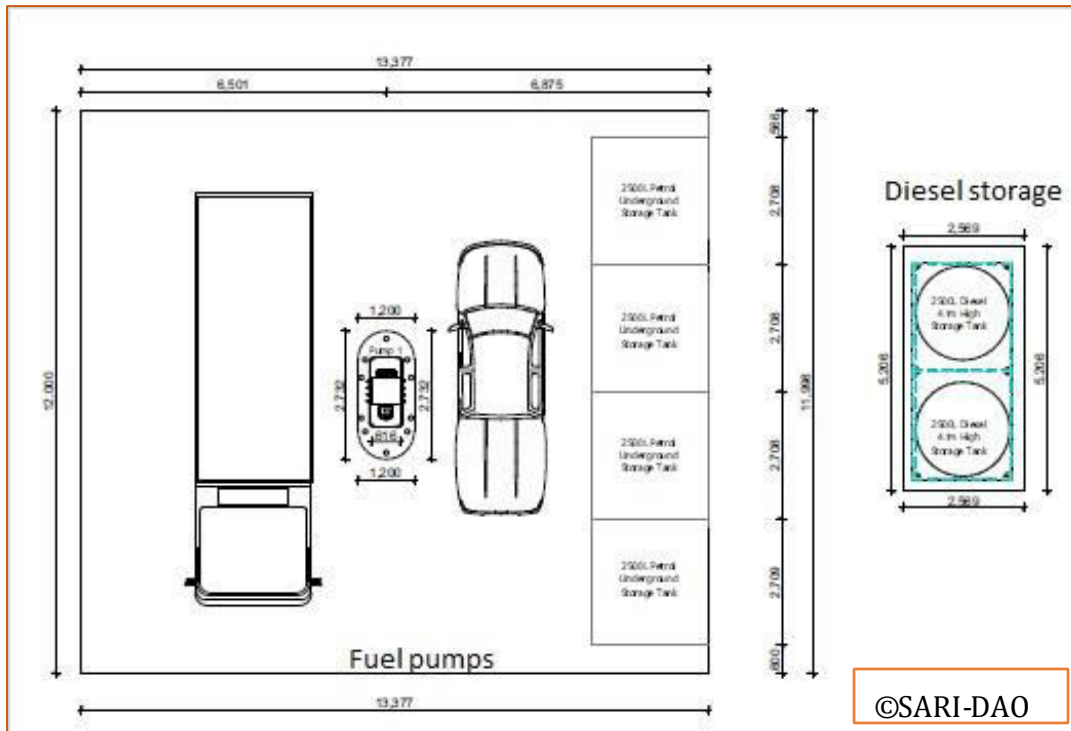
*Figure 5: Proposed development site.*

## 2.2 Design

The proposed fuel facility will be located next to the existing Proponent's SARI-DAO Mini-Market (**Figure 5 and 6**). The facility pump will cover an area of approximately 160 sqm (**Figure 7**). Four storage tanks with a capacity of 2 500 liters each for petrol storage will be constructed underground next to the pumps. In addition, two diesel storage tanks of 4.1 m with a capacity of 2 000 liters each will be installed above the ground surface (**Figure 8**). Safety measures will be established at the facility. Fire extinguishers will be installed inside the mini market, and fire incident management and control protocols will be put in place. Sand buckets will also need to be installed, and warning notices such as no-smoking zones will be posted prominently around the operation area. Additionally, the firefighting equipment will be properly positioned within the proposed project.



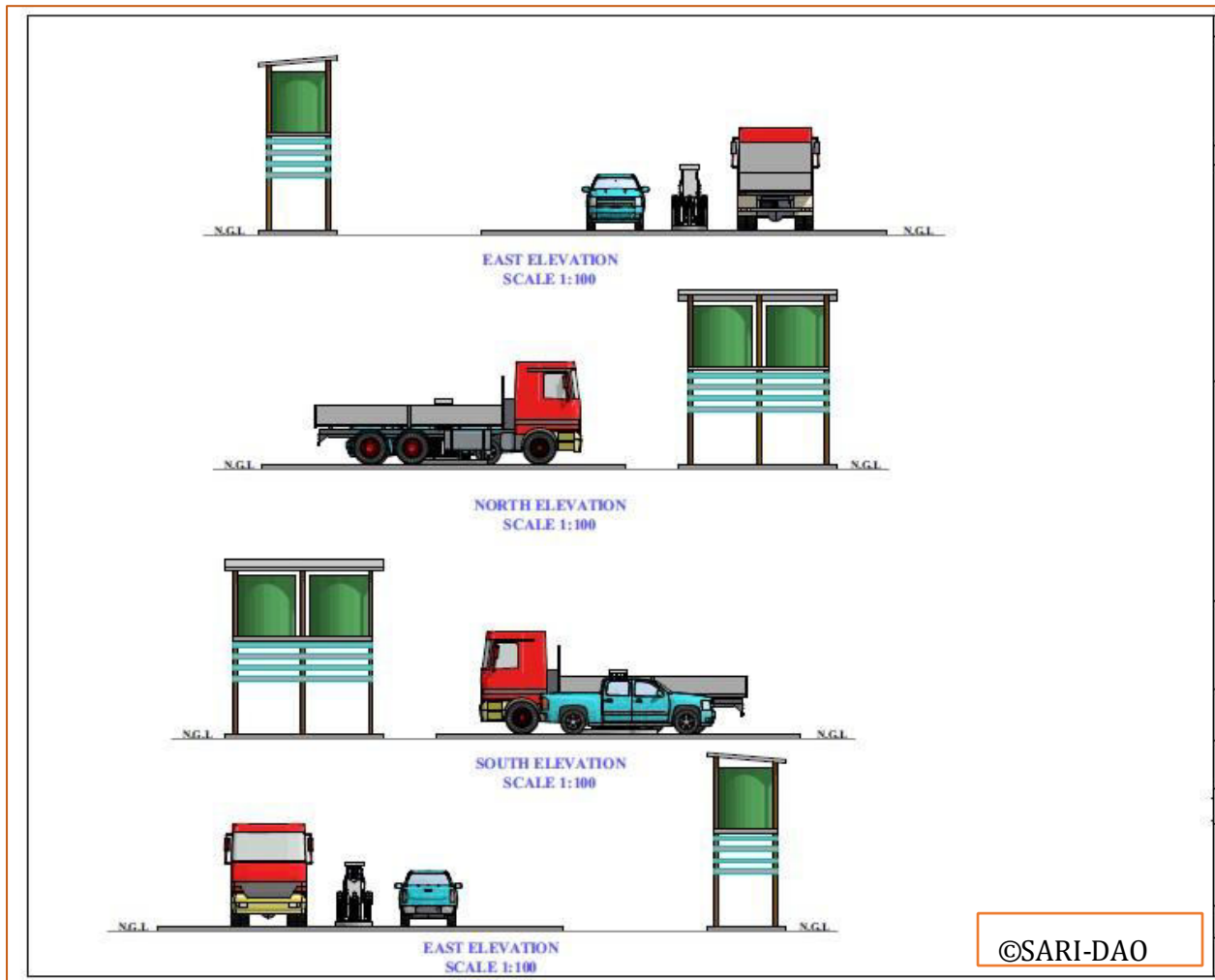
**Figure 6:** Site layout showing existing structure (SARI-DAO Mini Market) and layout of the proposed fuel facility.



**Figure 7:** Fuel facility layout.

### 2.3 Construction activities

Construction activities will begin with excavation works to prepare the site for the construction of the fuel retail facility. The project will include extensive amounts of bricklaying and concrete work to construct the fuel storage facility, drainage systems, mini store, and ablution facilities. Brickwork will be done using super bricks with brick reinforcement at every third course. A 20mPa foundation will be constructed with four layers of face bricks and 250 micron. In addition, waterproofing will be put under all walls and surface beds. Internal and external walls will be plastered and painted with plaster prime and then coated with pva paint. Water for foundation preparation and concrete mixing, and construction will be sourced from local borehole. The fuel facility will have a canopy, which will require steel-work. The facility will create jobs both during construction and after it is operational.



**Figure 8:** 3D concept of the proposed fuel retail facility.

## 2.4 Operation

The proposed fuel retail facility's major activity will be to sell diesel and petrol to motorists along Spitzkoppe's main road. The proposed operations include the following:

- Procurement of refined petroleum products (petrol and diesel).
- Petroleum product discharge
- Underground storage of fuel and above-ground storage of diesel.
- The dispensing (selling) of petrol to motorists.

### **3 PROJECT MOTIVATION AND DESIRABILITY**

Spitzkoppe is a popular tourist location in the Erongo region because of its distinctive landscape features, such as the plateau, as well as the area's cultural, ecosystem, and biological diversity. As a result, tourism-related activities and the number of tourists visiting the region have increased. Tourism is resistant to externalities and has the potential to help local communities better their livelihoods. This is in line with local, regional, and national development objectives, such as NDPs (National Development Plans), the Harambee Prosperity Plan, and Vision 2030. There are also several communal farmers in the region. However, the region's harsh climatic conditions have a negative effect on farming yields for the locals. Therefore, ecotourism is one of the activities that farmers can use to supplement their ability to fulfill their long-term needs.

The proponent intends to construct and operate a fuel retail outlet to increase accessibility and convenience, with the potential to boost tourism in the area. The fuel retail outlet is intended to give tourists and locals in the area with easy access to fuel. Furthermore, the project is intended to stimulate social and economic development in the Daures constituency, more particularly in Spitzkoppe village and its surrounding communities, by addressing the area's significant need for petroleum products.

There is currently only one fuel retail facility in the Daures Constituency, which is located in Uis town, approximately 90 kilometres from Spitzkoppe. As a result, motorists are currently refuelling in other parts of the Erongo region, with the closest town (Usakos) around 60 km from Spitzkoppe. It is also worth noting that the route connecting Spitzkoppe to the surrounding villages is gravel. This presents challenges to the majority of the constituency's residents especially those in Spitzkoppe.

The location that is being considered for the fuel retail facility is along the main road that runs through Spitzkoppe village, making it suitable for such a project. It is anticipated that after the project is completed, the proponent's goal of boosting social and economic development in the Daures Constituency, particularly in the Spitzkoppe communities will be realised by meeting the high demand for oil products.

## 4 RELEVANT LEGISLATIONS

On behalf of the proponent, Portal Research and Engineering CC undertook the environmental impact assessment (EIA) and designed an environmental management plan (EMP) for the proposed fuel retail facility in partnership with Envirodu Consulting & Training Solutions CC. This study was conducted within the Namibian legal context, as discussed below:

### 4.1 The Constitution of Namibia

The Principles of state policy enshrined in the Republic of Namibia's Constitution enable the state to enact laws that can be used and enforced by the country's judicial system. In terms of the environment and natural resources, the Republic of Namibia's constitution states in Article 95(1),

*“The State shall actively promote and maintain the welfare of the people by adopting policies aimed at... The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future...”*. As a result, natural resource conservation related policies and Acts have been enacted.

In addition, Article 91 (c) of the constitution state one the functions of the Ombudsman as:

*“the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia”*.

### 4.2 Environmental Assessment Policy for Sustainable Development and Environmental Conservation.

The Environmental Assessment (EA) Policy was approved in August 1994 by Cabinet Resolution 16.8.94/002. The EA policy aims to promote sustainable development and economic growth while protecting the environment in the long term. The policy:

- Promotes sustainable development;

- Underscores the need to undertake Environmental Assessments (EAs) for all policies, programmes and development projects in Namibia;
- Encourages developers to practice “reduction-at-source” in pollution control and waste management;
- Describes the EAs process, and
- Stresses on the need to incorporate international accepted norms.

### **4.3 The Environmental Management Act No 7 of 2007**

The environmental impact assessment (EIA) procedure for this project was conducted in compliance with Namibia's environmental legislation, specifically the country's Environmental Management Act (EMA) No. 7 of 2007. The EMA, No. 7 of 2007 was promulgated in December 2007 and commenced in 2012, with the goal of fostering sustainable environmental management and natural resource usage. The Act outlines decision-making principles, creates the Sustainable Development Advisory Council, and appoints the Environmental Commissioner.

The EMA, No. 7 of 2007 focuses inclusively on:

- Protection of Namibia's valuable environment;
- Promoting renewable resource use,
- Community involvement;
- Protection of ecological systems:
  - Encouragement of developers to choose environmentally friendly options □
  - Conducting impact assessments taking concerns and interests into account
- Preventing environmental damage.

### **4.4 The Environmental Management Act regulations of 2012**

The Namibian government gazetted the Regulation for the Implementation of Environmental Management Act No. 7 of 2007 in February 2012. The regulations provide guidelines on how an EIA should be conducted, and this information includes:



- List of activities that requires environmental impact assessment to be conducted.
- General requirements for EAP's
- Application for environmental clearance certificate
- Scoping report format
- Terms of reference
- Public consultation process
- Competent authority's responsibilities

#### **4.5 Petroleum Products and Energy Act of Namibia (Act No. 3 of 2000)**

The Act includes provisions for petroleum product conservation as well as distribution cost savings. Furthermore, the act established operational criteria for the petroleum industry, which included the following:

- The premises where petroleum products are stored
- Licensing of outlets and petroleum product wholesalers
- Conducting of business in respect of petroleum products, including:
  - Application of health, hygiene, safety and environmental standards and requirements.
  - Minimum safety standards, fire-fighting, security drills and contingency plans, pre-planning against fires and pollution, security of premises, safety equipment, emergency measures and provisions for product security.
- Premises where petroleum products are stored, including the facilities, equipment, design and construction.
- Maintenance of security and the continuity of petroleum product supplies in Namibia, and the maintenance of contingency and reserve petroleum product stocks.

#### **4.6 Pollution Control and Waste Management Bill (guideline only)**

The Pollution Control and Waste Management Bill among others is aimed at promoting sustainable development, prevent and regulate the discharge of pollutants in the air, water, and land as well as to regulate noise, dust and odour pollution.

#### **4.7 Public and Environmental Health Act 1 of 2015**

This Act is aimed to provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.

#### **4.8 National Heritage Act No. 27 of 2004**

The National Heritage Act No. 27 of 2004 was brought into force on 1 September 2005 by GN 105/2005 (GG 3490). The Act is aimed at providing protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.

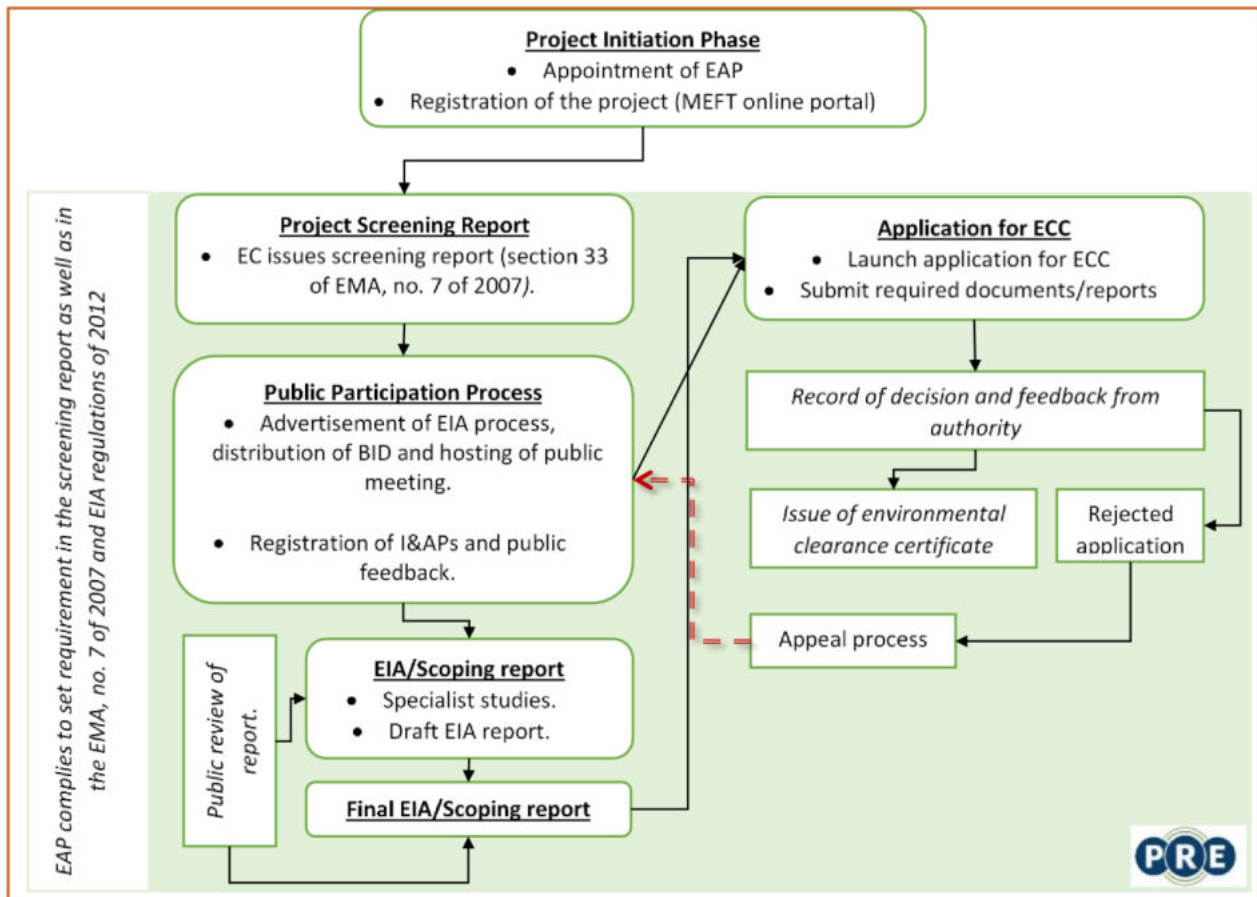
## 5 METHODOLOGY AND APPROACH

### 5.1 Introduction

This section covers the methodology employed for the Environmental Impact Assessment (EIA) of the proposed construction of the fuel retail facility in Spitzkoppe. The EIA process covered an initial field survey and review of the development project designs, establishment of baseline information, EIA process and procedures, public consultation, assessment methods, review of alternatives and environmental impact mitigation.

### 5.2 Environmental Impact Assessment process and procedures

The EIA process and procedure is guided by the Environmental Management Act (no. 7 of 2007) and EIA Regulations of 2012 as illustrated in **Figure 9**:



**Figure 9:** EIA process for the proposed fuel retail facility in Spitzkoppe.

### **5.3 Environmental Baseline Information**

To acquire baseline information on the proposed project and project location, a desk research approach was employed to evaluate reports and published literature. A physical, biological, and human environmental synopsis was created to summarise the environmental baseline conditions in the focal region.

### **5.4 Field Surveys/Site visit**

On the 19th of February 2023, a site visit was carried out in Spitzkoppe village to inspect the study's area and verify the environmental baseline information acquired during the initial desk study phase. In addition, the site visit allowed the consultants to do a preliminary feasibility investigation on the project.

### **5.5 Public Consultation Process**

The Environmental Impact Assessment process necessitated the participation of interested and affected parties (I&APs) by the proposed development. The Environmental Management Act No 7 of 2007 (regulations of 2012), and specifically section 21 call for public participation in the EIA process. Because of this requirement, the proponent placed notices in two local newspapers (Confidente and The Villager) on the 03<sup>rd</sup> and 10<sup>th</sup> March 2023 calling for registration of (I&APs) (**Appendix B**). Furthermore, notices were put at the SARI-DAO Mini Market, which is adjacent to the proposed project's site (**Appendix C**) and covered over the radio. This was followed by a site meeting with the affected community and registered (I&APs) which was held on the 13<sup>th</sup> May 2023 (**Appendix C**).

A background information document for the proposed project was produced and disseminated to the I&APs as well as the line ministry. Furthermore, the draft scoping report was distributed via email to the registered I&Aps. In addition, hard copies were made available for public use at the SARI-DAO Mini Market in Spitzkoppe village.

## **5.6 Environmental Impact Assessment Methods**

Impact assessment of the proposed fuel retail facility was carried in twofold:

1. Impact during construction phase.
2. Impact during operation phase.

Different approaches were used to assess both the positive and negative impact of the proposed construction of the fuel retail facility in Spitzkoppe.

### ***5.6.1 Leopold matrix method***

A Leopold matrix was used for assessing the impact of the proposed construction and operation of the fuel retail facility in Spitzkoppe. The Leopold matrix is a method for evaluating and numerically weighing potential impacts. It is a qualitative environmental impact assessment approach that includes the following levels: impact description, prediction and evaluation.

### ***5.6.2 Valued ecosystem components***

The identification of Valued Ecosystem Components (VECs) was the first stage in the Leopold matrix assessment approach. VECs constitute essential parts of the physical, biological and socioeconomic environment that are expected to be among the most vulnerable receptors to the impact of the planned fuel retail facility (*Table 1*).

**Table 1: Identified VECs.**

<b>Environmental resource</b>	<b>Valued ecosystem component</b>	<b>Importance of the valued ecosystem component</b>
Air and climate	Air quality	<ul style="list-style-type: none"> <li>• Effects on air for local residents.</li> <li>• Health implications for all users.</li> <li>• Effects on atmosphere.</li> </ul>
	Climate	<ul style="list-style-type: none"> <li>• Contribution to global warming.</li> </ul>
Land	Geomorphology and landscape	<ul style="list-style-type: none"> <li>• Change in land morphology.</li> <li>• Use of non-renewable energy.</li> <li>• Importance to local community.</li> <li>• Effects of waste disposal methods.</li> </ul>
Water	Ground water quality	<ul style="list-style-type: none"> <li>• Sustainability issues.</li> <li>• Conflict use (irrigation and drinking).</li> </ul>
	River water quality	<ul style="list-style-type: none"> <li>• Sustainability issue.</li> <li>• Health implications for all users.</li> </ul>
Ecology and biodiversity	Terrestrial ecology and biodiversity	<ul style="list-style-type: none"> <li>• Importance to the well-being of all biological content of the ecosystem.</li> <li>• Importance for ecosystem well-being and proper functioning.</li> <li>• Use to community.</li> </ul>
Human Environment	Socio-economic & biodiversity	<ul style="list-style-type: none"> <li>• Economic use to the community.</li> <li>• Employment opportunities.</li> <li>• Community welfare.</li> </ul>
	Public health and safety	<ul style="list-style-type: none"> <li>• Operation impacts on community safety.</li> <li>• Reduction on gas flaring.</li> </ul>
	Noise pollution	<ul style="list-style-type: none"> <li>• Influence on biodiversity.</li> <li>• Nuisance to local community and ecosystem.</li> </ul>
	Agriculture	<ul style="list-style-type: none"> <li>• Socio-economic importance.</li> <li>• National and community value creation.</li> </ul>
	Light pollution	<ul style="list-style-type: none"> <li>• Nuisance to local community and ecosystem.</li> <li>• Road accidents, theft and property damage.</li> </ul>

### **5.6.3 Impacts aspects**

**Table 2** was used to populate multiple environmental variables that will be impacted by each project activity during construction and operation phases.

**Table 2: Identified Environmental Impact Variables emanating from project activities.**

Project component	Environmental Impact Variable
Construction activities – site selection and preparation.	<ul style="list-style-type: none"> <li>• Removal of trees and herbaceous vegetation</li> <li>• Topsoil clearing and removal and land levelling</li> <li>• Transport and equipment use</li> <li>• Purchase and delivery of construction materials and services.</li> <li>• Staff hiring</li> </ul>
Construction activities – civil works and mechanical erection.	<ul style="list-style-type: none"> <li>• Excavation, earthworks, backfill and compaction.</li> <li>• Transport and use of vehicles.</li> <li>• Use of construction equipment.</li> <li>• Structures for utilities (freshwater pipelines and sewerages).</li> <li>• Water extraction and water supply.</li> <li>• Construction of infrastructures (abolition facilities and luxury campsites)</li> </ul>
Construction activities – testing, installations and commissioning.	<ul style="list-style-type: none"> <li>• Installation of utilities and connection (freshwater and power supply, drainage of liquid waste, communication services and others)</li> <li>• Waste disposal, clean-up, landscaping and preparations to make the property ready for use.</li> </ul>
Operation activities.	<ul style="list-style-type: none"> <li>• Staff hiring.</li> <li>• Underground water extraction and operation of freshwater intake pipeline.</li> <li>• Liquide waste pond operation.</li> <li>• Solid waste generation and disposal.</li> <li>• Energy use.</li> <li>• Traffic operation and public parking.</li> </ul>
General operational issues.	<ul style="list-style-type: none"> <li>• Spills and leaks</li> <li>• Formal reception area and on-site representative available 24-hours, 7 days a week.</li> <li>• Laundry, dining and entertainment facilities provide within boundary walls of property.</li> </ul>

#### **5.6.4 Impacts evaluation**

The Leopold matrix's third stage involved evaluating the significance of each influence in order to ascertain how it will affect the receiving environment. As shown in **Table 3**, each impact was rated according to its nature, extent, duration, magnitude and probability.

**Table 3: Ratings matrix for assessed impacts.**

Assessment of Impact	Rating	Description
Nature/Type	D I C	<b>Direct</b> - Caused by the project and occur simultaneously. <b>Indirect</b> - Associated with project and may not be happen immediately. <b>Cumulative</b> - Combined impacts that could be associated with other existing activities or future activities not related to the project.
Extent	I L R N I	<b>Immediate.</b> <b>Local</b> -Spitzkoppe Village. <b>Regional</b> - Erongo Region. <b>National</b> - Namibia. <b>International.</b>
Duration	ST MT LT	<b>Short term</b> - 0-5 years. <b>Medium term</b> - 5-15 years. <b>Long Term</b> - >15 years.
Magnitude	L M H	<b>Low</b> - the natural, cultural and social functions and processes are not affected. <b>Medium</b> -the affected environment is altered but natural, cultural and social functions and processes can continue. <b>High</b> - the affected environment is altered to the extent that natural, cultural and social functions and processes will temporarily or permanently stop.
Probability	LP P HP D	<b>Low probability</b> -possibility of impact occurring is low, below 25%. <b>Probable</b> -there is a distinct possibility that it will occur, approximately 50%. <b>Highly probable</b> - the impact is most likely to occur, 75%. <b>Definite</b> - the impact will occur, more than 100%.
Significance without mitigation measures (WOM)	Impact Factor (IF)	<b>Impact Factor was measured on a scale of 1 to 5 with 1 representing low significance and five highest significance.</b>



## **5.7 Analysis of Alternatives**

Alternative project designs and strategies were investigated in order to reduce negative environmental impacts while achieving project objectives. Alternatives to the intended Spitzkoppe fuel retail facility refers to different approaches to meeting the overall purpose and requirements of the proposed fuel retail facility, which included alternatives to the:

- Proposed site location;
- Design or layout;
- Technology to be used; and
- Operational aspects of the proposed fuel retail facility in Spitzkoppe.

## **5.8 Environmental Impact Mitigation**

An Environmental Management Plan (EMP) was produced which described strategies for mitigating, controlling, and monitoring activities that may have significant environmental effects. The EMP was submitted together with the scoping report to the I&As for public review.

## **6 ENVIRONMENTAL IMPACT ASSESMENT'S FINDINGS AND DISCUSSIONS**

### **6.1 Introduction**

This section of the report presents and discusses findings of the environmental impact assessment which was carried for the proposed construction and operation of a fuel retail facility in Spitzkoppe, Daures Constituency in Erongo region. Findings covers the environmental baseline information and assessment:

- Impact on abiotic environment (abiotic, biotic, social and cultural,
- Impact on biotic environment
- Impact on social and cultural environment
- Impact on human environment

### **6.2 Environmental Baseline Information**

The environmental baseline conditions in the focus area were described in terms of physical, biological and human environmental synopsis. The results are presented in section **6.2.1** to **6.2.4**.

#### **6.2.1 Climate and weather**

Namibia is one of the largest and driest countries in Sub-Saharan Africa, with considerable climatic variability characterised by prolonged droughts, unpredictable and varied rainfall patterns, temperature variability, and water scarcity (Dove, 2021). Particularly, the dry climate in the proposed area is mostly owing to the cold Benguela Current, whose cold air influence the coastal areas (Bender, 1999; Dove, 2021). However, throughout the summer, the Inter-Tropical Convergence Zone (ITCZ) absorbs moisture, resulting in the rainy season between October and April.

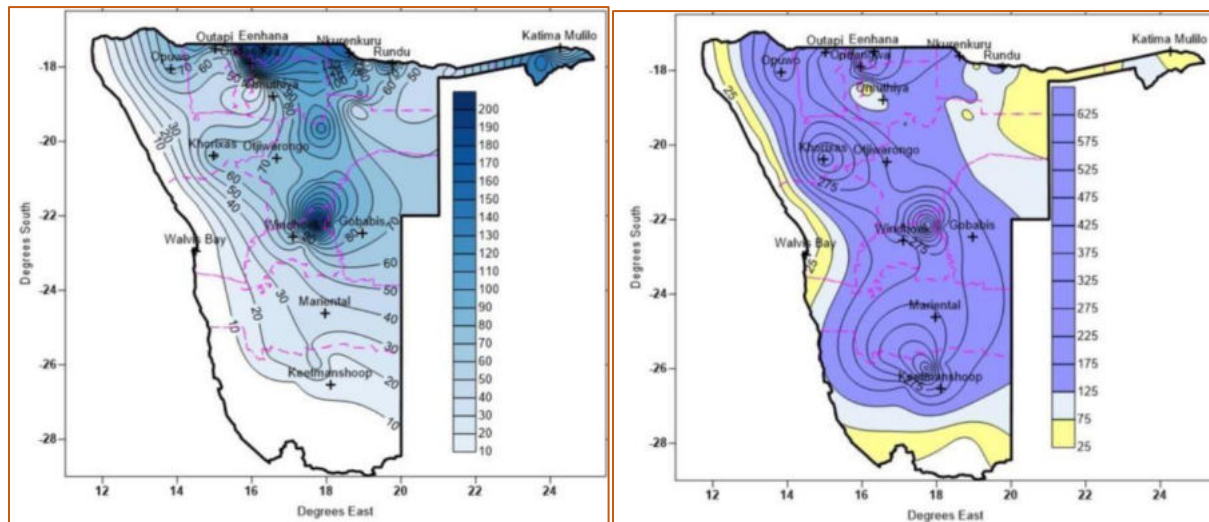
##### **6.2.1.1 Rainfall**

The rainfall pattern in Namibia is defined by a distinct gradient of more rainfall in the mainland interior receiving rainfall above 200 mm in some parts while the coastal regions receives rainfall below 100 mm per year, including the greater part of the Erongo region (**Figure 10**). This decrease in precipitation is primarily due to the influence of the cold Benguela current upwelling current, which is a source of dry cold air masses with limited precipitation in the form of fog along Namibia's coastal regions.

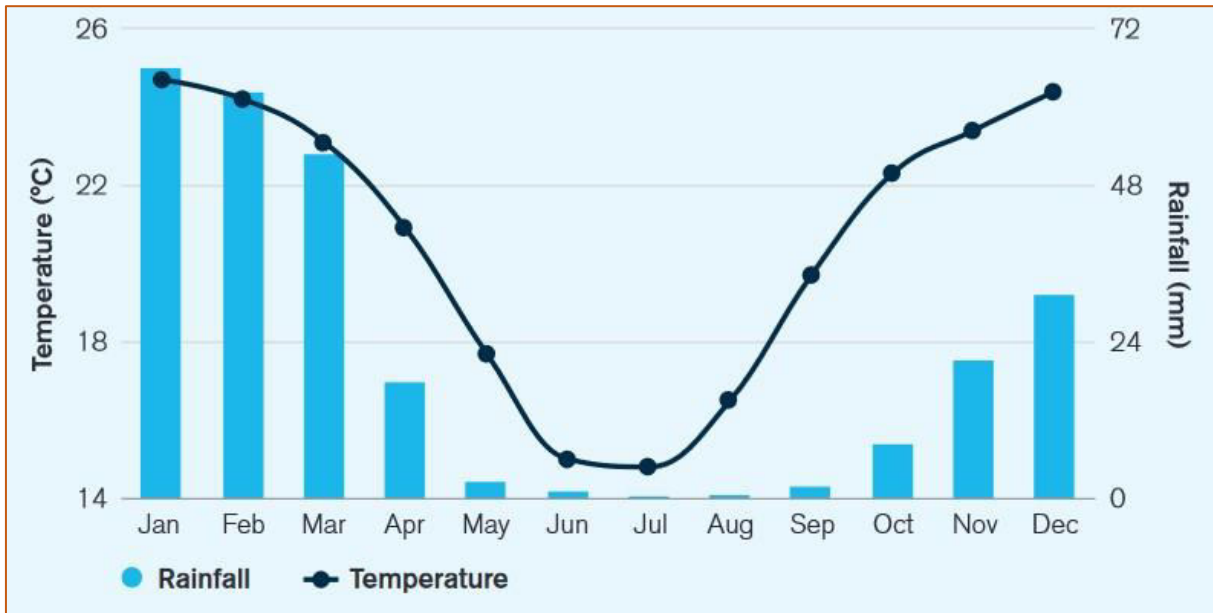
During summer, the movement of the ITCZ to the south influences rainfall in Namibia. The rainy season typically lasts from November to April the following year with January having the most rainfall (**Figure 11**). However, rainfall can occur in Namibia's southern regions during winter as the Temperate Zone moves northward. Coastal fog, on the other hand, is more predictable than rainfall in the western part of the country, particularly in Erongo region.

### *Spitzkoppe*

The annual average precipitation in the area is about 50-100 mm (Burke, 2008). Rainfall around Spitzkoppe is unpredictable with no consistent trend over time. The wettest period is late summer, from January to April, with the driest period being early summer, from September to December (Bender, 1999). With 36% annual humidity coupled with daily temperature fluctuations, evaporation is believed to be 42 times greater than rainfall in the area (Bender, 1999)



**Figure 10:** Spatial distribution of rainfall in Namibia, December 2019 (left) and rainfall as a percentage of normal rainfall (right). Rainfall units are in millimeters. Source: Ministry of Work and Transport (2023).



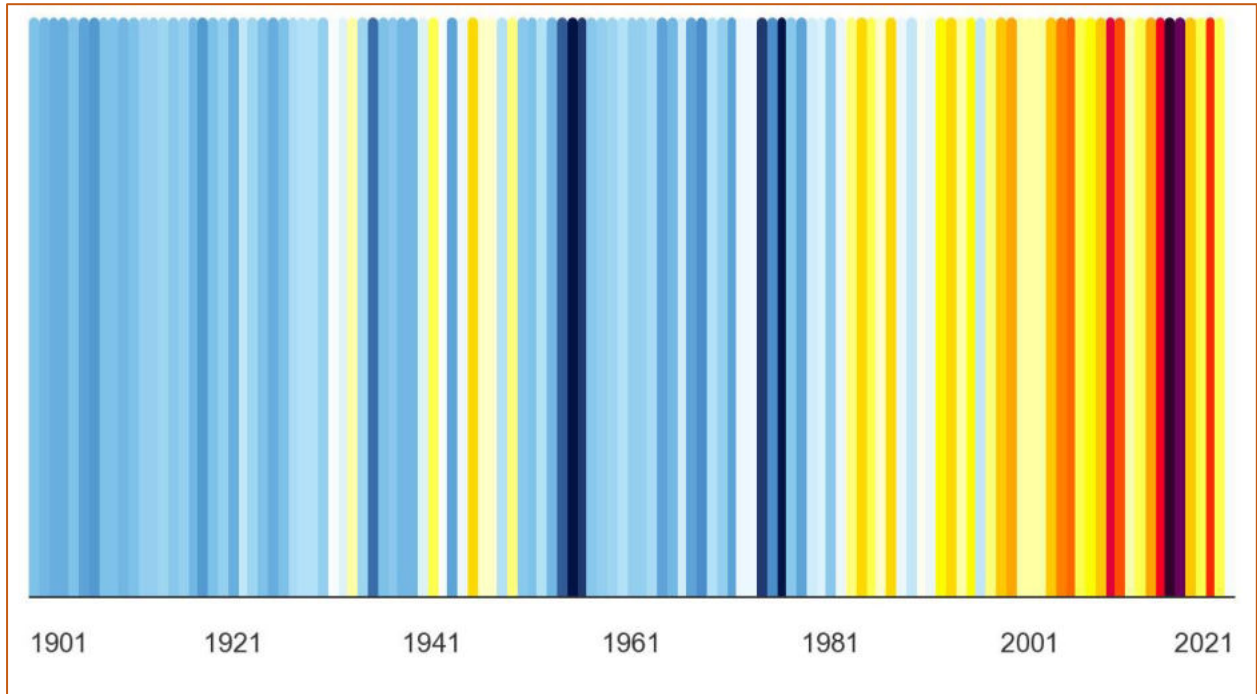
**Figure 11:** Namibian average monthly temperature and rainfall between 1991 and 2020, inclusive (Dove, 2021).

### 6.2.1.2 Temperature

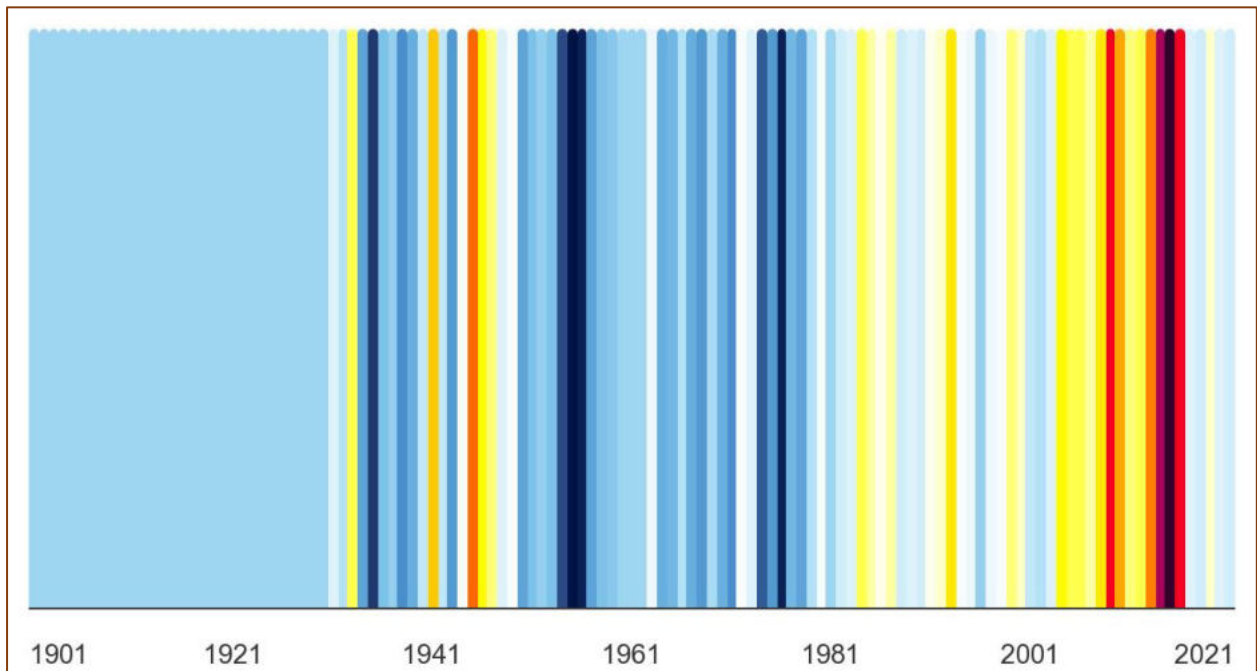
Temperatures are generally high in Namibia's interior. The coastal region of the country, on the other hand, experiences comparatively milder temperatures throughout the year, due to the Cold Benguela current. Summer and rainy season temperatures are often higher (**Figure 11**). Furthermore, rising mean, maximum, and minimum temperatures have been observed for Namibia over the years (**Figures 12 and 13**).

### Spitzkoppe

Spitzkoppe has arid climatic conditions with higher midsummer temperatures averaging between 31 and 32°C and wintertime temperatures ranging between 9 and 10°C (Burke, 2008).



**Figure 12:** Long-term annual mean temperature for Namibia between 1901 to 2021, inclusive (CCKP, 2022).

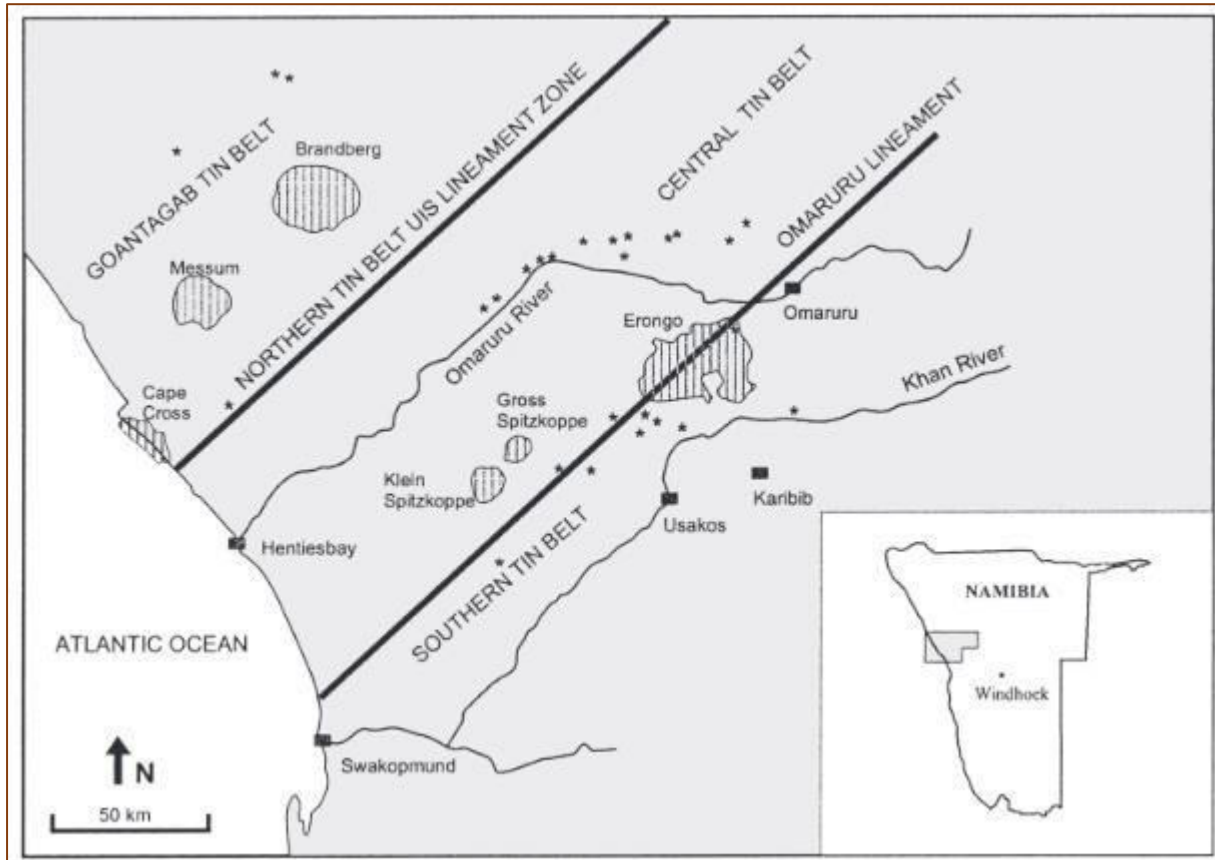


**Figure 13:** Long-term annual mean temperature for Erongo region from 1901 to 2021, inclusive (CCKP, 2022).

### **6.2.2 Geo-physical environment**

Spitzkoppe is situated in the north western part of the Erongo region, about 160 km from the coastal town of Swakopmund. The geological setting of the Erongo region is characterized by the granite rocks of the Brandberg and Spitzkoppe mountains, as well as the basalt volcanic rocks of the Etendeka mountain (Garrard *et al*, 2017). The Brandberg is Namibia's highest mountain, with its highest summit Königstein standing at 2,606 metres above sea level. It is made up of a single fragment of granite (Van Jaarsveld & Voigt 2004). Furthermore, the Brandberg mountain has a completely different environment than its surroundings because its upper peaks receive more rainfall and fog from the Atlantic Ocean. Weather conditions in the Daures Constituency are generally impacted by fog induced by the cold north-flowing Benguella Current of the Atlantic Ocean, with an increase in altitude, an increase in rainfall, and a decrease in temperature (Van Jaarsveld & Voigt 2004).

The Spitzkoppe area, on the other hand, consists of three granatic mountains: the Gross Spitzkoppe, the tallest at 1728 metres and the main tourist attraction in the area (**Figure 14 and 15**), the Pontok mountain, which is adjacent to the Gross Spitzkoppe mountain, and the Klein Spitzkoppe Jouve, L. (2012). (Jouve, 2012.) Simialry to the Erongo mountain, the weather around Spitzkoppe mountains is distinguished by the arid weather of the Namib Desert, which is affected by the South Atlantic Anticyclonic Cell, the Benguela Upwelling System, the Great Escarpment, and the lack of significant topographical features on the 150km wide plains (Bender, 1999). The region is also divided by ephemeral rivers, such as the Spitzkop, Omaruru, Swakop, ugab, Kuiesb and Khan rivers that only run after heavy rains in the catchment areas.



**Figure 14:** Map showing key geographical features in Erongo region including the Gross Spitzkoppe (Frindt & Poutiainen 2002).



**Figure 15:** Gross Spitzkoppe mountain (Jouve, 2012).

### **6.2.2.1 Water resources and sources**

The supply of surface water is closely related to rainfall pattern in both time and space. As a result, surface water resources in Namibia are sparse and unpredictable. Rainfall in Erongo region is unpredictable and the rivers in the region only flow after heavy rainfall in the highlands of the central Namibia. Groundwater resources, on the other hand, are unevenly distributed across the country, being closely associated with underground rock types that vary with geological conditions; as a result, there are only a few favourable locations where large volumes of groundwater can be extracted sustainably (Christellis et al., 2001). Furthermore, about 48% of the country is covered by unconsolidated deposits that could be porous aquifers, while the rest is made up of hard, fractured rocks (Christellis et al., 2001). Nonetheless groundwater is an important source in Daures constituency and particularly around Spitzkoppe area. Therefore, the discussion of this section further focused on the groundwater in Erongo region.

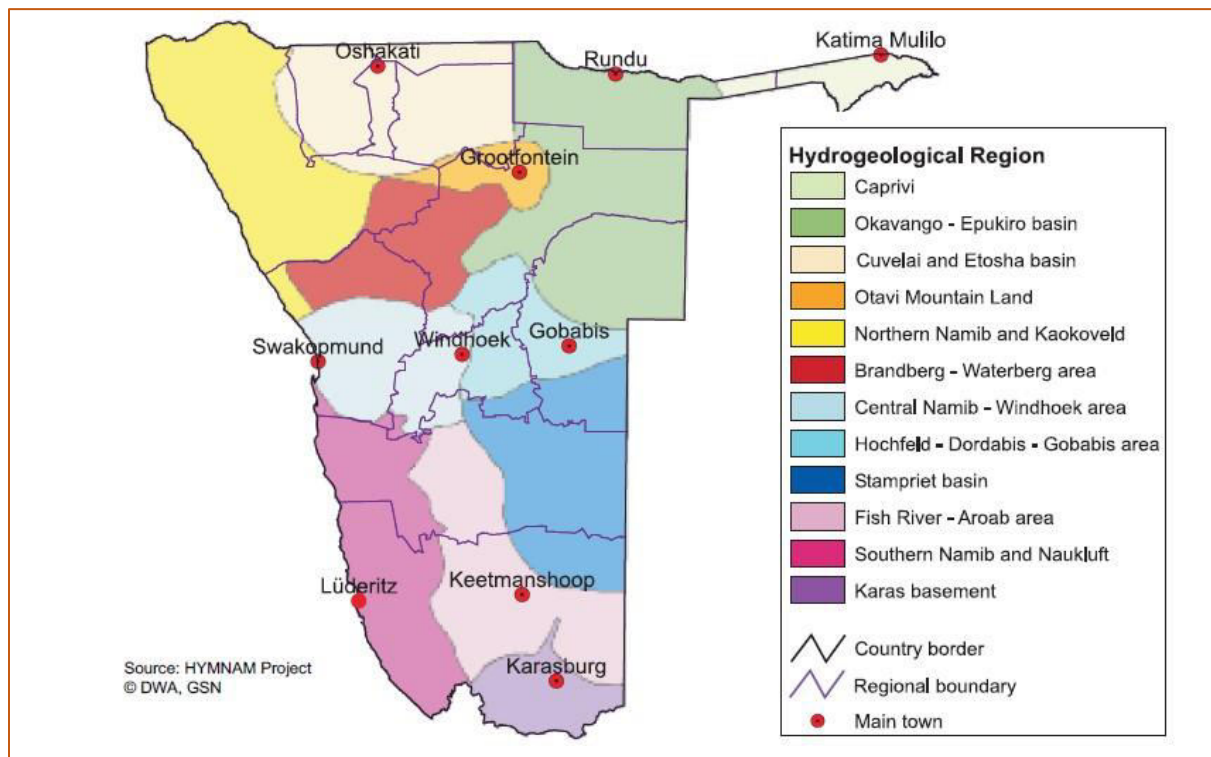
The Namibian groundwater reservoirs is classified into 12 groundwater (also referred to as basins) based on their geological and hydrogeological characteristics of the areas (Christellis et al., 2001). The 12 basins are shown in **Figure 16**. Erongo region is covered by two major basins; the Brandberg, Erongo, and Waterberg groundwater basin as well as the Central Namib-Windhoek basin. The Brandberg, Erongo, and Waterberg extends from the Waterberg in the north-east to the Atlantic coast in the south-west. It encompasses the majority of the western Otjozondjupa Region and the northern Erongo Region including most part of the Daures constituency (**Figure 16**). The Swakop Group of the Damara Sequence in the area has minimal groundwater potential due to fractured aquifers. However, carbonates, like marbles and limestones, have a modest potential, with high groundwater yields near fracture zones and karstified contact zones (Christellis et al., 2001). The marble aquifer in Otjiwarongo is the major aquifer of the Brandberg, Erongo, and Waterberg groundwater basin.

#### **Spitzkoppe**

The Central Namib-Windhoek region stretches from Windhoek to the Atlantic Ocean and include the area around Spitzkoppe. This region is dominated by Damara sequence with large carbonate deposits (Christellis et al., 2001). The majority of the settlements in the western Central Region are located on or close to rivers, which is a reflection of the accessibility of ground water in the region. However, the only high producing aquifer is the



quartzite one around Windhoek area. The Spitzkoppe water supply exploit fractured aquifers with will relatively low yields (Christellis et al., 2001).



**Figure 16:** Groundwater basins in Namibia (Christellis et al., 2001).

### 6.2.3 Biological environment

The biological diversity and richness of the Erongo region vary with distance from the shore, indicating that climate has a significant impact on the community structures of both plants and animals. The Brandberg mountain and its surrounding inselbergs are significant biodiversity hotspots of greater endemism, and biological variety appears to be independent of the overall regional climate environment.

#### 6.2.3.1 Flora

Spitzkoppe is a high-botanical location with remarkable flora diversity in Namibia's central Namib. As tourism has increased in recent years, this area is critical for conservation and land use planning. The distribution patterns of flora around Spitzkoppe is diverse and includes a number of endemic species to the central and Northern Namib as well as some protected species under the country's forestry legislations (Burke, 2008).

Due to arid weather conditions in the region, most species in the region are considered to be of high sensitivity. These include the; granite outcrop shrubland (*Barleria lancifolia* and *Commiphora virgata*) and dolerite (*Commiphora glaucescens*) outcrop shrubs, camelthorns (*Acacia erioloba* and *Boscia foetida*), tamarisk riverine shrubs (*Tamarix usneoides*) of the Spitzkoppe River and type of shallow drainage line vegetation (*Acacia reficiens* and *Catophractes alexandri*) (Burke, 2008). In addition, there are other vegetation types found in the region which comprised of: Damara milk bush (*Euphorbia damarana*) dwarf succulent and commiphora shrubs (*Zygophyllum cylindrifolium* and *Commiphora virgata*), bushman smelly shepherd's tree, gemsbok tail grass (*Stipagrostis uniplumis*, *Boscia foetida*, *Stipagrostis uniplumis*, *Stipagrostis hochstetteriana* and *Stipagrostis uniplumis* var. *uniplumis*) and variable petalidium shrub (*Petalidium variable*).

There were no records found of endangered or threatened species in the proposed area (Spitzkoppe and surrounding). However, due to arid weather conditions in the region, most species in the region is considered to be of high sensitivity. Furthermore, there is very little or no vegetation observed at the proposed project site. Thus, very little or no vegetation removal will take place during construction and operation phases of the project (**Figure 17**).



**Figure 17:** Project site.

### **6.2.3.2 Fauna**

The Brandberg mountain and surrounding inselbergs, including the Gloss Spitzkoppe, provide habitat for some of Namibia's indigenous fauna, such as birds. This is due to the unique microclimate regime of the Brandberg Mountain. The highest mountain in the country, Brandberg, traps the cold moist air of the Benguela current, and when this cold air mixes with the warm air from the mainland, it creates a unique micro-climate that supports diverse fauna. Endemism in the area is higher among fauna species that are less mobile than those that are more mobile, such as reptiles, insects, and amphibians.

Due to climate and other environmental variables, as well as development around Spitzkoppe village, there is no anticipation of many indigenous animals in the specific project area. However, some animals, such as reptiles, require rocky environment, which is characteristic of the wider project area. As a result, it was noted that animals have no bounds, live in habitats that give the most suitable environment, and may locate niches in locations that one would least expect. Therefore, the general fauna in the region is described below.

#### ***Birds***

At least 151 bird species have been identified in the Spitzkoppe mountain range (Brown, 1991). The distribution of birds is considerably influenced by climate variability, with Namib birds like the Gray's Lark migrating eastward during dry seasons and Savanna species such as the Carp's Tit extending westward during wet periods.

Many species indigenous to the escarpment transition zone live in the adjacent woodland drainage systems on the lower slopes of the Brandberg and Spitzkoppe. These include the Hartlaub's Francolin, Ruppells' parrot, Ruppells's bustard, Rosy-faced Lovebirds, Monteiro's Hornbill, Herero Chat, Rockrunner and Whitetailed Shrike. The list of other bird species recorded in Spitzkoppe area is presented in **Appendix D**.

#### ***Reptiles***

Namibia is one of the important habitat for reptiles in Africa. The country has about 261 species, which account for about 30% of the African species diversity (Griffin 1998a). Furthermore, there are about 55 species that are endemic to Namibia which makes a up about 21% of the estimated 261 species found in Namibia. In general, there are about 100 species

in Erongo region of which most of them are around the Namib-Naukluft and Sekeleton Coast national parks and at least 20 to 30 species are endemic to the centraleastern part of the region around Karibib, Kransberg and Omaruru area (Cunningham and van Zyl, 2022). This indicate a wide range of species diversity and endemism within the region reflecting high probability of high diversity endemism of reptiles around Spitzkoppe area. Lizards makes up majority of reptiles found in the general area followed by snakes. There are at least 30 snakes species in the area surrounding Kransberg and Omaruru and over 40 reptiles (Cunningham and van Zyl, 2022). Other types of reptiles found in the general area includes tortoise and terrapins.

One of the species group of importance, which could be present in the area, is the gecko lizards. It is estimated that at least 36 species of *Pachydactylus* are endemic to Namibia (Heinicke at al., 2011). The *Pachydactylus* is the most dominant group of nocturnal geckos in southern Africa. One of the common species found around Spitzkoppe is the *Pachydactylus bicolor* (Heinicke at al., 2011). On the outskirts of Spitzkoppe, there are about seven species that are strictly endemic to Brandber mountain. These includes the Brandberg Gecko *Pachydactylus gaiasensis*, Albert's burrowing skunk (*Pepsina alberti*), Namaqua spinytail lizard (*Cordylus namaquensis*) and Nama padloper (*Homopus sp.nov*) (Griffin 2003). More species found in the region that could be present on the general area are presented in **Appendix F**.

### *Amphibians*

The diversity for amphibians in Namibia require conservation efforts due to the low number of species reported to be endemic to Namibia. Out of the estimated 200 species found in southern Africa, Namibia is expected to have a share of about 57 to 65 species (29 - 33 %) of which only about 6 are thought to be endemic to Namibia (Cunningham and van Zyl, 2022). Due to the habitat and adaptation strategies, the given figures are not surprising considering that Namibia is an arid country. Most amphibians are adapted to wet habitats and therefore a great number of amphibians in Namibia occurs in the north-eastern part of Namibia.

Due to lack of noticeable wetlands, it is expected species diversity and the probability of amphibians' existence around the specific project site is low. However, this study note that there are important species around the wider general area that may occur in the Spitzkoppe proximity. These includes the near threatened Giant Bullfrog (*Pyxicephalus adspersus*), the

marbled rubber frog (*Phrynomantu annectans*) found in the Brandberg Mountain and surrounding inselbergs as well as the Okahandja toad (*Bufo hoeschi*) and the Mossamedes toad (*B. grandsonae*) which are found in the Ugab riverbed.

### *Invertebrates*

The invertebrates that can be affected by the proposed project includes spiders and scorpions. Two species group are mostly nocturnal and largely active at night in search of food. Generally, spiders and scorpions can be considered as key state of environmental indicator species due to their carbon turnover as well as their ability to respond rapidly to changes in the environment.

There are at least 11 species of spiders that are expected to occur in the general area of which nine are thought to be endemic to Brandberg and surrounding insenbergs. These species include the *Pseudicius adustus*, *Habrocestrum namibicum*, *Langona pilosa*, *Langona vitiosa*, *Phlegra karoo*, *Phlegra fenelle*, *Aelurillus mirabilis*, *Evarcha acuta*, *Heliophanus montanus* *Mashonams brandbergensis*, and *Pellenes tharinae*.

In terms of scorpion diversity, at least 21 species are reported for the general project area. *Opisthophthalmus lamorali* and *Opisthophthalmus cavimanus*. The list of scorpions that can be expected to occur in the proximity of the specific project area are presented in **Appendix E**.

### *Mammals*

Mammals are one of the most important wildlife in terms of socio-economic contributions due to their intrinsic value that significantly contribute to tourism in the wider general area. However, there is not many large mammals i.e. elephants, lions, leopards, cheetahs, antelopes etc. around the specific project due to anthropogenic activities that includes development of the Spitzkoppe village and surrounding farm settlements coupled with climatic and other environmental factors such as prolonged drought in recent years. Conversely, there is still some mammals that may occur in the wider general project area that may be affected by the proposed project. In general, there are about 250 species of mammals in Namibia of which at least 14 species are endemic to Namibia. According to Griffin (1998b) the endemic mammal fauna is dominated by the rodent family *Petromuridae* (Dassie rat) and the rodent genera *Gerbillurus* and *Petromyscus*. However, according to Cunningham and van Zyl (2022)

these groups are not adequately studied particularly around the wider general project area, thus their reported species richness might be underrepresented.

Generally terrestrial diversity and endemism of mammals is classified as average and high respectively around Kransberg and Omaruru which are closer to the project area (Cunningham and van Zyl, 2022). The area have about 61-75 species of which 5-6 are endemic to the area around Kransberg and Omaruru. Higher densities of larger mammals including mountain zebra, kudu, hartebeest, steenbok, springbok and oryx are reported to occur in the area #Gaingu conservancy in which Spitzkoppe is located. Furthermore, at least 4 species of carnivorous mammals (leopards and cheetahs) are present in the area. Due to high mobility which enable access to wider habitats, impact of the proposed fuel retail facility in Spitzkoppe is expected to be very low on larger mammals. However, monitoring of smaller mammals such as rats may need to be considered. Key mammals found in the region that may occur in the proximity of the specific project area include: African Elephant (*Loxodonta Africana*), black rhinoceros (*Diceros bicornis*), desert lion (*Panthera leo melanochaita*), damara dik-dik (*Madoqua kirkii*), Leopard (*Panther pardus*), cheetah (*Acinonyx jubatus*) and mountain zebra (*Equus zebra hartmannae*).

#### **6.2.4 Human environment**

The establishment of the proposed Facility in Spitzkoppe village may have local and regional effects on the human environment. Human environment in this case refers to the physical, social and economic conditions or factors that interactively influence the state and quality of living conditions of people affected by the proposed project. These factors can include land use and socio-economic activities in the proposed project area. The proposed Facility is situated in Daures constituency in Erongo region. According to the projection made by Namibia Statistics Agency (2014b), the growth of the population in Erongo region will be second only to Khomas region by 2041 while the overall urban population in the country is expected to increase by 24 per cent within the same period. The annual growth rate in Erongo region is estimated at 3.4 per cent which is higher than Khomas region (3.1 per cent) and the overall country's annual growth rate of 1.4 per cent (Namibia Statistics Agency, 2012). The population (11 350) in Daures constituency is the third smallest among the seven constituencies of Erongo region while Daures constituency is the largest in size covering an area of 17,786.6 km<sup>2</sup> (Namibia Statistics Agency, 2014b).

Erongo region has some of the countries popular tourist destinations owing it to its unique landscape and climate. On the other hand, Daures constituency has popular features of high tourist attractions such as the Brandberg mountain and surrounding inselbergs as well as the Spitzkoppe mountain. Brandberg (locally known as *Dâures* in Damara and *Omukuruvaro* in Otjiherero) is the highest mountain in Namibia standing at about 2,606 metres above sea level. Indigenous languages largely spoken in the constituency are Khoekoegowab, Otjiherero and Afrikaans although other languages such English and other indigenous Namibian languages are also spoken.

#### **6.2.4.1 Land use**

Land use around the specific project area, Spitzkoppe village include tourism, agriculture mining and domestic use. Development in Spitzkoppe village began around the late 1960s to early 1970s after some Damara families were relocated to the area under the Odendaal authority. A village with a church further developed and the population of the village began to increase. At present, the human population in the Spitzkoppe village is estimated to be at approximately 500 people who live under the leadership of Chief Immanuel #Nu-Axa/Gâseb of the !OE#Gan Traditional Authority. Furthermore, the Spitzkoppe village is found in the #Gaingu Conservancy. The #Gaingu Conservancy is about 7,000 km<sup>2</sup> and has diverse wildlife that include kudu, oryx, steenbok, hartebeest, springbuck, mountain zebra and leopards. The in-depth description of the fauna and flora is discussed under biological environment (section 6.2.3 of this report). The conservancy is managed through the local traditional authority. A consent letter from the #Gaingu Conservancy for the proposed fuel retail facility have been acquired for this project (**see Appendix H**).

In Spitzkoppe, there is a campsite which have been leased by a joint venture between the Spitzkoppe Community Development Association and the Quiver Tree Investment 38 cc. The campsite is aimed at attracting tourists and generating funds that are shared between the two leasing partners on a 50/50 stake. Other land use around Spitzkoppe are tourism activities that include, bird sighting, mountain hiking, precious stones mining and small-scale businesses. Furthermore, there are several individual farming communities around Spitzkoppe village that are sparsely populated, with significant distances between them.

#### **6.2.4.2 Socio economic status**

About 44% of the Daures constituency's residents were unemployed in 2011, an increase from 29% recorded in 2001 (Namibia Statistics Agency, 2014b). Majority of people around Spitzkoppe area live mostly on small livestock farming, small scale mining of precious stones (i.e. topaz, smoky quartz, aquamarine and tourmaline) as well as tourism related activities. However, the prolonged drought periods in recent years resulted in low livestock production, prompting some community farmers in the area to relocate to areas with more water supplies and good graze pasture fields.

The Klein Spitzkoppe Mountain in the surrounding area has one of the best-known mineral localities in the country. These minerals have been mined from pegmatites and their erosional products by the local communities for many years. Tourism in the area which has been on the rise has also potentially improved the livelihoods of the local population through sales of the precious stones and other interactions.

As mentioned before, the village has a school and church that provide modern and moral education to the communities respectively. This has a potential of improving the social aspects of the community. However, only 8% of 15 years and older people in Daures constituency were in school based on the 2011 population census (Namibia Statistics Agency, 2014b).

In addition, there are other economic opportunities that include businesses within the village. In this regard, the proponent has established a mini market in 2022 at the village which sells basic household commodities and food items. Other small business establishments are also found in the village. Furthermore, there are other opportunities in the wider general project areas that contribute to the socio-economic aspects of the local communities. These include the green hydrogen project, lithium mining and other larger development in the Daures constituency.

### **6.3 Public Participation in the EIA process**

The public participation process (PPP) provided sufficient and accessible information to IAPs and stakeholders in an independent and neutral way that enabled participants to raise comments, issues of concern and suggestions for inputs into the EIA and EMP reports.



Furthermore, the PPP provided a platform for the IAPs and stakeholders to contribute relevant local and traditional knowledge to the environmental assessment. During the EIA phase, public participation allowed IAPs and stakeholders to review and provide comments on the findings of the environmental assessment and the proposed management measures. IAPs and stakeholders will be notified about the outcome of the authority’s decision and by when the decision may be appealed.

**6.3.1 Public Notices and Invitations**

Following the EMA Act No 7 of 2007 (and its regulations of 2012), public notices were placed in two local newspapers (Confidente and The Villager) on the 3<sup>rd</sup> and 10<sup>th</sup> March 2023 calling for registration of IAPs and stakeholders (**Appendix B**). Furthermore, notices were put at the SARI-DAO Mini Market, which is adjacent to the proposed project’s site (**Appendix C**). Invitations to the public meeting were sent out via email to registered IAPs and stakeholders. Furthermore, prominent members of the community were privately invited. Most, importantly, an announcement about the meeting was broadcasted on the local radio in order to cover a wide number of IAPs and stakeholders. The use of the above communications ensured a broader coverage in this PPP.

**6.3.2 Public meeting**

After a wide coverage of the public invitations to the public participation meeting as indicated above, a successful meeting was held at the SARI-DAO Mini Market in Spitzkoppe village on the 13<sup>th</sup> May 2023 (see **Figure 18** and **Appendix C** for attendance register).



**Figure 18:** Public participation meeting.

A background information document for the proposed project was produced and disseminated to the IAPs and stakeholders as well as the line ministry. The background information was presented at the public consultation meeting where 41 IAPs and stakeholders participated in the PPP and all raised questions, comments and concerns as well as responses by the consultants were captured under **sections 6.3.2.1** and **6.3.2.2** respectively.

### ***6.3.2.1 Raised Questions, Comments and Concerns by the Interested and Affected Parties (I&Aps)***

The proponent opened the meeting and introduced the consulting team. Thereafter, the proponent excused himself to allow participants to freely express and raise their inputs. Translation from English to Damara was done by Mr. Abraham M. Noabeb. The number in blanket correspond to the number of the participant on the attendance register (***Appendix C***):

1. How long does it take MEFT to make a decision on the environmental clearance certificate (ECC) application? (participant 1);
2. How many people will be employed when the project is approved? (participant 21);
3. What will be the operational hours of the facility? (participant 21);
4. The project is good and supported but there should be 24 hours security guards (participant 29);
5. Will the MEFT issue the licence to operate the fuel retail facility and if another authority is responsible, will it require another public meeting? (participant 41);
6. Is the site suitable for the service station? (participant 41);
7. MME/NAMCOR unfair distribution of fuel (participant 17);
8. Concern on the location of the proposed facility being closer to houses that use gas bottles for domestic use (i.e. cooking) (participant 18);
9. What is the possibility of relocating owners of the houses in the proximity to the proposed site? (participant 1);
10. Will prices of fuel be cheaper compared other fuel facility elsewhere in Namibia? Concern of price affordability due to economic status of Spitzkoppe community members (participant 21);
11. How is the fuel going to be transported to Spitzkoppe? (participant 21);

12. Project is supported especially that it is being implemented by a local person (member of the Spitzkoppe community), thus no objection (participant 4);
13. No objection as the project has a potential of boosting tourism and business opportunities in Spitzkoppe (participant 27);
14. The ECC should be granted for the project because fuel retail services in the entire Daures constituency is only offered in Uis which is about 94 km from Spitzkoppe (participant 41).

#### *6.3.2.2 Responses to the raised Questions, Comments and Concerns by the Interested and Affected Parties (I&Aps).*

1. The timeframe for decision making process on the ECC application varies and depends on the authority's (MEFT) urgency and it can take up to three to four months.
2. The employment question was reserved for the proponent and the consultant later found out from the proponent that it is difficult to preempt the number of employment that will be created by the project. However, the proponent indicated that a fair number will be about 10-15 people during the construction phase and two to four people during the operation phase.
3. The proponent indicated (after the meeting) that Spitzkoppe is a small village and therefore, the plan is to start with 07h00 AM to 18h00 PM operational hours. However, this can change depending on customer's demand.
4. Security guarding of the facility will be the responsibility of the proponent but very necessary especially after normal operating hours.
5. The license to operate a fuel retail facility is issued by the Ministry of Mines and Energy and no other public consultation meeting will be required in that regard.
6. The proposed site is appropriate as it is next to the proponent's mini-market. However, environmental impact assessment (EIA) will be conducted to determine the potential positive and negative impacts of the project. Since the EIA includes public participations which are taking place, the consultant advised the participants that if there is any concern with regard to the proposed site, these concerns should be raised so that they can be included in the assessment.

7. The alleged unfair distribution of fuel cannot be quantified and do not falls under the terms of reference of the present EIA.
8. The proponent has the responsibility to construct the facility as per the safety requirements and procedures. However, accidents do occur and proponent will need to get consent from neighbors.
9. Fuel retail facilities to exist in residential areas as well as in the industrial areas next to businesses. If the construction of the facility is done up to standard there will be no need for relocating people in the area. The proponent also needs to engage the affected parties and get consent. It also appeared that the owners of the houses next to the proposed plots were present at the meeting and indicated that they are in support of the proposed project as it has a potential of bringing development to the village.
10. Prices of fuel is regulated by the responsible authority (Ministry of Mines and Energy) and will be the same as in other part of the country.
11. Transportation of fuel requires high safety standards and these standards are expected to be implemented by the proponent.
12. It was noted that a number of participants publicly indicated their support towards the project.

#### **6.4 Impact Identification Assessment**

The assessment aimed to identify potential environmental impacts and issues associated with the proposed construction and operation of the fuel retail facility in Spitzkoppe. After a comprehensive analysis, the following factors or issues have been identified as having most significant importance (*Table 4-6*):

- ***Dust and Gaseous Emissions:***

The assessment identified the potential release of dust and gaseous emissions during the construction and operation of the fuel retail facility its potential impact on the air quality and climate. It emphasized the importance of managing and minimizing these emissions to prevent air pollution and associated health risks. The probability of dust and gaseous emission was found to be medium in most project activities.

- **Noise Pollution:**

This factor addressed the potential increase in noise levels associated with the construction and operation of the fuel retail facility. It evaluated the impact on the surrounding environment, including nearby residential areas and wildlife. The probability of noise pollution was found to be medium in most project activities.

- **Human Health and Accident Risks:**

This factor focused on the potential risks to human health and safety associated with the construction and operation of the fuel retail facility. It considered aspects such as traffic congestion, accidents, and the handling and storage of hazardous materials. The probability of Human health and accidents was found to be low.

- **Habitat Destruction or Modification:**

The assessment recognized the possibility of habitat destruction or modification due to the construction activities and the operation of the fuel retail facility. This factor addresses the importance of preserving and protecting the existing habitats and ecosystems in the area. The probability of habitat destruction or modification was found to be medium to high. However this only within the specific project area which is a small area (about 160 sqm).

- **Land Modification (Geomorphology):**

This factor considered the alteration of the land's physical features and geomorphological processes due to the construction and operation of the fuel retail facility. It evaluated the potential changes to landforms, drainage patterns, and erosion risks. The probability of land modification was found to be medium. However this only within the specific project area which is a small area (about 160 sqm).

- **Loss of Topsoil:**

The assessment recognized the potential loss of topsoil during the construction phase. This factor emphasized the importance of implementing measures to minimize soil erosion and preserve fertile topsoil. The probability of loss of topsoil was found to be medium. However this only within the specific project area which is a small area (about 160 sqm).

- **Loss of Reptiles, Insects, and Amphibians Diversity:**

This factor emphasized the potential impact on the local biodiversity, particularly reptiles, insects, and amphibians. The project may result in the loss or disruption of their habitats, affecting their population and diversity. However, the probability of this happening is found to be low. This is mainly due to the small size of the project and project site size.

- **Land/Soil Pollution:**

This factor focused on the potential contamination of land and soil due to spillages, leaks, or improper waste management practices associated with the fuel retail facility. It highlighted the importance of preventing soil pollution and preserving soil quality. The probability of land pollution was found to be medium to high. However this only within the specific project area which is a small area (about 160 sqm).

- **Groundwater Pollution (Leaching):**

The assessment identified the potential risk of increased groundwater pollution due to leaching from the fuel storage and handling facilities. This factor highlighted the importance of managing and preventing the contamination of groundwater resources. The probability of increased groundwater contamination was found to be low.

Even though some of these factors or impacts were found to have medium to high probability, their impacts are expected to be temporal as they mainly occur during the construction phase. However, it is crucial to address and mitigate these impacts through the implementation of appropriate measures and management practices to ensure the project's sustainability and minimize environmental harm.

**Table 4: Impact identification and evaluation from construction of fuel retail facility's related activities.**

<b>Project Stage and Activities</b>	<b>Impact and Receiving Environment (VECs)</b>	<b>Duration</b>	<b>Magnitude</b>	<b>Extent</b>	<b>Type</b>	<b>Probability</b>
		Short Term, Medium Term, Long Term.	Low, Medium, High.	Immediate (I) Localised (L) Regional (R) National (N)	Direct Indirect Cumulative.	Low, Medium, High.
<b>Site selection</b> <ul style="list-style-type: none"> <li>Choosing a site that is easily accessible for economic reasons.</li> <li>Choosing a site with less environmental impact.</li> <li>Site selected is small.</li> <li>Project size is also small.</li> </ul>	<b>Air-</b> dust creation	Short Term	Low	I, L	Direct	Medium
	<b>Land-</b> land use for fuel retail facility instead of other potential use. (land use conflict).	Long Term	Low	L, R, N	Direct	High
	<b>Ecology-</b> Habitat destruction.	Long Term	Low	I, L	Direct	Medium
	<b>Biodiversity-</b> Possible impact on small fauna's diversity. Flora absent from site.	Long Term	Low	I, L	Direct	Low
	<b>Human environment-</b> Noise and air pollution, Employment creation. Conflict overlapping land use.	Short Term	Low	I, L	Direct	Medium
<b>Site clearing</b> <ul style="list-style-type: none"> <li>Securing of site to limit access during construction.</li> <li>Clearing of land. <b>No vegetation on site.</b></li> <li>Land levelling- <b>minimal</b></li> <li>Waste generation</li> </ul>	<b>Air-</b> dust creation	Short Term	Low	I, L	Direct	Medium
	<b>Land-</b> removal of top soil. Waste creation	Long Term	Low	I	Direct	Medium
	<b>Ecology-</b> Habitat destruction.	Long Term	Low	I, L	Direct	Medium
	<b>Biodiversity-</b> Possible impact on small fauna's diversity. Flora absent from site.	Long Term	Low	I, L	Direct	Low
	<b>Human environment-</b> Noise and air pollution, Employment creation	Short Term	Low	I, L	Direct	Medium
<b>Excavation work</b> <ul style="list-style-type: none"> <li>Removing of top soil</li> <li>Trenching for underground petrol storage tanks.</li> </ul>	<b>Air-</b> dust and smoke creation	Short Term	Medium	I, L	Direct	Medium
	<b>Land-</b> removal of top soil. Possible hydrocarbons leakage from equipment.	Long Term, Short term respectively	Low	I, L	Direct	High
	<b>Ecology-</b> Habitat destruction.	Long Term	Low	I, L	Direct	High

	<b>Biodiversity-</b> Possible impact on small fauna's diversity. Flora absent from site.		Long Term	Low	I, L	Direct	Low	
<ul style="list-style-type: none"> <li>Trenching for boundary/firewall foundation.</li> <li>Waste generation.</li> </ul>	<b>Human environment</b>	Noise and air pollution, Health and Safety of employees	Short Term	Low	I, L	Direct	Medium	
		Impacts on Traffic	Short Term	Low	I, L	Direct	Low	
		Employment creation	Short Term	Medium	I, L	Direct	High	
<b>Bricks, Concrete and Welding work</b> <ul style="list-style-type: none"> <li>Building of underground petrol storage tanks.</li> <li>Welding work for canopy installation and above ground diesel storage tanks frames.</li> <li>Building of boundary/fire wall □ Backfilling.</li> </ul>	<b>Air-</b> dust creation		Short Term	Medium	I, L	Direct	Low	
	<b>Land-</b> Waste creation and disposal (pollution)		Short Term	Medium	I, L	Direct	High	
	<b>Ecology-</b> Habitat destruction.		Long Term	Low	I, L	Direct	Low	
	<b>Biodiversity-</b> Possible impact on small fauna's diversity. Flora absent from site.		Long Term	Low	I, L	Direct	Low	
	<b>Water –</b> usage of scarce ground water.		Medium Term	Low	I, L	Direct	Low	
	<b>Human environment</b>	Noise and air pollution, Health and Safety of employees		Short Term	Medium	I, L	Direct	Medium
		Impacts on Traffic		Short Term	Low	I, L	Direct	Low
		Employment creation		Short Term	High	I, L	Direct	High



**Table 5: Impact identification and evaluation from fuel retail facility's operation related activities.**

Project Activities	Stage and	Impact and Receiving Environment (VECs)	Duration	Magnitude	Extent	Type	Probability	
			Short Term, Medium Term, Long Term	Low, Medium, High	Immediate (I) Localised (L) Regional (R) National (N)	Direct Indirect Cumulative	Low, Medium, High.	
<b>Transportation of fuel</b> □ Transportation of fuel from wholesalers to Spitzkoppe by fuel tanker trucks.		<b>Air and climate-</b> Fuel truck gaseous emission. Dust from gravel road use.	Long Term	Low	I, L, R	Cumulative	Medium	
		<b>Land-</b> Fuel truck road use (land modification). Traffic congestion.	Long Term	Low	I, L, R	Cumulative	Medium	
		<b>Ecology-</b> Habitat destruction by trucks. Gaseous emission.	Medium Term	Low	I, L, R	Cumulative	Low	
		<b>Biodiversity-</b> Possible impact on small fauna's diversity	Long Term	Low	I, L, R	Cumulative	Low	
		<b>Human environment</b>	Noise and air pollution. Possible road accidents.	Medium Term	Low	I, L, R	Cumulative	Medium
			Employment creation	Long Term	Low	I, L, R	Direct	Medium
<b>Filling facility's tanks with fuel and storage</b> □ Filling storage tanks. <ul style="list-style-type: none"> <li>• Storage of fuel in underground tanks</li> <li>• Testing for leakage.</li> </ul>		<b>Air and climate-</b> Fuel truck gaseous emission.	Long Term	Low	I, L	Direct	Medium	
		<b>Land-</b> Possible fuel leakage.	Medium Term	Low	I	Direct	Low	
		<b>Ecology-</b> Possible fuel leakage.	Medium Term	Low	I	Direct	Low	
		<b>Biodiversity-</b> Possible impact on small fauna's diversity. Flora absent from site.	Medium Term	Low	I, L	Direct	Low	
		<b>Human environment</b>	Noise and air pollution, fuel odor, accident and health risk.	Medium Term	Low	I, L	Direct	Medium
			Employment creation.	High Term	Medium	I, L	Direct	Medium
		<b>Underground water</b> – Possible contamination from leakage.	Long Term	Medium	I,L	Cumulative	Low	
		<b>Air and Climate-</b> Gaseous emission	Long Term	Low	I,L	Cumulative	Low	

<b><u>Dispensing of fuel to customers</u></b>	<b>Land-</b> Possible oil leak (land pollution). Increased traffic (congestion).		Short Term	Medium	I,L	Direct	Low
	<b>Ecology-</b> Habitat destruction.		Long Term	Low	I,L	Direct	Low
<ul style="list-style-type: none"> <li>Filling up vehicles tanks.</li> <li>Vehicles and other fuel use.</li> </ul>	<b>Biodiversity-</b> Possible impact on small faunas' diversity. Flora absent from site.		Medium Term	Low	I,L	Cumulative	Low
	<b>Human environment</b>	Noise and air pollution, accident and health risk, fire explosion risk.	Medium Term	Low	I,L	Direct	Low
		Employment creation	Long Term	Medium	I,L	Direct	High
		Tourism boost/increase	Long Term	High	I,L,R	Direct	High
		Socio-economic impact. Increased entrepreneurship opportunities	Long Term	High	I,L,R	Direct	High
<b>Maintenance and Decommission activities</b>	<b>Air and Climate-</b> Gaseous emission.		Short Term	Low	I,L	Direct	Low
<ul style="list-style-type: none"> <li>Facility cleaning,</li> <li>Underground tanks and dispensers maintenance.</li> <li>Routine checks and other necessary repairs.</li> <li>Decommissioning work.</li> </ul>	<b>Land-</b> Possible leak, Waste disposal (land pollution).		Short Term	Low	I,L	Direct	Low
	<b>Ecology-</b> Habitat destruction.		Short Term	Low	I,L	Direct	Low
	<b>Biodiversity-</b> Possible impact on small faunas' diversity. Flora absent from site.		Short Term	Low	I,L	Direct	Low
	<b>Human environment</b>	Noise pollution, air pollution, accident and health risk.	Medium Term	Low	I,L	Direct	Low
		Employment creation	Short Term	Low	I,L,R	Direct	High

**Table 6: Significance of the potential Impacts.**

Impacts	1. Site selection.	2. Site securing, clearing and fencing.	3. Land levelling.	4. Trenching.	5. Building of underground petrol storage tanks.	6. Welding work for installation of canopy and above ground diesel storage tanks.	7. Building of boundary/firewalls.	8. Backfilling.	9. Transport and equipment use.	10. Tanks filling and leakage testing.	11. Fuel dispensing.	12. Fuel use by consumers.	13. Cleaning of facility.	14. Routine check and necessary repairs.	15. Energy consumption.	16. Water resources use	17. Waste generation and disposal	18. Human resource	19. Decommissioning	Sum of IF values	Average of IF values
<b>Air and Climate</b>																					
1. Dust and gaseous emission	0/5	1/5	3/5	1/5	1/5	0/5	1/5	3/5	1/5	1/5	1/5	1/5	0/5	0/5	0/5	0/5	1/5	1/5	2/5	18	0.95
2. Noise pollution	0/5	1/5	2/5	1/5	1/5	2/5	1/5	1/5	2/5	1/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	1/5	2/5	17	0.89
<b>Land</b>																					
3. Land use conflict	2/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	1/5	1/5	2/5	7	0.37
4. Loss of top soil	0/5	1/5	2/5	3/5	1/5	0/5	2/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	1/5	1/5	14	0.74
5. Land modification (geomorphology)	0/5	1/5	2/5	2/5	2/5	0/5	2/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	2/5	14	0.74
6. Land/soil pollution	0/5	1/5	1/5	1/5	1/5	0/5	1/5	1/5	1/5	1/5	0/5	1/5	0/5	0/5	0/5	1/5	2/5	1/5	2/5	15	0.79
<b>Ecology and Biodiversity</b>																					
7. Habitat destruction or modification	0/5	1/5	2/5	1/5	2/5	0/5	1/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	2/5	1/5	2/5	14	0.74
8. Loss of vegetation (trees, shrubs grass, herbs etc).	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0	0

9. Loss of reptiles, insects and amphibians diversity	0/5	1/5	2/5	2/5	3/5	0/5	1/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	1/5	13	0.68
10. Loss of birds' diversity.	0/5	1/5	0/5	0/5	1/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	3	0.16
11. Loss of large mammals (elephants, lions, leopards, cheetahs, antelopes etc.)	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1	0.05
12. Introduction of exotic plant species.	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	3/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	2/5	0/5	0/5	5	0.26
<b>Water</b>																					
13. Increased surface water use and pollution.	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	1/5	1/5	0/5	4	0.21
14. Increased groundwater use.	0/5	0/5	0/5	0/5	1/5	1/5	1/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	1/5	0/5	5	0.26
15. Groundwater pollution (leaching).	0/5	0/5	0/5	1/5	0/5	1/5	0/5	1/5	1/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	2/5	0/5	3/5	10	0.53
<b>Human environment</b>																					
16. Human health and accident risks.	0/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	0/5	1/5	1/5	0/5	1/5	1/5	2/5	17	0.89
17. Community welfare	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	1/5	1/5	0/5	2/5	6	0.32
18. Restriction on livestock movement	0/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	2	0.12
19. Limited access to livestock grazing land	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0	0
20. Increased traffic congestion.	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	1	0.05
21. Increased traffic accidents	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	2/5	0/5	0/5	2/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	4	0.21
<b>Sum IF values</b>	3	10	15	13	12	5	11	11	20	4	3	7	2	1	2	3	8	9	21	<b>IF =0.43</b>	
<b>Average of IF values</b>	0.14	0.48	0.71	0.62	0.57	0.24	0.52	0.52	0.95	0.19	0.14	0.33	0.10	0.05	0.10	0.14	0.76	0.43	1		

## 7 ENVIRONMENTAL MANAGEMENT PLAN

### 7.1 Introduction

An Environmental Management Plan (EMP) was developed for the proposed construction and operation of a fuel retail facility in Spitzkoppe. The purpose of this plan is to outline the measures and actions that will be implemented to mitigate potential environmental impacts associated with the project. Although the project is expected to have minimal environmental impact, a comprehensive approach has been taken to address all identified impacts, regardless of their magnitude. This ensures that environmental conservation and sustainability are prioritized throughout the project's lifecycle.

### 7.2 Environmental Management Plan

The proposed fuel retail facility aims to provide a convenient and reliable source of fuel for the local community and visitors to Spitzkoppe. The facility will consist of fuel pumps, underground and aboveground storage tanks and associated infrastructure. The project site has been carefully selected to minimize disturbance to the surrounding natural environment and cultural heritage sites. The full detailed Environmental Management Plan (EMP) is presented in **Table 7**. The EMP includes specific mitigation measures for potential impacts such as dust emissions during construction, noise pollution, waste management, and the protection of sensitive habitats and species. Additionally, it outlines the monitoring protocols that will be put in place to assess the effectiveness of the mitigation measures and ensure ongoing compliance with environmental standards. The project proponents should be committed to engage with relevant stakeholders, including local communities, indigenous groups, and regulatory authorities, to ensure that their concerns and interests are considered throughout the project's lifecycle. Regular communication, consultation, and collaboration should be prioritised to address any environmental issues and foster a positive relationship with the local community.

It is important to note that this EMP is a dynamic document that will be regularly reviewed and updated as necessary to adapt to changing circumstances and emerging environmental issues. The project proponents should maintain an environmental management team

through the appointed contractor/s for overseeing the implementation of the EMP and ensuring continuous compliance with environmental regulations.

**Table 7: Environmental Management Plan.**

Impacts	Mean IF value	Mitigation	Monitoring action and methods	Performance indicator	Responsible personnel
<b>Air and Climate</b>					
Dust and gaseous emission	0.95	<ul style="list-style-type: none"> <li>• Apply water or dust suppressants on construction areas prone to dust generation.</li> <li>• Cover or wet down stockpiles of construction materials to prevent dust dispersion.</li> <li>• Use windbreaks, such as fences or barriers, to minimize the spread of dust.</li> <li>• Schedule construction activities to minimize dusty operations during high-wind periods.</li> <li>• Regularly sweep and clean paved surfaces to control dust accumulation.</li> <li>• Limit engine idling time and enforce anti-idling policies for construction vehicles.</li> <li>• Use low-emission construction equipment and machinery.</li> <li>• Ensure all vehicles and machinery are properly maintained to minimize emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Deploy dust monitoring equipment, such as dust deposition gauges or real-time dust monitors, at various locations within and around the construction site.</li> <li>• Measure and record dust levels at regular intervals to assess the effectiveness of dust control measures.</li> <li>• Conduct visual inspections to detect fugitive dust emissions from construction activities.</li> <li>• Implement continuous gas monitoring systems that provide real-time data on emission levels.</li> <li>• Utilize gas detectors and analyzers to monitor the presence and concentration of gaseous emissions, such as volatile organic compounds (VOCs), nitrogen oxides (NOx), and sulfur dioxide (SO2).</li> </ul>	<ul style="list-style-type: none"> <li>• Measured levels of dust particles and gaseous concentrations</li> <li>• Community Satisfaction through continuous surveys.</li> <li>• Timely Reporting and Response</li> </ul>	Contractor.
Noise pollution	0.89	<ul style="list-style-type: none"> <li>• Schedule noisy activities during designated hours to minimize</li> </ul>	<ul style="list-style-type: none"> <li>• Install noise monitoring equipment in areas sensitive to</li> </ul>	Noise level	Contractor.

		<p>disturbance to the surrounding community, such as avoiding early mornings and evenings.</p> <ul style="list-style-type: none"> <li>Regularly maintain and service equipment to ensure optimal performance and noise reduction.</li> <li>Provide appropriate hearing protection, such as earplugs or earmuffs, to construction workers exposed to high noise levels.</li> </ul>	<p>noise pollution, such as residential zones.</p> <ul style="list-style-type: none"> <li>Measure and record noise levels generated by construction activities at regular intervals.</li> </ul>		
<b>Land</b>					
Land use conflict	0.37	<ul style="list-style-type: none"> <li>Obtain consent from the authority</li> </ul>	N/A	N/A	Proponent
Loss of top soil	0.74	<ul style="list-style-type: none"> <li>Top soil should be carefully removed and kept at a designated area for rehabilitation after completion of the construction.</li> <li>Rehabilitate with indigenous plants.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor type of soil before construction and after.</li> </ul>	Type of top soil condition before and after.	Contractor.
Land modification (geomorphology)	0.74	<ul style="list-style-type: none"> <li>Develop a land restoration plan to guide the post-construction rehabilitation of modified areas.</li> <li>Ensure that disturbed areas are properly graded, stabilized, and protected against erosion to facilitate successful land recovery.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out pre-survey survey to establish baseline conditions during and after construction.</li> </ul>	Habitat condition before and after.	Contractor.
Land/soil pollution	0.79	<ul style="list-style-type: none"> <li>Develop a comprehensive construction waste management plan that minimize waste generation.</li> <li>Dispose of construction waste in approved in safe area approved by the local authority.</li> <li>Identify and properly handle hazardous materials present on the</li> </ul>	<ul style="list-style-type: none"> <li>Conduct regular inspections and audits to ensure proper implementation of pollution prevention measures.</li> <li>Maintain accurate records of construction activities, waste disposal, and environmental monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Frequency of soil sampling and analysis conducted during and after construction to monitor soil quality and detect contamination incidents.</li> </ul>	Contractor and proponent



		construction site, such as asbestos, lead-based paint, or chemical contaminants.			
<b>Ecology and Biodiversity</b>					
Habitat destruction or modification	0.74	<ul style="list-style-type: none"> <li>Conduct a baseline assessment of the existing habitat and biodiversity in and around the construction site before initiating any work.</li> <li>Document the presence of sensitive habitats, endangered species, or other ecologically significant elements</li> </ul>	<ul style="list-style-type: none"> <li>Document any instances of habitat destruction or modification during construction, including the extent and nature of the impact.</li> <li>Evaluate the effectiveness of mitigation measures and identify any ongoing habitat modification or degradation during operations.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of habitat area affected by construction activities compared to the total area of the impacted habitat.</li> </ul>	Contractor and proponent.
Loss of vegetation (trees, shrubs grass, herbs etc).	0	N/A	N/A	N/A	N/A
Loss of reptiles, insects and amphibians diversity	0.68	<ul style="list-style-type: none"> <li>Fence off the construction area to avoid interaction with these animals.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct comprehensive surveys to identify and document the presence of reptiles, insects, and amphibians in and around the construction site before initiating any work.</li> <li>Continuous monitoring of presence of these animals.</li> </ul>	<ul style="list-style-type: none"> <li>Incident report of human animal interaction during construction and operation.</li> </ul>	Contractor and proponent.
Loss of birds' diversity.	0.16	<ul style="list-style-type: none"> <li>Fence off the construction area to avoid interaction with these animals.</li> <li>Identify and protect important bird habitats within and near the construction site, including nesting sites, feeding areas, and migration routes.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct comprehensive surveys to identify and document the presence of birds in and around the construction site before initiating any work.</li> <li>Continuous monitoring of presence of birds.</li> </ul>	<ul style="list-style-type: none"> <li>Incident report of human animal interaction during construction and operation.</li> </ul>	Contractor and proponent.
Loss of large mammals (elephants, lions, leopards, cheetahs, antelopes etc.).	0.05	<ul style="list-style-type: none"> <li>Impact considered very minimal due to absent of these animals around the project site. However, fencing off construction areas, road sign in the vicinity of the facility should be prioritized.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct comprehensive surveys to identify and document the presence of large mammals in and around the construction site before initiating any work.</li> </ul>	<ul style="list-style-type: none"> <li>Incident report of human animal interaction during construction and operation.</li> </ul>	Contractor and proponent.

			<ul style="list-style-type: none"> <li>Continuous monitoring of presence of birds.</li> </ul>		
<b>Water</b>					
Increased surface water use and pollution.	0.21	<ul style="list-style-type: none"> <li>Implement water-efficient practices, such to minimize water consumption during construction activities and facility operation.</li> <li>Educate construction workers and facility staff about the importance of water conservation and provide guidelines for responsible water use.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor water consumption level.</li> <li>Water quality monitoring to determine possible contamination.</li> </ul>	<ul style="list-style-type: none"> <li>Water quality levels such as pH, Salinity, hardness, alkalinity, Chlorine , heavy metals etc.</li> </ul>	Contractor and proponent.
Increased groundwater use.	0.26	<ul style="list-style-type: none"> <li>Implement water-efficient practices, such to minimize water consumption during construction activities and facility operation.</li> <li>Educate construction workers and facility staff about the importance of water conservation and provide guidelines for responsible water use</li> </ul>	<ul style="list-style-type: none"> <li>Monitor water consumption level.</li> </ul>	<ul style="list-style-type: none"> <li>Water quality levels such as pH, Salinity, hardness, alkalinity, Chlorine , heavy metals etc.</li> </ul>	Contractor and proponent.
Groundwater pollution (leaching).	0.53	<ul style="list-style-type: none"> <li>Ensure proper installation, maintenance, and monitoring of underground storage tanks (USTs) to prevent leaks and spills.</li> <li>Implement regular inspections, leak detection systems, and maintenance programs for USTs to promptly identify and address any issues.</li> <li>Develop and implement spill prevention and response plans to minimize the risk of fuel or chemical spills during construction and fuel retail operations.</li> <li>Train employees on proper handling and storage of hazardous materials and establish protocols for</li> </ul>	<ul style="list-style-type: none"> <li>Monitor groundwater quality from surrounding boreholes before and after to detect possible contamination.</li> </ul>	<ul style="list-style-type: none"> <li>Water quality levels such as pH, Salinity, hardness, alkalinity, Chlorine , heavy metals and presence of hydrocarbons in the water.</li> </ul>	Contractor and proponent.

		immediate spill response and cleanup.			
<b>Human environment</b>					
Human health and accident risks.	0.89	<ul style="list-style-type: none"> <li>• Provide comprehensive safety training to all workers involved in the construction project, emphasizing potential hazards, safe work practices, and emergency procedures.</li> <li>• Promote awareness of potential health and accident risks among workers and the public through safety campaigns and clear signage.</li> <li>• Provide comprehensive safety training to all workers involved in the construction project, emphasizing potential hazards, safe work practices, and emergency procedures.</li> <li>• Promote awareness of potential health and accident risks among workers and the public through safety campaigns and clear signage.</li> <li>• Have fire fighting equipment in place.</li> <li>• Conduct regular drills and training exercises to ensure workers are prepared to respond effectively to emergencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct regular safety inspections and audits to identify potential hazards, assess the effectiveness of safety measures, and address any safety concerns promptly.</li> <li>• Document and track corrective actions to ensure compliance with safety standards.</li> <li>• Establish a system for reporting and documenting accidents, near misses, or incidents that may have caused or had the potential to cause harm to workers or the public.</li> <li>• Conduct regular monitoring of air quality, especially in areas where construction activities are being carried out, to assess potential impacts on human health.</li> <li>• Monitor for airborne pollutants, such as particulate matter, volatile organic compounds (VOCs), and exhaust emissions.</li> <li>• Monitor public health indicators, such as reported illnesses or complaints, in the surrounding community during and after the construction project.</li> </ul>	Health status of residents.	Contractor

		<ul style="list-style-type: none"> <li>Build firewall to minimize fire impact in terms of fire breakout and explosions.</li> </ul>			
Community welfare	0.32	<ul style="list-style-type: none"> <li>Provide clear and timely communication about the construction plans, schedule, and potential impacts on the community.</li> <li>Maintain a clean and organized construction site to minimize visual blight and promote a positive appearance.</li> <li>Provide assistance, when feasible, to address any temporary disruptions or inconveniences caused by the construction and operation activities.</li> <li>Support local community initiatives or projects that contribute to the welfare and well-being of the community.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct community feedback and Surveys.</li> <li>Conduct continuous social impact assessment.</li> <li>Health and Safety Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Access to essential services.</li> <li>Employment and other opportunities created.</li> <li>Overall satisfaction with the project's outcomes.</li> </ul>	Contractor and Proponent.
Restriction on livestock movement.	0.12	<ul style="list-style-type: none"> <li>Regularly engage with livestock owners through meetings or surveys to address their concerns and ensure their participation in monitoring efforts</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of livestock movement around the construction/facility site.</li> </ul>	Overall satisfaction of farmers with the project's outcomes.	Proponent.
Limited access to livestock grazing land	0	N/A	N/A	N/A	N/A
Increased traffic congestion.	0.05	<ul style="list-style-type: none"> <li>Implement appropriate safety measures, such as speed limits, road barriers, and warning signs, to minimize the risk of accidents around construction/facility site.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct periodic traffic impact assessments to evaluate the effectiveness of the mitigation measures in managing traffic congestion and reducing the risk of accidents.</li> </ul>	Low traffic congestion	Contractor and Proponent

		<ul style="list-style-type: none"> <li>• Ensure that all workers and construction vehicles follow strict safety protocols to prevent accidents and collisions with other vehicles.</li> <li>• Establish a mechanism for the public to provide feedback and report any traffic-related concerns or issues.</li> </ul>	<ul style="list-style-type: none"> <li>• Use the assessment results to make any necessary adjustments to the traffic management plan and improve traffic flow</li> </ul>		
Increased traffic accidents	0.21	<ul style="list-style-type: none"> <li>• Implement appropriate safety measures, such as speed limits, road barriers, and warning signs, to minimize the risk of accidents around construction/facility site.</li> <li>• Ensure that all workers and construction vehicles follow strict safety protocols to prevent accidents and collisions with other vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct periodic traffic impact assessments to evaluate the effectiveness of the mitigation measures in managing traffic congestion and reducing the risk of accidents.</li> <li>• Use the assessment results to make any necessary adjustments to the traffic management plan and improve traffic flow</li> </ul>	Low traffic accidents.	Contractor and Proponent

### **7.3 Analysis of Alternatives**

The current proposed project site is most suitable due to the closeness with the Proponents mini market. The Proponent also own the proposed site. Due to minimal negative impact of the project, other alternatives were not considered.

### **7.4 Discussion, Conclusions and Recommendations**

The environmental impacts assessment conducted for the proposed fuel retail facility in Spitzkoppe, Daures Constituency, Erongo Region, Namibia, has determined that the project is expected to have minimal negative impact on the environment. This is mostly due to the fact that the proposed site is located in partial residential area with no vegetation and envisaged less animals. The assessment took into account various factors such as land use, air quality, water resources, biodiversity, and Human environment.

The findings of the assessment indicated that with the implementation of the Environmental Management Plan (EMP), the identified impacts could be effectively mitigated. The EMP outlines a range of measures and actions that will be undertaken to minimize potential environmental risks and ensure sustainable practices throughout the project's lifecycle. Moreover, it is important to recognize that the proposed fuel retail facility has the potential to bring significant benefits to the local community, particularly in terms of promoting tourism. The facility will provide a reliable and convenient source of fuel for visitors to Spitzkoppe, thereby supporting local businesses and enhancing the overall tourism experience. While this specific environmental impact assessment has been conducted, it is essential to acknowledge that other assessments, such as social and economic impact assessments, could shed more light to comprehensively evaluate the project's overall effects. These assessments will provide a holistic understanding of the potential benefits and challenges associated with the fuel retail facility.

In conclusion, the environmental impacts assessment and development of the Environmental Management Plan have demonstrated a proactive approach to environmental stewardship and sustainable development. By adhering to the EMP while constantly reviewing it, the proposed fuel retail facility in Spitzkoppe has the potential to contribute positively to the community's well-being while ensuring the preservation of the natural and cultural heritage of the area.

Therefore, it is recommended that an Environmental Clearance Certificate (ECC) be granted to the Proponent (SARI-DAO MINI MARKET & FUEL CENTRE) for its proposed development in Spitzkoppe, Daures Constituency, Erongo region, Namibia.

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## APPENDICES

### APPENDIX A: Curriculum Vitae of Lead EAP.

<p><b>CONTACT</b></p>  <p>P. O. Box 3826, Vineta 0814633427</p> <p><a href="#">Portal Research and Engineering CC</a></p> <p><a href="mailto:connecttoportal@outlook.com">connecttoportal@outlook.com</a></p>	<p><b>PROFILE</b></p> <p>Mr. Tobias Endjambi is an experienced researcher in various fields related to environment. He holds a Bachelor of Science in Fisheries and Aquatic Sciences (Honors) from UNAM and Master of Environmental Engineering from NUST.</p>
<p><b>EDUCATION</b></p> <p>University of Namibia</p> <p>Bachelor of Science in Fisheries and Aquatic Sciences (2014). Namibia University of Science and Technology</p> <p>Master of Environmental Engineering (2022).</p>	<p><b>EXPERIENCE</b></p> <p>EIA/scoping for Fuel retail facility in Omakange.</p> <p>EIA on sand mining activities at Omapalala, Ondonga Traditional Authority</p> <p>EIA on sand mining activities in Okathitukiiyambo, Ongandjera Traditional Authority.</p> <hr/> <p><b>REFERENCES</b></p> <p>Mr. Silvanus K. Uunona</p> <p>EAP: Tortoise Environmental Consultancy</p> <p>+264 81 388 6676</p> <p>Prof Benjamin Mapani</p> <p>Professor Mining Engineering (NUST)</p> <p>Tel: +264 61 207 2191</p>


APPENDIX B: Newspaper adverts.

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**INSIDE STORIES**



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PAGE 4




**Africa Oil Posts 2022 Financial Results After 'A Very Positive Year'; Issues Reserves Statement**

PAGE 12

## Resources Ownership Conundrum: State-Ownership or Incentivised Local Ownership

...as the call to de-risk the country's over-reliance gets louder




Nghitnomenwa-vall Erastus

The Namibian constitution states that natural resources below and above the surface of the land and in the continental shelf shall belong to the state if they are not otherwise lawfully owned.

However, this has not been the case as foreign ownership dominates the mining sector, from Canadian, Chinese, and others. Moreover, the country's biggest private game reserve is offered, if not already sold to Mexico.



CONTINUED ON PG.2

**INTRODUCING LELA PAY**



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**Villager**

Higher Interest Rates

"Whereas corporate debt declined by 0.6% y/y in January 2023 compared to 3.5% y/y in December 2022," Simonis Storm said.

The firm report showed that household debt now stands at N\$65.1 billion which is about 36% of GDP, corporate debt is at N\$45.5 billion and non-resident debt is at N\$7.5 billion.

Simonis Storm said other loans and advances were the main drivers of household debt in January 2023, while corporates were net re-payers on all debt instruments except instalment and leasing credit and other loans and advances.

"Annual overdraft growth in January 2023 was the weakest since 2016 for households and 2012 for corporates. Indeed, corporates have been net re-payers on overdrafts since November 2021 and households have been repaying their overdrafts since March 2022."

The firm added that credit extended to the private sector from microlenders has outpaced credit uptake from commercial banks for most of the post-pandemic period.

"Microlending credit extension averaged 4.6% for the first three quarters of 2022 reaching a high of 8.0% y/y in 1Q2022, whereas credit growth from commercial banks averaged 3.5% during the same time," the firm said.

Simonis Storm noted that clients were net re-payers on their microloans during the pandemic.

At the same time that microlending credit uptake has been growing at a faster pace, the number of clients at microlenders has been declining, Simonis Storm said.

"The average loan amount per client increased from N\$26,091 in 1Q2019 to N\$31,336 per client in 3Q2022. Since 3Q2021, the number of term lenders (i.e. longer-term loans) has decreased whereas the number of payday lenders increased," the firm said.

Moreover, the report said of the N\$89 billion government bond debt, commercial banks hold about N\$7 billion.

"One argument might be that yields on short-term bonds are higher than interest rates and so this encourages investments into short-term bonds rather than advancing loans," said Simonis Storm, adding that this is because banks typically invest in shorter-term bonds and not long-term bonds.



Sari-dao Mini Market & Fuel Centre

PUBLIC PARTICIPATION/SCOPING ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY, SPITZKOPPE, ERONGO REGION, NAMIBIA

SARI-DAO Mini Market & Fuel Centre (Or the Proponent) intends to construct and operate a Fuel Retail Facility on communal land located in Spitzkoppe Village, Daures Constituency, Erongo Region, Namibia. The appointed Consultants would like to notify the public in terms of the Environmental Management Act (No. 7 of 2007) and its Regulations of 2012 that application for an Environmental Clearance Certificate (ECC) will be launched with the Environmental Commissioner/Ministry of Environment, Forestry and Tourism.

APPOINTED CONSULTANT: The Proponent has appointed ENVIRODU CONSULTING & TRAINING CC to facilitate public consultations and prepare Reports required to support an application for the ECC at the Ministry of Environment, Forestry and Tourism.

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

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

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## INSIDE STORIES



Labour Commissioner's Office Laments Overflowing Dispute Cases

PAGE 4



ICT Deputy Minister Says Namibia's Spending Should Reflect Economic Recovery

PAGE 12

## Nampower Localised Preferential Procurement Increased By N\$87 Million



Nghlinomenwa-vall Erastus

Nampower has procured more from local entrepreneurs, especially those that are owned by previously disadvantaged Namibians, during the 2022 financial year.

According to the power utility's annual report, the company has increased its localised preferential procurement by N\$87 million, compared to an increase of N\$1.3 million in 2021.

As a result, the company channelled N\$139 million on localised preferential procurement.

CONTINUED ON PG.2

### INTRODUCING LELA PAY



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# Rundu Town Council Dismantles Pensioner's Income-Generating Garden



■ Annakieta Halkers

60-year old pensioner Dumingos Kativa, living at Kalsosi 1 settlement in Rundu, on Tuesday was filled with dismay after officials of the Town Council allegedly demolished his garden from which he earns a living to pay for his children and grandchildren's school fees.

Kativa's garden crop, which is next to the Kalsosi sewage ponds, had vegetables like maize, pumpkins, tomatoes and cabbages planted.

The senior citizen said he was not around when the Rundu Town Council crew arrived with a bulldozer to destroy the garden.

"I went to plough with my wife and when we returned home, my children told me all my crops in my garden were destroyed by a truck.

I could not save my crops because I was absent when they destroyed the garden. I was then informed that among the people that came to destroy my crops is my neighbour who works for the Special Reserve Force," he told The Villager.

According to the sexagenarian, he is not the only one doing gardening near the town's pond.

"There are six people there. The same thing happened last year and I was told they will refund what they have destroyed but it never happened. This is the third time my crops have been destroyed. I had my garden fenced in two years ago and officials from the same Council came to remove my fence."

CONTINUED ON PG.7



## PUBLIC PARTICIPATION/SCOPING ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY, SPITZKOPPE, ERONGO REGION, NAMIBIA

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**APPOINTED CONSULTANT:** The Proponent has appointed ENVIRODU CONSULTING & TRAINING CC to facilitate public consultations and prepare Reports required to support an application for the ECC at the Ministry of Environment, Forestry and Tourism.

**INVITATION TO PARTICIPATE:** Interested & Affected Parties (I & APs) are notified to register in order to participate in the public participation process. Only registered I & APs will be involved in the public consultation process.

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

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 Envirodu Consulting & Training Solutions cc  
 P. O. Box 4120, Swakopmund  
 Email: michaelindimwene@gmail.com  
 Mobile: +264 812989258



**Sari-dao Mini Market & Fuel Centre**

**PUBLIC PARTICIPATION/SCOPING ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY, SPITZKOPPE, ERONGO REGION, NAMIBIA**

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

**Mr. Michael Mautae**  
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Email: [mike@enviroou.com](mailto:mike@enviroou.com)  
Mobile: +264 812980356

**NOTICE**

Take notice that HANSENIC TOWN PLANNING CONSULTANTS CC, Town and Country Planners, 111, 113 and 115, Grootfontein Street, Windhoek, is acting as the Registrar of the Board of the Environmental Assessment Agency of Namibia for the Registration of the Proposed Project. The Registrar is acting as the Registrar of the Board of the Environmental Assessment Agency of Namibia for the Registration of the Proposed Project. The Registrar is acting as the Registrar of the Board of the Environmental Assessment Agency of Namibia for the Registration of the Proposed Project.

**Job Opportunities**  
Student Vocational Training Centre and its Clothing Production Unit is seeking motivated and experienced individuals in the following positions:

1. Vocational Training Centre Instructors
  - a) Clothing Production Level 3 and 4 xi post
  - b) Occupational Health and Safety level 4 and 5, xi post
  - c) Agriculture Level 2 and 3, xi post
  - d) Electrical General Level 1 to 3, xi post

**Requirements**

1. At least a Diploma Level 5 in the Trade Area
2. T/ET Certificate or Diploma in Education or BEd or any teaching qualification
3. At least 3 years of teaching experience as T/ET on the OMET Curriculum

10 March - 16 March 2023

CONFIDENTIAL *Lifting the Veil*



### Sari-dao Mini Market & Fuel Centre

#### PUBLIC PARTICIPATION/CONSULTATION ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY, SPITZKOPPE, ERONGG REGION, MALAYSIA.

SARI-DAO Mini Market & Fuel Centre (Or the Proponent) intends to construct and operate a Fuel Retail Facility on communal land located in Spitzkoppe Village, Daerah Konsensus, Erongg Region, Malakka. The appointed Consultants would like to notify the public in terms of the Environmental Management Act (No. 7 of 2007) and its Regulations of 2012 that application for an Environmental Clearance Certificate (ECC) will be launched with the Environmental Commission/Ministry of Environment, Forestry and Tourism.

**APPOINTED CONSULTANT:** The Proponent has appointed ENVIRONMENTAL CONSULTING & TRAINING CI to facilitate public consultations and prepare reports required to support an application for the ECC at the Ministry of Environment, Forestry and Tourism.

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

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Executive Consulting & Training Solutions CC

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Mobile: +264 812992356

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED SUBDIVISION OF ERY 2448 AND REZONING OF SEVEN PORTIONS FROM "PUBLIC OPEN SPACE" TO "SINGLE RESIDENTIAL" OUTSIDE EXTENSION 4, OUNAKATI REGION.**

Notice is hereby given to all interested and affected Parties (I&APs) that applications for Environmental Clearance Certificate will be submitted to the Environmental Commissioner in terms of the Environmental Management Act (No. 7 of 2007) for the following activities.  
**Project title:** Subdivision of Ery 2448 and Rezoning of the seven (7) resulting portions from "Public Open Space" to "Single Residential".  
**Location:** Ounakati Extension 4, Ounakati region

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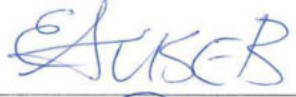









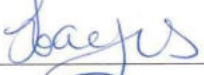


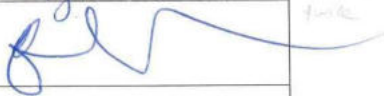


**APPENDIX C: Attendance register for public consultation meeting.**

**COMMUNITY MEETING ATTENDANCE LIST**

13 May 2023


	FULL NAME	CELL PHONE NO.	SIGNATURE
1.	Piet Hoeb	084561224	
2.	KARL PIENAR		
3.	R. BROCKEDHOFF	0812495274	
4.	Thalitha Naebes	0812986305	
5.	JOHNNY TSOJASEB	0816941132	JOHNNY
6.	Moses *Laweseb	0815571949	
7.	Brawne Senses	0817052020	
8.	V. Dreyer	0813061073	
9.	M. Epoy	081641303	
10.	EMIE	0817962273	
11.	KANDAR	0812272759	
12.	ESME	0814342071	

PS1

	FULL NAME	CELL PHONE NO.	SIGNATURE
13.	COURTNEY "NABES"	0817601506	
14.	LESLEY	081-2116291	
15.	SAMANTHA HANSEN	0814021776	
16.	LYDIA XOAGUS	0816603983	
17.	Romario Jonyano	0816180379	
18.	Caroline Harbas	0817002468	CHarbas
19.	Adelheid "Huses"	0818615719	AHuses
20.	Elizabeth Xoagus	0814769136	
21 <del>22</del>	Lucy v. W. Harbas	0817023696	
22 <del>23</del>	Augustine Tsowases	0814113523	ATsowases
23 <del>24</del>	Magde Job	0812445296	M.J.
24 <del>25</del>	Jennifer Kahivesa	0815757493	
25 <del>26</del>	William M. J.	—	

	FULL NAME	CELL PHONE NO.	SIGNATURE
26	Melvin Basen	0814274275	Melvin Basen
27	MICHAEL JC	0816277885	MICHAEL JC
28	Wilfred Albertus Trases	+260777693626	WTF
29	STOFFEL UIRAB	0818525582	Stoffel Uirab
30	JACKY GORGUES	0812188414	Jorgose
31	Arnath Tjengars	0812238097	Arnath
32	Alvise Namaseb	-	-
33	Levinia M. GOMESSES	0514998840	GOMESSES
34	Albertina Domingos	0812580115	Albertina
35	HERMAN NAWASES	0813777087	HERMAN NAWASES
36	CHARLTON	081733801	Charlton
37	Alexandrine "Caro"	0816516628	Caro
38	Pius Hanguah	0814305191	

PS-3

	FULL NAME	CELL PHONE NO.	SIGNATURE
39	Eveline - Evarises	0813046003	Evarises
40	<del>LOUANN N. AMIN</del>	<del>0817023092</del>	<del>Signature</del> Repeated
40A	SAMUEL KASUPI	0816729760	
41 #2	ABRAHAM N. NGARIB	0812835103	

## APPENDIX D: Birds list.

**Table 8: Expected diversity of birds around the general project area.**

Bird	Brandberg	Spitzkoppe
Ostrich	U	U
Hammerkop		R
Abdim's stork	R	R
Greater flamingo		R
Egyptian goose	R	R
Whitebacked vulture		R
Lappetface vulture	U	U
Yellowbilled kite	R	U
Black kite		R
Blackshouldered kite		R
Black eagle	U	C
Twany eagle	R	
Booted eagle	R	U
African hawk eagle	U	U
Martial eagle	R	R
Blackbreasted snake eagle	R	U
Steppe buzzard		R
Augur buzzard	U	C
Gabar goshawk	R	U
Pale chanting goshawk	U	C
Lanner falcon	R	C
Rock kestrel	C	A
Redbilled francolin	U	C
Hartlaub's francolin	U	
Common quail		R
Helmeted guineafowl	R	C
Kurrichane buttonquai		R
Kori bustard	R	U
Ludwig's bustard	U	U
Ruppell's korhaan		U
Redcrested korhaan		U
Black korhaan	U	C
Threebanded plover	U	R
Crowned plover	R	C
Blacksmith plover	R	R
Spotted dikkop	R	U
Burchell's courser	R	R

Doublebanded courser	R	U
Namaqua sandgrouse	U	C
Rock pigeon	C	A
Cape turtle dove	U	C
Laughing dove	A	A
Namqua dove	C	C
Rupell's parrot	U	
Rosy faced lovebird	A	A
Grey lourie	U	A

## APPENDIX E: Scorpion list.

**Table 9:** Expected diversity of scorpions around the general project area (Prendini, 2000).

Scientific names	Common names	Namibian conservation status
<i>Bothriuridae</i> <i>Brandbergia haringtoni</i>		
<i>Hottentotta conspersus</i>		
<i>Parabuthus brevipennis</i>	Sand combs	
<i>Parabuthus gracilis</i>		
<i>Parabuthus granulatus</i>	Granulated thick-tailed scorpion	Endemic
<i>Parabuthus stridulus</i>		
<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
<i>Hadogenes tityrus</i>		
<i>Opisthophthalmus carinatus</i>	Robust burrowing scorpion	Near endemic
<i>Opisthophthalmus coetzei</i>		Endemic
<i>Opisthophthalmus gibbericauda</i>		Near endemic
<i>Opisthophthalmus jenseni</i>		Near endemic
<i>Opisthophthalmus lamorali</i>		Endemic
<i>Opisthophthalmus cavimanus</i>		Endemic
<i>Opisthophthalmus ugabensis</i>		
<i>Opisthophthalmus wahlbergii</i>		

## APPENDIX F: Reptiles list.

**Table 10:** Expected diversity of reptiles in the wider general project area.

Species	Common name
<b>TORTOISES AND TERRAPINS</b>	
<i>Stigmochelys pardalis</i>	Leopard Tortoise
<i>Psammobates oculiferus</i>	Kalahari Tent Tortoise
<i>Pelomedusa subrufa</i>	Marsh/Helmeted Terrapin
<b>SNAKES</b>	
<i>Blind Snakes</i>	
<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake
<i>Rhinotyphlops boylei</i>	Boyle's Beaked Blind Snake
<i>Rhinotyphlops schinzi</i>	Schinz's Beaked Blind Snake
<i>Rhinotyphlops schlegelii</i>	Schlegel's Beaked Blind Snake
<i>Thread Snakes</i>	
<i>Namibiana (Leptotyphlops) occidentalis</i>	Western Thread Snake
<i>Namibiana (Leptotyphlops) labialis</i>	Damara Thread Snake
<i>Namibiana (Leptotyphlops) scutifrons</i>	Peters' Thread Snake
<i>Pythons</i>	
<i>Python anchietae</i>	Dwarf Python
<i>Python natalensis</i>	Southern African Python
<i>Burrowing Snakes</i>	
<i>Atractaspis bibronii</i>	Bibron's Burrowing Asp
<i>Xenocalamus bicolor bicolor</i>	Bicoloured Quill-snouted Snake
<i>Xenocalamus mechowii</i>	Elongate Quill-snouted Snake
<i>Typical Snakes</i>	
<i>Boaedon (Lamprophis) fuliginosus</i>	Brown House Snake
<i>Lycophidion capense</i>	Cape Wolf Snake
<i>Lycophidion namibianum</i>	Namibian Wolf Snake
<i>Mehelya capensis</i>	Cape File Snake
<i>Limaformosa (Mehelya) vernayi</i>	Angola File Snake
<i>Pseudaspis cana</i>	Mole Snake
<i>Pythonodipsas carinata</i>	Western Keeled Snake
<i>Prosymna bivittata</i>	Two-striped Shovel-snout
<i>Prosymna frontalis</i>	South-western Shovel-snout
<i>Hemirhagerrhis viperinus</i>	Viperine Bark Snake
<i>Dipsina multimaculata</i>	Dwarf Beaked Snake

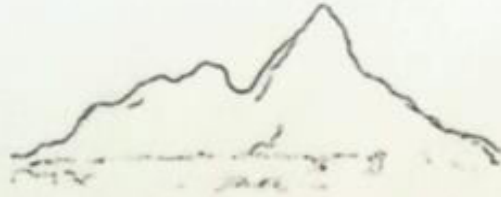


<i>Psammophylax tritaeniatus</i>	Striped Skaapsteker
<i>Psammophis trigrammus</i>	Western Sand Snake
<i>Psammophis notostictus</i>	Karoo Sand Snake
<i>Psammophis leightoni namibensis</i>	Namib Sand Snake
<i>Psammophis brevirostris leopardinus</i>	Leopard Grass Snake
<i>Philothamnus semivariatus</i>	Spotted Bush Snake
<i>Dasypeltis scabra</i>	Common/Rhombic Egg Eater
<i>Telescopus semiannulatus polystrictus</i>	Eastern Tiger Snake
<i>Telescopus beetzii</i>	Beetz's Tiger Snake
<i>Dispholidus typus</i>	Boomslang
<i>Aspidelaps lubricus infuscatus</i>	Coral Snake
<i>Aspidelaps scutatus scutatus</i>	Shield-nose Snake
<i>Elapsoidea sunderwallii</i>	Sundevall's Garter Snake
<i>Naja anchietae</i>	Snouted Cobra
<i>Naja nivea</i>	Cape Cobra
<i>Naja nigricincta</i>	Black-necked Spitting Cobra
<i>Dendroaspis polylepis</i>	Mamba
<i>Bitis arietans</i>	Puff Adder
<i>Bitis caudalis</i>	Horned Adder
<b>WORM LIZARDS</b>	
<i>Zygaspis quadrifrons</i>	Kalahari Round-headed Worm Lizard
<i>Monopeltis infuscata</i>	Dusky Spade-snouted Worm Lizard
<b>LIZARDS</b>	
<b>Skinks</b>	
<i>Typhlosaurus braini</i>	Brain's Blind Legless Skink
<i>Typhlacontias brevipes</i>	FitzSimon's Burrowing Skink
<i>Typhlosaurus lineatus lineatus</i>	Striped Blind Legless Skink
<i>Acontias occidentalis</i>	Percival's Legless Skink
<i>Lygosoma sundevallii</i>	Sundevall's Writhing Skink
<i>Trachylepis acutilabris</i>	Wedge-snouted Skink
<i>Trachylepis capensis</i>	Cape Skink
<i>Trachylepis hoeschi</i>	Hoesch's Skink
<i>Trachylepis occidentalis</i>	Western Three-striped Skink
<i>Trachylepis spilogaster</i>	Kalahari Tree Skink
<i>Trachylepis striata wahlbergi</i>	Striped Skink
<i>Trachylepis sulcata</i>	Western Rock Skink
<i>Trachylepis variegata variegata</i>	Variegated Skink
<b>Old World Lizards</b>	
<i>Heliobolus lugubris</i>	Bushveld Lizard
<i>Ichnotropis squamulosa</i>	Common Rough-scaled Lizard
<i>Meroles suborbitalis</i>	Spotted Desert Lizard

<i>Nucras intertexta</i>	Spotted Sandveld Lizard
<i>Pedioplanis lineocellata lineocellata</i>	Spotted Sand Lizard
<i>Pedioplanis breviceps</i>	Short-headed Sand Lizard
<i>Pedioplanis namaquensis</i>	Namaqua Sand Lizard
<i>Pedioplanis undata</i>	Western Sand Lizard
<i>Pedioplanis inornata</i>	Plain Sand Lizard
Plated Lizards	
<i>Cordylosaurus subtessellatus</i>	Dwarf Plated Lizard
<i>Matabosaurus maltzahani (Gerrhosaurus validus)</i>	Giant Plated Lizard
Girdled Lizards	
<i>Karusasaurus (Cordylus) jordani</i>	Jordan's Girdled Lizard
Monitors	
<i>Varanus albigularis</i>	Rock or White-throated Monitor
Agamas	
<i>Agama achuleata</i>	Ground Agama
<i>Agama anchietae</i>	Anchietae's Agama
<i>Agama planiceps</i>	Namibian Rock Agama
Chameleons	
<i>Chamaeleo namaquensis</i>	Namaqua Chameleon
<i>Chamaeleo namaquensis</i>	Namaqua Chameleon
Geckos	
<i>Afroedura africana</i>	African Flat Gecko
<i>Chondrodactylus angulifer</i>	Giant Ground Gecko
<i>Lygodactylus bradfieldi</i>	Bradfield's Dwarf Gecko
<i>Narudasia festiva</i>	Festive Gecko
<i>Pachydactylus bicolour</i>	Velvety Thick-toed Gecko
<i>Pachydactylus capensis</i>	Cape Thick-toed Gecko
<i>Pachydactylus fasciatus</i>	Banded Thick-toed Gecko
<i>Pachydactylus kochii</i>	Koch's Thick-toed Gecko
<i>Pachydactylus turneri</i>	Turner's Thick-toed Gecko
<i>Pachydactylus punctatus</i>	Speckled Thick-toed Gecko
<i>Pachydactylus rugosus</i>	Rough Thick-toed Gecko
<i>Pachydactylus serval serval</i>	Western Spotted Thick-toed Gecko
<i>Pachydactylus scherzi</i>	Namib Variable Gecko
<i>Pachydactylus weberi</i>	Weber's Thick-toed Gecko
<i>Ptenopus garrulus</i>	Common Barking Gecko
<i>Rhoptropus afer</i>	Common Namib Day Gecko
<i>Rhoptropus boultoni</i>	Boulton's Namib Day Gecko
<i>Rhoptropus bradfieldi</i>	Bradfield's Namib Day Gecko



## APPENDIX G: Consent letter from #Gaingu Conservancy.



P.O. Box 114 Usakos Namibia email [gainguconservancy22@gmail.com](mailto:gainguconservancy22@gmail.com) cell :0812057909

07 May 2023

Mr. Lesley Tjongarero  
Email: [enquiries@spitzkoppemountaincamp.com](mailto:enquiries@spitzkoppemountaincamp.com)  
Sari-dao Mini Market  
Spitzkoppe settlement  
Namibia

Dear Mr. Lesley Tjongarero

### **RE: PROVISIONAL CONSENT LETTER FOR ENVIRONMENTAL IMPACT ASSESSMENT**

A provisional consent is herewith granted to Envirodu Consulting and Training Solutions cc to continue with the environmental assessment studies at Sari-Dao Mini Market and Fuel Centre.

Upon completion of the Environmental Impact Assessment Process and granting of the Environmental Clearance Certificate, the project proponent must engage the leadership of the Conservancy and of the Traditional Authority to discuss business operational terms, conditions and requirements; discussing and agreeing how the broader community and conservancy interest will be represented in the operations of the envisioned operations.

We look forward to hearing from your esteemed office.

Kind Regards,

Anthony Jantjies  
Chairperson: #Gaingu Conservancy

