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ENVIRONMENTAL IMPACT ASSESSMENT FOR:

**THE PROPOSED CONSTRUCTION AND OPERATION OF A SERVICE STATION IN
GCAMADE, KAVANGO-WEST REGION**

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EXECUTIVE SUMMARY

Caltop Investments (Pty) LTD appointed HEH Urban Nest Creations to conduct an Environmental Impact Assessment (EIA) for the construction of a service station. Such a development has been necessitated by the growing demand for businesses and services that support trade with the rest of Namibia as well as the surrounding countries. Located in Gcamade, Mbunza, west of Rundu along the Trans Caprivi Highway (B8), the proposed site for the service station covers a surface area of 0.78 HA.

The project Environmental Impact Assessment (EIA) aims to assess the potential environmental, occupational health and safety, social and community impacts of the Gcamade service station development. It subsequently recommends risk mitigation measures as part of the Environmental Management Plan (EMP).

As part of the assessment, the applicable legal framework and policies were also identified and listed. The EIA particularly looked at the environmental impacts of the development on the land and biological environment, and the impact of the resulting pollution (air, water, land, and noise) on the environment: both during the construction and operation phases. The EIA also considered the impact of the development on the socio-economy. Both the positive and negative impacts were considered, and mitigation measures for potential negative impacts were proposed.

The evaluation found that clearing the site for construction will likely cause minor environmental harm to the land as well as a change in topography and geomorphology. However, no major plant and faunal species will be lost thus the development poses minimal negative impacts on the environment. The impact assessment reveals net positive impacts on the community which include the creation of employment, economic development, and service delivery to Gcamade.



ACRONYMS AND ABBREVIATIONS

BID: Background Information Document

CBD: Convention on Biological Diversity

ECC: Environmental Clearance Certificate

EIA: Environmental Impact Assessment

EMP: Environmental Management Plan

EPL: Exclusive Prospecting Licenses

HPP: Harambe Prosperity Plan (HPP)

IAPs: Interested and Affected Parties

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MAWF: Ministry of Agriculture, Water and Forestry

MEFT: Ministry of Environment, Forestry, and Tourism

MET: Ministry of Environment and Tourism

NDP: National Development Plan (NDP 5)

SDG: Sustainable Development Goals (SDGs)

SSCFs: Small-Scale Commercial Farms

LED: Light-Emitting Diode

UNFCCC: United Nations Framework Convention on Climate Change

UNCCD: United Nations Convention to Combat Desertification



1. INTRODUCTION

The development of the proposed service station is expected to present valuable opportunities in the area, however, the construction, operations, and decommissioning activities of the project (i.e. energy generation and distribution) require compliance with the Environmental Impact Assessment (EIA) Regulations of 6 February 2012 as promulgated in the government Notice No.28, 29 and 30, circulated in terms of the Environmental Management Act (EMA), Act no.7 of 2007. This ECC application is in support of the construction and operation of fuel/service station on the site.

The EIA regulations (under section 9), requires that the proponent “designate an environmental assessment practitioner to manage the assessment process.” In line with this requirement, Caltop Investments (Pty) LTD appointed HEH Urban Nest Creations to undertake the EIA process. The proposed development requires an EIA scoping in terms of the EIA regulations (GN NO. R4878) as follows:

- Section 9.1: the manufacturing, storage, handling, or processing of a hazardous substance defined in the Hazardous Substance Ordinance, 1974.
- Section 9.4: the storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.
- Section 9.5: Construction of service stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum gas or paraffin.

In line with the above, an Environment Baseline Information (EBI) was carried out and prepared as part of the Environmental Impact Assessment (EIA) study on site. Subsequently, the competent authority is required to assess this EIA and issue an Environmental Clearance Certificate if they are satisfied that all aspects and hazards are addressed, and proper and sufficient mitigation controls have been recommended.



1.1. Background

The proposed service station is in the village of Gcamade Mbunza located in the northeastern part of the Kapako constituency in the Kavango West Region. The Kavango West region encompasses 24 591 km² and accounts for approximately 3% of Namibia's total land. The region borders the East Kavango Region in the east, Kavango River and Angola to the north, the Ohangwena and Oshikoto Regions to the west and the Otjozondjupa Region to the south. The Kavango West Region is divided into eight constituencies: Tondoro, Ncamangoro, Musese, Mankumpi, Kapako, Mpungu, Ncuncuni and Nkurenkuru.

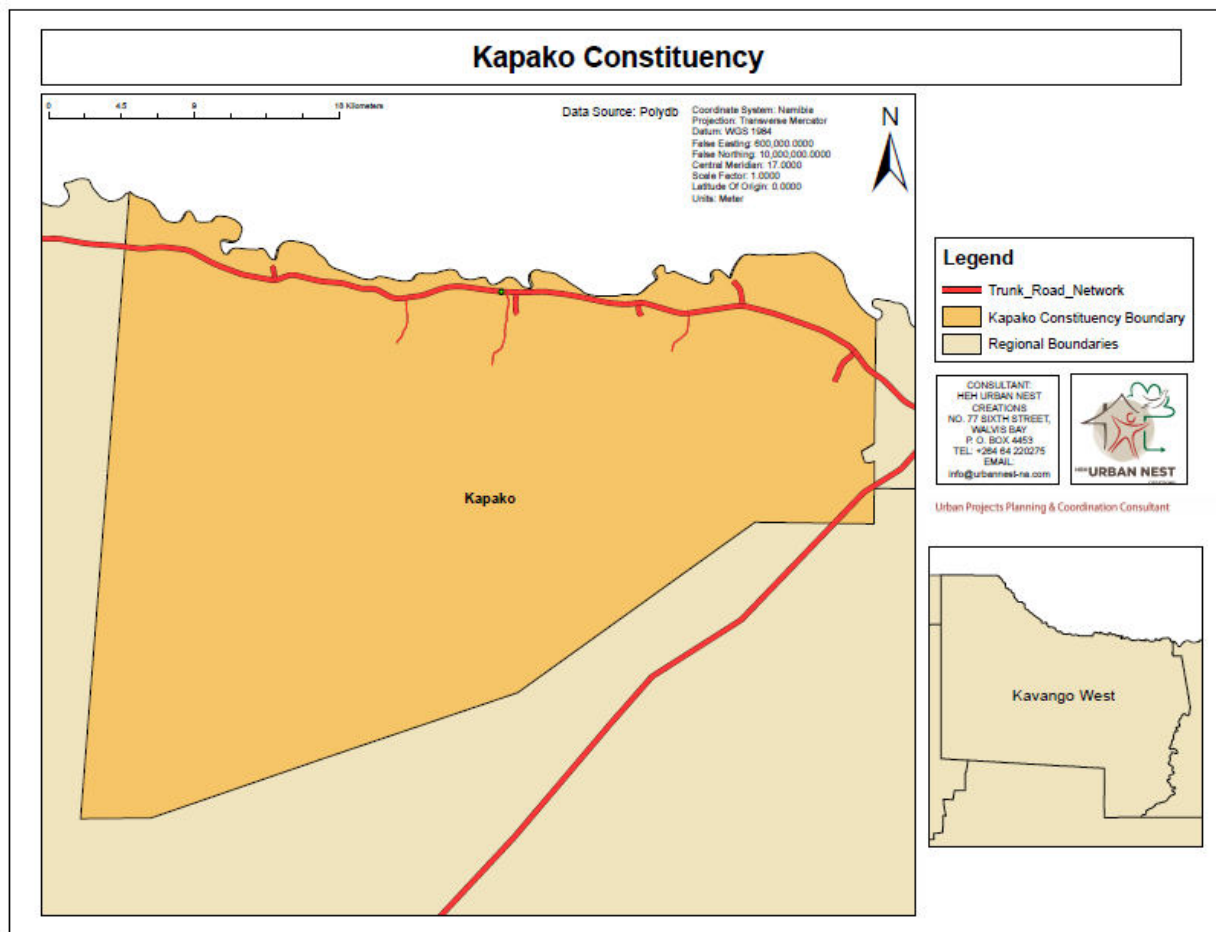


Figure 1: illustrates the Kapako constituency where the construction of the service station in Gcamade Mbunza, Kavango West Region will be taking place.

The Kavango Region's initial area after independence was 42 771 km². A section of the Zambezi Region was eventually added, bringing the region's actual size to 48 463km². Yet, the territory's enormous size and elongated shape made it challenging to manage and develop as a single area. As a result, the territory was divided into the Kavango East and Kavango West region in 2013.

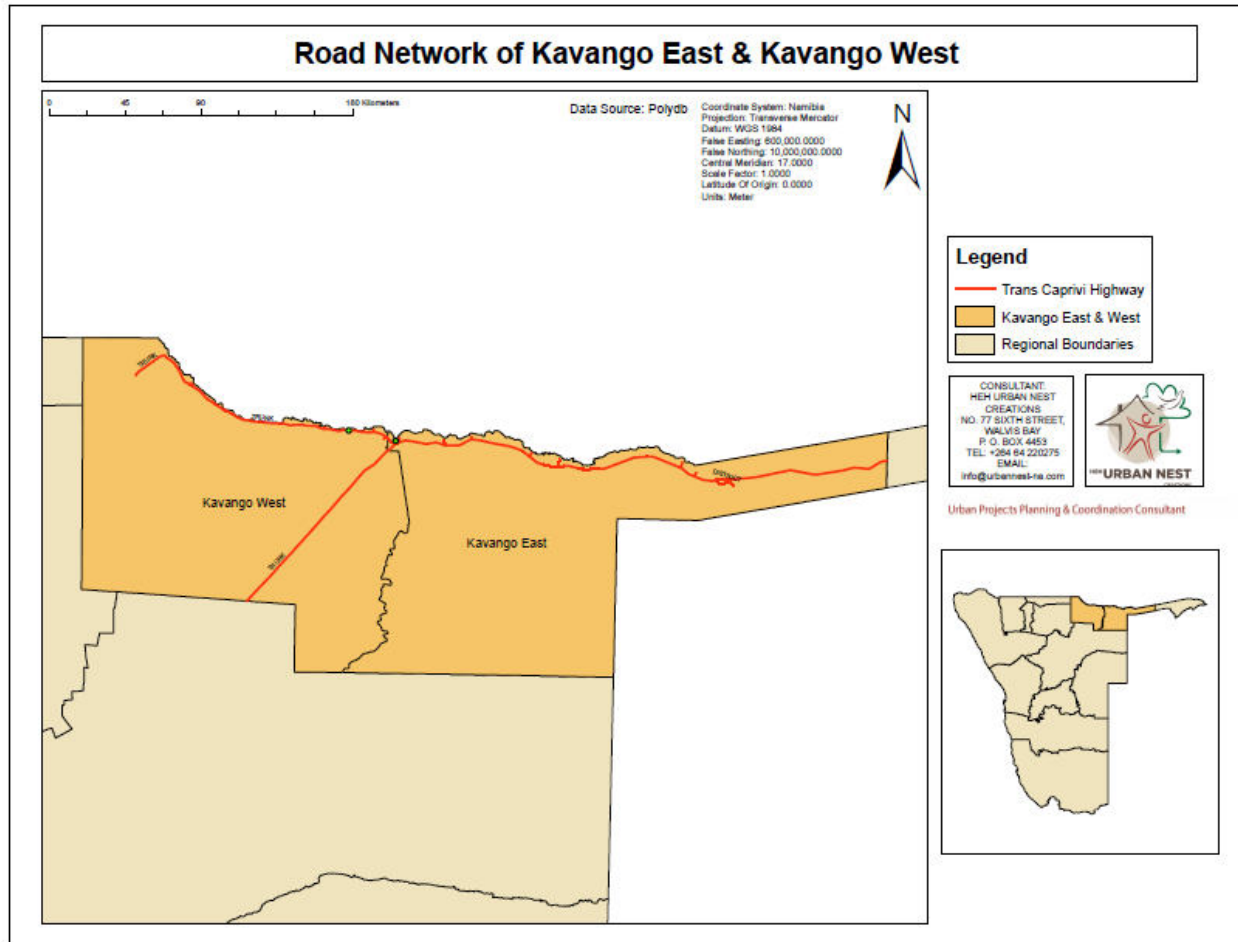


Figure 2: Layout of the Kavango West and the Kavango East region. Located in Northern Namibia.

The Kavango Regional Council decided to develop profiles generated for each of the new regions because there was a shortage of area-specific data for the separated territories. The Kavango West Regional Development Profile's primary goals are to provide a thorough description of the social, economic, infrastructural, and institutional environments that are prevalent in the region, to highlight competitive advantages, to identify obstacles and constraints, and to highlight opportunities to direct development.



2. PROJECT AREA DESCRIPTION

2.1 Site Description

The planned location, Gcamade Mbunza, is about 30 km west of Rundu. The Gcamade, Mbunza features a flat environment and sandy soil that is highly permeable. As seen on figure 1 & 2 below, the area is close to several widely dispersed settlements.



Figure 3: Proposed site location and its relative distance from the nearest route and surrounding settlements



Figure 4: Proposed site location within Gcamade, Mbunza, Kavango West Region

The region is bordered by the Kavango River and Angola to the north, the Kavango East Region to the east, and the Otjozondjupa Region to the south. The Trans Caprivi Highway, which runs throughout both the Kavango East and Kavango West Regions, links Central Namibia to the Zambezi Region as well as to Botswana, Zambia, and Zimbabwe with famous tourist destinations like the Chobe Game Reserve and Victoria Falls enroute. Majority of the residents in the area reside within proximity of the site. Furthermore, as seen on figure 5 & 6 below, it illustrates the different connected road networks within the Kavango West Region.

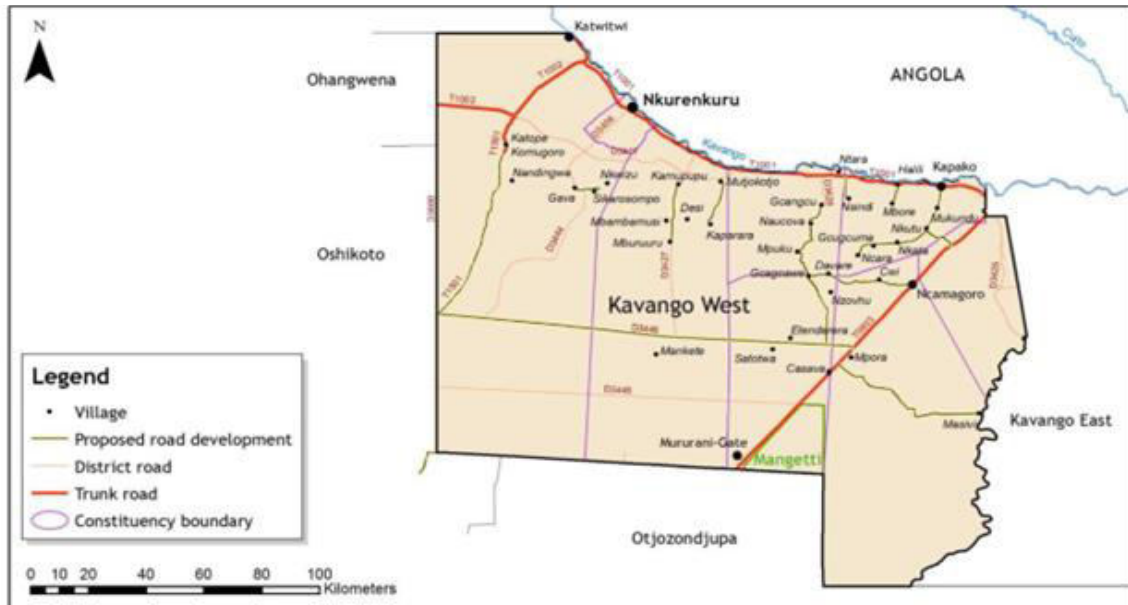


Figure 5: Illustrates the different road networks in the proposed site location within the Kavango West Region

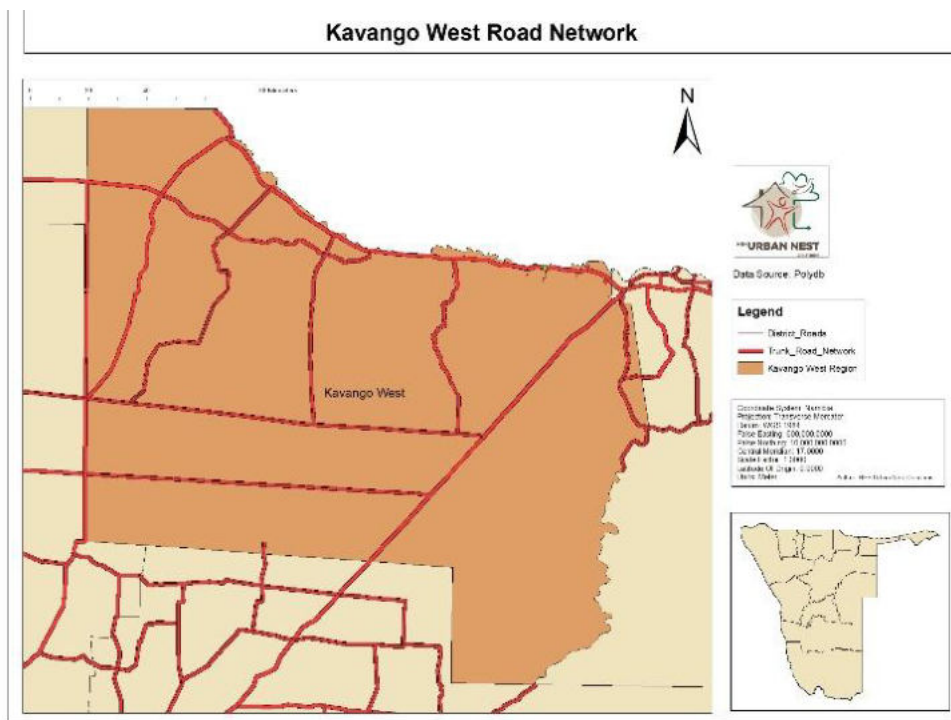


Figure 6: Illustrates the different connected road networks in the proposed site location within the Kavango West Region

The development of such a site will require a wide range of expertise from various disciplines (urban planners, civil engineers, quantity surveyors, land surveyors, electrical engineers, water engineers, biodiversity specialists, hydrologists, and builders among others) before it can be transformed.

2.2.1 Soil types

The most common soil type in the Kavango West Region is arenosol, which has a sandy and porous texture that drains quickly. The soil is consequently dry and deficient in nutrients. Calcisols, on the other hand, are spread out over the area. They have marginally larger concentrations of clay and silt, which enhance water retention and offer marginally better potential for crop production. Rainwater is absorbed by the soil in the region, resulting in the growth of surrounding crops, trees, and grass. Various types of soil affect the quantity of water retained, which is the depth to which a plant's roots can grow, and the nutritional content of the soil, all of which have an influence on the quality and sustainability of agricultural production.

Without any significant fluctuations in height, the terrain is quite level. Highway and street routes typically have a slight elevation, and precipitation from these types of roadways is likely to gather at the service station. To prevent surface run-off or storm water from the service station during the operational period, a suitable drainage system should be included in the design.

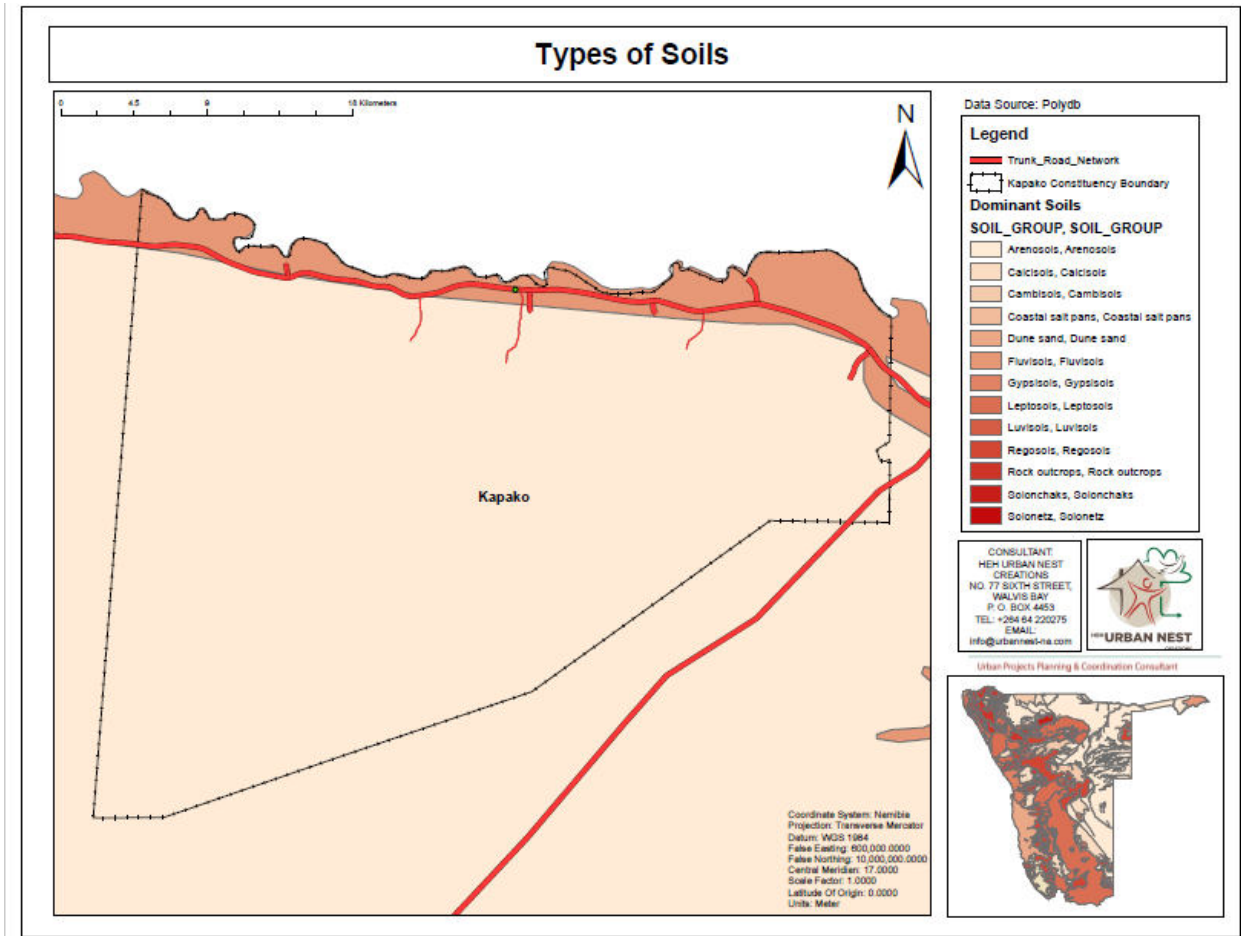


Figure 7: Different types of soils and soil groups within Gcamade Mbunza, Kavango West Region



Figure 8: Depicts the appearance of the soil in Gcamade Mbunza, Kavango West Region

Due to the soil texture in the Kapako Constituency, that largely comprises of sandy and porous soil that drains quickly. The region's soil is largely dry and nutrient deficient as a result. The various soil potentials in the area where the proposed service station construction would be located are depicted in figure 9 below. The area contains significant quantities of soil but relatively little soil nutrients, as illustrated below, which makes it suitable for construction. Many portions of the Kavango West Area remain very unproductive despite receiving significant amounts of rainfall, because of the region's low levels of organic matter and predominance of sand. Figures 9 & 10 illustrates the different soil types and soil potential in the Kapako constituency and the Kavango West region as a whole.

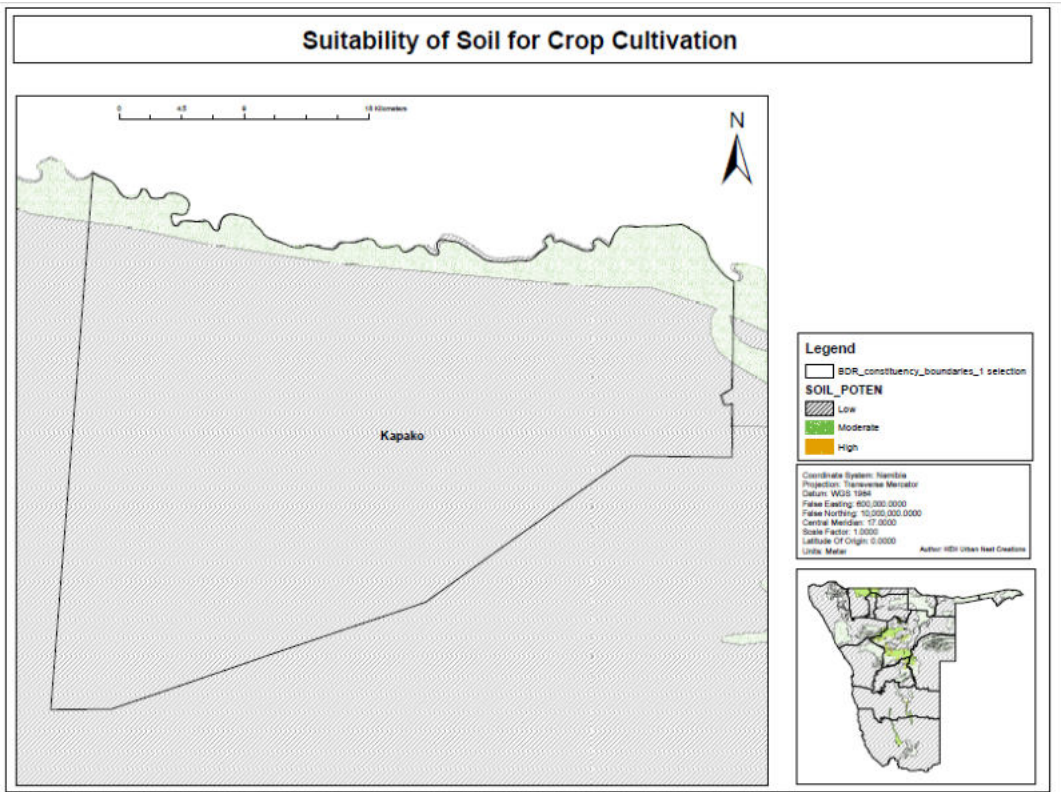


Figure 9: Illustrates the different soil potential grades in the Kapako Constituency

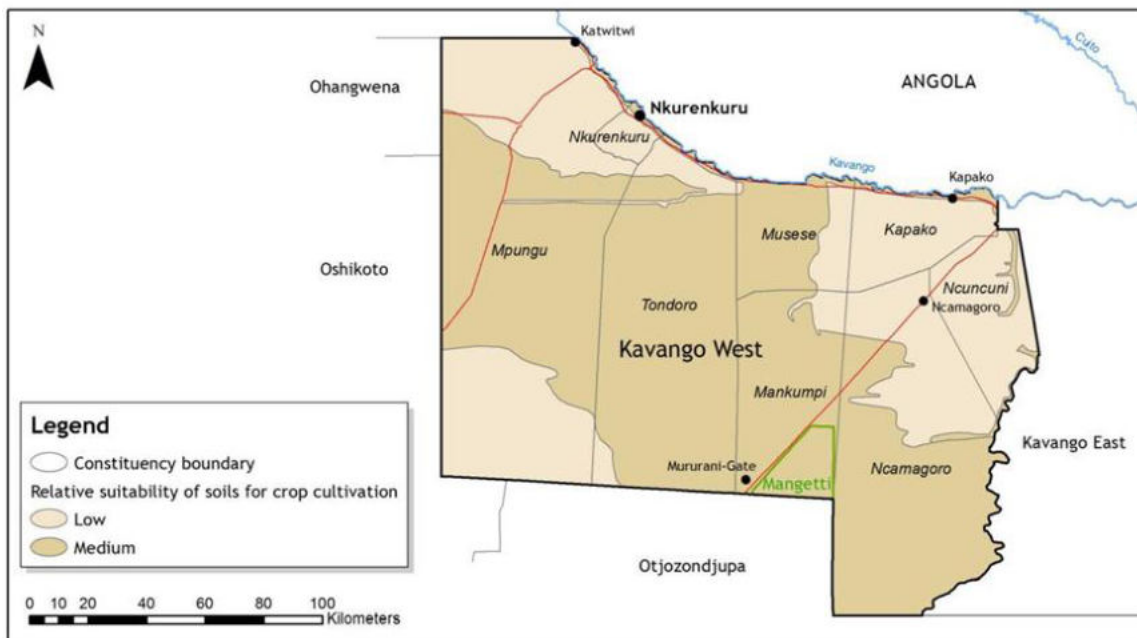


Figure 10: Illustrates the different levels of soil potential within the Kavango West Region as a whole.



2.2.2 Vegetation

The planned development site is covered in a rather uniform broad-leaved, shrub forest flora that varies with topography and soil quality. Woodlands that are distinct to Namibia cover a significant portion of the Kavango West Region. The woodlands have a significant diversity of tree species and some species of particular importance, despite the absence of unique species. The main dangers to this resource are fires and wood harvesting activities, for which there is now a prohibition in the Kavango West Area to protect it.

In contrast to the numerous varieties of grasses and shrubs that may be found in the shallower soils of valleys, the region features comparatively bigger deep-rooted trees that are more common in deep sands, such as Teak and Mangetti. There are a few trees and a lot of reeds on the terraces and banks of the rivers, which are generally open. Several Mangetti trees are still around because of how valuable they are as fruit trees. The homesteads next to the river and in the area have other fruit trees including pawpaw and mangoes.

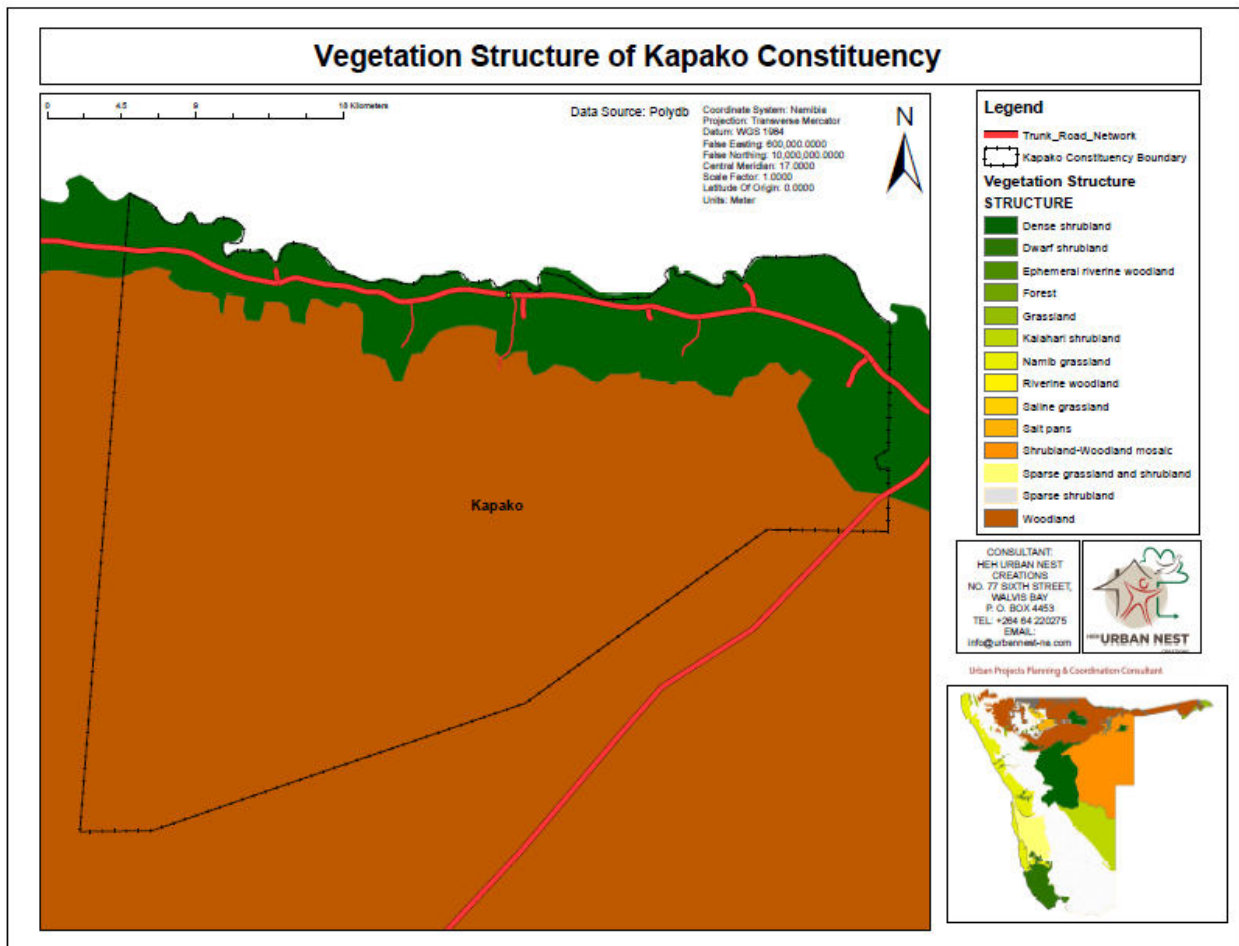


Figure 11: The different type of vegetation and structure within Gcamade Mbunza, Kavango West Region

2.2.3 Terrestrial Diversity

Due to landslides and unrestricted hunting, most of the species that once lived along the Kavango River have vanished. Nowadays, the national parks are home to most of the remaining species. Several different types of deer and rare species like the African wild dog and African wild cat, as well as the occasional elephant, can be encountered in the area, where biodiversity is still very low. Bird species include the Striped Kingfisher, Meyer's Parrot, Tawny Eagle, Lapped-faced Vulture, and Bateleur.

2.2.4 Water/hydrology

This section presents the groundwater and surface water conditions on the site, as well as the general hydrological context of the Gcamade area. The site lies roughly 150 m south of the Okavango River, whereby the surface water preferential flow is influenced by the rainfall in the area. Despite the water resources from the Kavango River, the supply of potable water is not sufficient, especially for the people living in the inland.

2.2.4.1 Rainfall and Climate

The Kavango West Area has summer rains, with the first early showers beginning in October, similar to the rest of Namibia. The months from May through September are typically dry, with January and February often having the most precipitation. Apart from Kavango East and Zambezi, the Kavango West Region receives more rain than the remainder of the country. Rainfall in the Kavango West Region is highest in the region's northwestern sections and declines toward the east and south. The service station will be built at Gcamade, which is located in the north-eastern side of the Kavango West-Region. Across most of the area, the annual rainfall average is between 450mm and 600mm.

In the winter months of June, July, and August, the Kavango West Region averages high temperatures of 6°C and maximum temperatures of over 30°C for nine months out of the year. The eastern half of the area, where the site is located, has significantly milder winter and summer temperatures than the north and north-west.



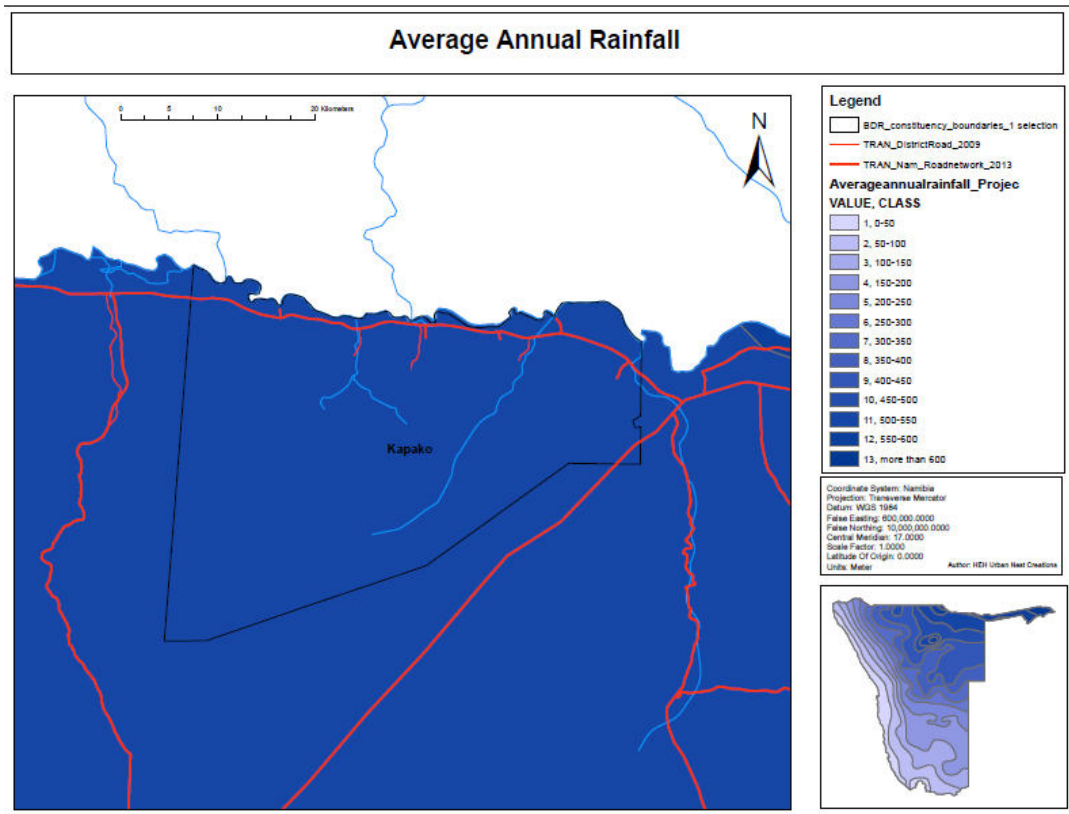


Figure 12: The various rainfall fluctuations in the Kavango West Region and Namibia.

2.2.4.2 Major Rivers

The Kavango West Region partly lies in the Kavango Basin. Water is carried by the Cubango and Cuito Rivers from the Angolan highlands into the Kavango river. The Kavango river runs through both the Kavango West and the Kavango East Regions into the Okavango Delta in Botswana. The Kavango River is the main artery of the Kavango West Region. It has an influence on the physical characteristics of the region, from the rain levels to the soil structure and carrying capacity. The Kavango River is the very lifeline of the Kavango West Region and its most important feature. In the Kavango West Region, a pattern of unevenly distributed settlements is situated a few kilometers away from water sources. It is evident that most of the population live near rivers in this region.

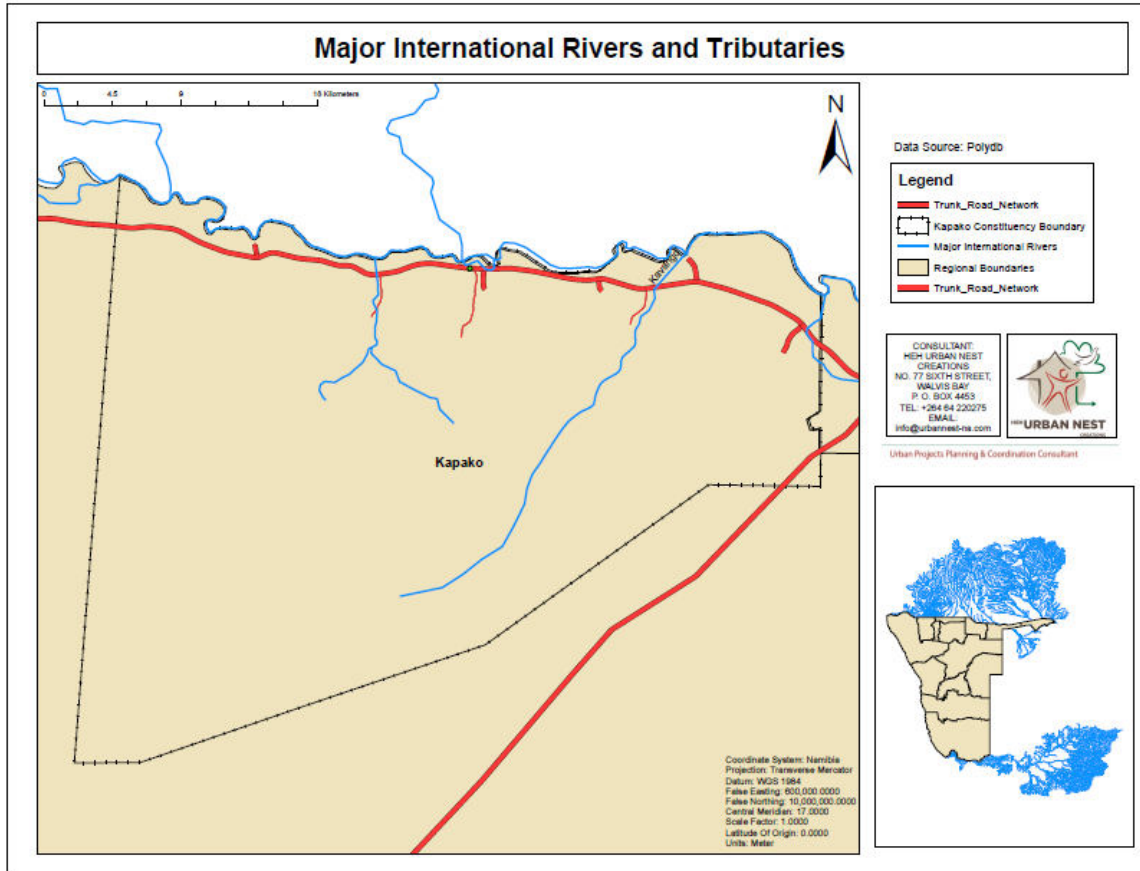


Figure 13: The various rainfall fluctuations in the Kavango West Region and Namibia

2.2.4.3 Surface Water

At Gcamade, the average annual rainfall is 500–550 mm and the average annual evaporation rate is 2600–2800 mm. Around the northern portion of Gcamade, Mbunza, the Kavango River stretches for 350 kilometers. When it leaves Namibia, the river has an average annual discharge of roughly 9800 mm³, however the flows differ from year to year and season to season. In the remainder of the Kavango West Region, the flat topography and great permeability of the sandy soil create virtually little surface runoff. In some of the shallow omurambas or in the pans in shallow depressions, water does occasionally gather and flow, although these occurrences are uncommon and temporary.

Living close to the Kavango River is relatively simple given the area's physical features, and the region's availability of natural resources makes it simple for plants and animals to survive. Although there is minimal access to utilities and few prospects for employment further inland, the living conditions in small, isolated communities are challenging.

3. SCOPE OF WORK

At the Kavango-West Region's Gcamade Mbunza, a service station will be built entirely new as part of the projected development. This specific scoping study was focused on assessing and evaluating the development's potential social and environmental effects while considering all the relevant technical factors. Scoping is regarded as a crucial step in the EIA process since it highlights the main problems and adverse effects, which will eventually help the competent authority decide whether to award the project an ECC or not.

As previously mentioned, the proposed location features a flat terrain with intact sandy soil that is very permeable, and a rather homogeneous wooded area made up of broad-leaved, deciduous woodlands that vary depending on the topography and soil quality. As a result, to make room for the development, the area's vegetation must first be cleared. Furthermore, zoning and fencing off the various zones are required because the property will be used for the construction of a service station.



Figure 14: Illustrates the clearing of land for the proposed site in Gcamade Mbunza, Kavango West Region.

Electrical supplies will also be needed for the development, although it is not yet clear where they will come from. Moreover, water must be made available for general use, particularly at the washroom facilities. Additionally, waste management is necessary throughout the various phases. Skip bins must be placed and kept in excellent working condition at the construction site to provide the secure storage and disposal of all waste generated during the construction process, including both general waste and construction waste. It is important to keep in mind that more and larger volumes of principally general and residential waste are predicted to be produced when the construction of the planned facilities is complete.

The assessment therefore aimed to establish the social and environmental impacts that may result from the development activities, both prior and during the project operation. As part of the assessment process, the public has been informed about the project, and the main stakeholders have been identified. The most important part of the assessment is the EMP, which forms part of this report. The EMP documents the management actions for various aspects of concern with respect to the development.

Overall, this scoping study aimed to:

- Create a document with the pertinent details of the project or development that will be delivered to the MET.
- Adhere to the EIA Rules of 2012 and the Environmental Management Act No. 7 of 2007.
- Inform the public about the proposed development.
- Identify the main stakeholders to the proposed development.
- Identify and document the positive and negative impacts of the project.
- Determine the issues and impacts that would require further study.
- Document the concerns and values of the IAPs.
- Define the appropriate and practical alternatives to be considered; and
- Determine the boundaries for the Environmental Assessment in time, space, and subject matter.

In summary, the aspects are presented in Table 2 have been considered by this scoping study.

Focal Area	Aspect
Assessment	<ul style="list-style-type: none"> • Project justification • Project feasibility • Project alternatives
Project Implementation	<ul style="list-style-type: none"> • Planning phase • Construction phase • Operational phase
Activities	<ul style="list-style-type: none"> • Project & non-project activities • Direct and indirect environmental & societal impacts • Context
Factors	<ul style="list-style-type: none"> • Geographic • Environmental • Societal • Economic • Legal • Developmental • Temporal & permanent • Spatial



4. LEGAL REQUIREMENTS

In this part, the planned development's governing structures, rules, and regulations are detailed. It also highlights certain legislative provisions that are relevant to the expansion.

The Namibian Constitution, which serves as the nation's fundamental legislation, has guided the creation and application of the following laws. Article 95 of the Constitution addresses the promotion of public welfare, stating that "the state should actively promote and preserve the public welfare by adopting, among other things, policies aiming at:

- Ensuring that every citizen has a right to fair and reasonable access to public facilities and services in accordance with the law; and
- 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."

In addition to the Namibian Constitution, a policy framework for the nation's long-term development has been created with the aim of raising everyone's standard of living by the year 2030. A comprehensive land redistribution and resettlement program that aims to avoid confrontation and conflict, prevent environmental degradation, and promote equity and cooperation among all stakeholders makes up the Vision 2030 policy framework, which promotes the fair and equitable distribution of land among all users. Moreover, Vision 2030 encourages significant poverty reduction through enhanced social service provision to the underprivileged, equitable income distribution through the creation of jobs and the growth of small-scale businesses, and reduced disparities. It also seeks to ensure that rural and urban development is integrated to an advanced level, and that full national coverage of infrastructure is achieved. Overall, rural upliftment through implementing initiatives for poverty reduction is emphasized by this policy framework.

In Namibia, there is a document referred to as "the Green Plan" that deals especially with environmental concerns. This booklet offers advice on how to decide on environmental-related initiatives. According to the Green Plan, EIAs must be carried out for significant projects that could be harmful to the environment. Moreover, this strategy seeks to safeguard a safe and healthy environment for both the present and future generations while also favorably influencing their economies. In addition to the guiding papers mentioned above, several laws and regulations that have been determined to be important to the proposed development are listed below. The international conventions relevant to the planned project have also been included in addition to those laws.

Table 3 below presents the relevant legislations.



Table 3: Relevant legislations to the proposed development

Law/Act	Descriptions
<p>Environmental Management Act No. 7 of 2007</p>	<p>The Environmental Management Act No. 7 of 2007 was enacted “to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment, to establish the Sustainable Development Advisory Council, to provide for the appointment of the Environmental Commissioner and environmental officers, to provide for a process of assessment and control of activities which may have significant effects on the environment, and to provide for incidental matters”. The proposed development should seek to comply with this Act.</p> <p>The implementation of this Act is strengthened by the EIA Regulations of 2012, which have listed the activities that cannot be undertaken without an ECC. As part of the listed activities, land use and development activities for commercial use cannot be undertaken without ECCs. The proposed project is not an exception to this, hence this scoping study.</p>
<p>Forestry Act No. 12 of 2001</p>	<p>The Act has been enacted “to provide for the establishment of a Forest Council and the appointment of certain officials to consolidate the laws relating to the management and use of forests and forest produce, to provide for the protection of the environment and the control and management of forest fires, to repeal the Preservation of Bees and Honey Proclamation No. 1 of 1923, Preservation of Trees and Forests Ordinance No. 72 of 1968, and to deal with incidental matters”. In the view of the proposed development, this Act is promoting the conservation of soil, biological diversity, and the natural environment at large, as clearing of forests for infrastructure development is a threat to the environment. Nevertheless, through the scoping study, the possible negative environmental impacts have been identified.</p>
<p>Soil Conservation Act No. 76 of 1969</p>	<p>The Soil Conservation Act has been enacted “to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation, and the protection of the water resources in Namibia, and to provide for matters incidental thereto”. Under this Act, the prevention of soil erosion, disturbance of land, and destruction of vegetation that may possibly result from the development have been provided for.</p>
<p>Hazardous Substances</p>	<p>This ordinance was developed “to provide for the control of substances which may cause injury, or ill-health or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing of flammable nature or the generation of</p>



Ordinance No.14 of 1974	pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger, to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith". With reference to the proposed development, the use of hazardous substances, for example, paints, oils and cement, particularly during the construction operation should be controlled.
Public Health Act No. 36 of 1919	The Public Health Act provides for the control of anything that may affect public health. It emphasizes that no person shall cause nuisance or shall suffer to exist on any land or premises owned or occupied by him or her of which he is in charge of any nuisance or other condition liable to be injurious or dangerous to health. It is thus essential that the proposed development should not by any chance cause nuisance that may affect public health.
Water Resource Management Act No. 24 of 2004	This Act was enacted "to provide for the management, development, protection, conservation, and use of water resources, to establish the Water Advisory Council, the Water Regulatory Board, and to provide for incidental matters". Given the fact that the construction of the planned development will use a large amount of water, it is important that water is used sparingly, that the water resources should be protected, and that water pollution should be prevented, as guided by the Water Resource Management Act.
Nature Conservation Ordinance No.4 of 1975	The Nature Conservation Ordinance was developed "to coordinate, amend the laws relating to the conservation of nature, the establishment of game parks and nature reserves, the control of problem animals, and to provide for matters incidental thereof". In the view of the proposed development, this ordinance is relevant when it comes to the conservation of the natural resources within the area where the envisaged development will take place. In case there are specially protected plants (indigenous species of community importance) at the construction site, recommendations will be made to shift the construction area, to ensure that such plants are not removed. This ordinance will guide the conservation of the natural environment at large.
Electricity Act No. 4 of 2007	This Act was enacted "to establish the Electricity Control Board, and provides for its powers and functions, to provide for the requirements and conditions for obtaining licenses for the provision of electricity, to provide for the powers and obligations of licenses and to provide for incidental matters". The supply of electricity for this development should therefore abide by the provisions made under this Act



<p>Local Authorities Act No.23 of 1992</p>	<p>This Act provides for the determination, purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties, and functions of local authority councils; and to provide for incidental matters. A Local Authority Council has the power - to supply water, electricity, and public transport service; provide, maintain, and carry on a system of sewerage and drainage for the benefit of the residents in its area, businesses, or industrial purposes. It has further been enacted to provide, maintain and carry on services to such industries for the removal, destruction or disposal of rubbish, slop water, garden and stable litter, derelict vehicles, carcasses of dead animals and all other kinds of refuse or otherwise offensive or unhealthy matter, of which all these are of extreme importance since the area of development falls under the Kavango West Region and is required to extend these services to this area.</p>
<p>Pollution Control and Waste Management Bill</p>	<p>The Pollution Control and Waste Management Bill is still in preparation; however, it makes provision for a framework for governing the control of pollution as well as the management of the waste. It further makes provision for the prevention and regulation or the discharge of pollutants into the air, water, and land. In addition, it is meant to regulate noise, dust, and odor pollution. Of particular importance to the proposed development is the management of waste disposal on land. A significant amount of solid waste is likely to be generated during the construction, which will need to be well managed. Furthermore, waste (especially general) will be generated almost on a daily basis after the construction of all the proposed facilities. An effective approach to deal with such waste will therefore be necessary.</p>

In addition to the legislation, there are a number of policies that are considered relevant to the proposed development, as listed in Table 4 below.

Table 4: Policies that are relevant to the proposed development.

Policy	Description
<p>Environmental Assessment Policy</p>	<p>The environmental Assessment Policy Emphasizes the importance of environmental assessments.</p>
<p>Land-use Planning Policy</p>	<p>The Land-use Planning Policy defines the landform, among which is the communal state land. It emphasizes the sustainability of the natural resources and essential ecological processes.</p>



National Land Policy	The National Land Policy promotes community involvement in environmentally sustainable land use practices.
National Land Tenure Policy	The National Land Tenure Policy promotes sustainable utilization of land and other resources.
Regional Planning and Development Policy	The Regional Planning and Development Policy promotes soil conservation strategies.

According to Article 144 of the Namibian Constitution, international law is incorporated into national law. Based in this regard, Table 5 lists a few international rules that are seen to be pertinent to the development, as follows:

Table 5: Relevant international laws

International Laws	Description
Convention on Biological Diversity (CBD)	The Convention on Biological Diversity is promoting the sustainable use of biodiversity components.
United Nations Framework Convention on Climate Change (UNFCCC)	This convention is promoting the avoidance of climate change to the point that sustainable development can be affected.
United Nations Convention to Combat Desertification (UNCCD)	This convention aims at combating desertification and its effects while at the same time contributing to sustainable development. This convention seeks to ensure public participation in relevant decision-making processes.



5. PUBLIC CONSULTATION

The Environmental Management Act of 2007 promotes the participation of all interested and affected parties (I & APs). In accordance with this Act, decisions about any development must consider the interests, requirements, and values of all parties involved. This is why the public was consulted as part of this study, particularly people from the Kavango West Region in Gcamade Mbunza.

In efforts to engage the I & APs, the following was done:

- A document presenting the background information on the proposed project was compiled and made available for distribution to the I & APs (Annex 1). This document is referred to as the Background Information Document (BID).
- A notice explaining the anticipated development and providing specific instructions on how to guarantee that public feedback is considered was published in the Confidante newspaper on 22 - 28 July 2022 and the Namibian on the 22nd and 29th of July 2022 (Annex 2). The notification included a request for members of the public to sign up as I & APs.
- A meeting with the affected stakeholders took place on the 20th of August 2022, to obtain their views regarding the development.

Figures 15 – 19 Illustrates: newspaper notices (15 – 17), meeting venue (18 & 19).





Figure 15: Newspaper Notices in the Namibian. Dated 22 July 2022 and 29 July 2022 respectively.

OUTRUN CONSULTANTS CC

NOTICE OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND PUBLIC PARTICIPATION PROCESS FOR THE UPGRADE OF THE OHANGWENA II WELLFIELD WATER SUPPLY SCHEME

Outrun Consultants cc hereby gives notice to all potential interested and affected parties (IAPs), that an application for Environmental Clearance certificate will be made to the Environmental Commissioner in terms of the Environmental Management Act (No. 7 of 2007) as follows:

Proposed: NamWater/Financier: Afrikan Development Bank
Project reference: P-NA-ES0-005
Environmental Assessment Practitioner: Outrun Consultants cc
Project Description: Namwater intends to upgrade the water supply network within the Central Northern Water Supply Area (CNWSA). The Ohangwena aquifer is a largely unexploited aquifer with huge potential of supplying potable groundwater to the North of Namibia. This upgrade will involve the following:

- Oshana-Eshana Extension
- Oshango - Oshambulu-Eshana Scheme Upgrade

In accordance to the requirements of the Environmental Management Act (No. 7 of 2007) and the Environmental Assessment Regulations No. 12 of 2012, Namwater has appointed Outrun Consultants cc as an independent Environmental Assessment Practitioner to undertake a detailed Environmental and Social Impact Assessment (ESIA) and to obtain an Environmental Clearance Certificate (ECC) for the envisaged development project.

Project Location: The Project is located in Ohangwena Region (Map is provided in the BID).

Public participation process: Interested and affected parties are hereby notified that public participation meetings will be held as follows:

Date and Time	Activity	Venue/Place
26 July 2022 - 1000hrs	Consultative Meeting	Oshana (Oshana Constituency Office Hall)
26 July 2022 - 1430hrs	Consultative Meeting	Oshana Grant Payout Hall
27 July 2022 - 1000hrs	Consultative Meeting	Oshambulu Community Hall
27 July 2022 - 1430hrs	Consultative Meeting	Ohangwena Regional Council

The participation and commenting period is effective until 14 August 2022

To register or request for documents submit your details in writing to the Environmental Consultant or alternatively fill the online form, link and contact details given, <https://forms.gle/wd7s7mofun8k2wFw8>

Outrun Consultants:
 Josiah T. Mufuti
 Phone: +264 812 683 576
 Email: outrunngreeninfo@gmail.com

Logos: outrun, NAMWATER, ELEMENT

PUBLIC NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED EXPLORATION ACTIVITIES & INVITATION TO A PUBLIC MEETING

In accordance with the Environmental Management Act (No. 7 of 2007) and its regulation, notice is hereby given to all interested and affected Parties (IAPs) that an application will be made to the Environmental Commissioner for environmental clearance as follows:

Project: Exploration Activities For Base, Rare Metals, Industrial Minerals And Precious Metals on EPLs ES47 and ES48
Project Area: Erongo-Gobabeb and Kunene, Oshana Region
Proprietor: Evango Mining Pty (Ltd)
Form Approved:
 EPL ES47: Huab 1 Hotspruit, Sangoia Funtua Huab II
 EPL ES48: Oshana (19), Oshana, Oshana, Kunene East, Oshana (21), Oshana (21), Oshana (21), Oshana (21)
 Author: (70)

Public Meetings:
 26 August 2022 Funtua Huab 1 @ 10:00am - 12:00pm
 26 August 2022 Funtua Huab 2 @ 14:00pm - 16:00pm
Deadline for submission of comments: 28th August 2022
Register as IAPs @: info@urban-nest.com or Call +264 81 147 7380

PUBLIC NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT

HEM Urban Nest Creations hereby gives notice to all potentially interested and affected parties (IAPs) that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act 2007 (Act No. 7 of 2007) and the Environmental Impact Assessment Regulations for the proposed construction and operation of a service station in Gcama, Karango West Region.

PROJECT NAME: Environmental Impact Assessment for proposed construction and operation of a service station in Gcama, Karango West Region

PROJECT LOCATION: Gcama, Mbumba, Karango-West Region

PROJECT DESCRIPTION: The project involves conducting an Environmental Impact Assessment (EIA) for the establishment of a service station. The proponent intends to operate a service station.

PROJECT INVOLVEMENT:
 Proprietor: Callup Investments (Pty) Ltd
 Environmental Assessment Practitioner (EAP): HEM Urban Nest Creations

REGISTRATION OF IAP AND SUBMISSION OF COMMENTS: In line with the Environmental Management Act (no. 7 of 2007) and Environmental Impact Assessment regulations, all IAPs are hereby invited to register and submit their comments, concerns, or questions in writing via: Email: info@urban-nest.com on or before 18 August 2022.

PUBLIC MEETING TO BE HELD AS FOLLOWS:
 Meeting Venue: Rundu, Gcama Village
 Time: 14:00
 Date: 29 August 2022

For questions and comments:
 Contact: HEM Urban Nest Creations
 Tel: +264 84 229 275
 Email: info@urban-nest.com

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- 5000m2 business plot in Eenhana for 2.7m suitable for service station.
- Okahandja business plot 2384m2 for 2m suitable for small complex.
- Brakwater industrial plot 1224m2 for 2m.

Contact 085 1281287 all plots are negotiable!

Figure 16: Newspaper Notices in Confidante date 22 - 28 July 2022.





Figure 17: Public meeting venue.

6. IMPACT ANALYSIS AND MITIGATION MEASURES

The predicted environmental effects of the proposed project are discussed in this part, along with any potential mitigation strategies that have been identified for both the development's construction and operating stages. Direct, indirect, or cumulative effects are the three categories into which possible effects are divided. The repercussions are classified as:

Category 1 Impacts: are those impacts that are a direct outcome of the development.

Category 2 Impacts: sometimes known as "indirect" consequences, are the projected impacts that could possibly occur due to the project but will take place at a different time or location.

Category 3 Impacts: Individual affects (two or more, direct or indirect) that, when evaluated collectively, may raise environmental impacts. They are known as 'cumulative' effects.

The predicted implications of the planned project are discussed in the sections below.

6.1. Land Environment

A service station and any other facilities required as part of the development of Gcamade Mbunza in the Kavango West Region will be constructed. Harm would be done to the land environment, which is a direct negative impact, given that the proposed area is now in its natural state and that the ground must be prepared prior to construction. In addition to the soil degradation, the act of clearing the ground for construction will result in a loss of flora. However, there won't be any loss of important plant species. Similarly, no major faunal species will be lost. As a result of land filling and leveling of the landscapes, there will also be a change in topography and geomorphology at the building sites.

The building operations will have indirect effects in addition to their direct effects on the land environment of the site. Seeing as the area must be cleared before construction can begin, it is predicted that topsoil removal and vegetation may cause soil erosion. Furthermore, land degradation may also be a side effect of land clearing. Additionally, the land -use of the site will change from being an ecosystem to a multi-purpose business/ light industry area. Nonetheless, most of the species on site are minimally r-selected i.e. species with a rapid growth rate and mature quickly. This suggests that they can recover after development. It's noteworthy that no signs of any endangered species have been discovered within the frame of the development.

The most unfavorable effects of the development must be minimized throughout both the building and operating phases. Due to this, various potential effect mitigation strategies have been put forth and are shown in Box 1. However, cumulative effects including soil erosion and land degradation are anticipated to happen should such measures not be put into place.

Table 6 below provides a summary of the identified effects of the building and operating activities on the land environment at Gcamade Mbunza, Kavango West Region.



Table 6. Impacts of the construction and operational activities on the land environment at Gcamade Mbunza, Kavango West Region.

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Land Damage	Soil erosion (increasing surface run off), land degradation	Land degradation
Loss of Vegetation (insignificant)	<ul style="list-style-type: none"> • Land degradation in the vicinity of the development site • Soil erosion • Land-use change 	Loss of natural beauty
Alteration of the topography and geomorphology	Land-use change i.e., from an ecosystem to commercial area	Land degradation
Operational Phase		
None	Soil erosion	Land degradation

All the identified impacts are negative; however, they are all regarded as being of low to moderate

Box 1. Mitigation measures for addressing the impacts of construction and operational activities on the land environment.

- Vegetation removal cannot exceed the development's footprint to reduce rising surface runoff. Maintaining the surviving vegetation is necessary.
- Following construction, there shouldn't be any more disturbance to the surviving vegetation in the immediate area of the development.
- By limiting earthmoving equipment movements or keeping to predetermined paths, site disruption must be prevented.
- A trained builder and civil engineer must put in place and carry out a professional construction design.
- The National Building Regulations must be followed throughout the construction of the service station.
- To oversee construction and guarantee the use of ecologically sound practices, qualified engineers must be hired.
- The topsoil layer that has been removed should be put to good use; it shouldn't be left to accumulate.
- Due to the areas flat surface drainage systems must be constructed to allow an easy flow of water.

importance. This can also be linked to the area's lower conservation relevance since it is not functioning at the ecosystem level.

6.2. Biological Environment

To prepare the area before the construction starts, vegetation at the site must be removed. The immediate area's species variety will be directly impacted by the removal of all the plant species that were present at the location. The few trees on the building site are all primarily utilized organically to reduce the impact of water runoff and to preserve the area's natural beauty. Only trees that directly obstruct the construction of the service station and adjoining facilities should be removed, saving any others that are already present.

Native tree species won't completely disappear since those that will be cut down for construction will be replanted. However, it is likely that the mini-fauna, lizards, and tiny insects that rely on the existing trees and the neighboring thorn bush as their natural homes will be severely impacted. The fortunate ones will migrate to the closest accessible trees and shrubs, while many of them are expected to perish or struggle to survive in the process. There have been no reports of huge



mammals or other large animals residing permanently in the construction zone. It is advised that more plants be planted as part of a long-term strategy to restore the site's natural attractiveness following development.

Soil erosion due to plant loss is one of the predicted secondary effects of the building operations on the biological environment. Long-term effects might include the deterioration of the land. Construction operations may indirectly lead to a decline in the biodiversity of the area since the removal of trees may cause the extinction of species that make up the local mini fauna. The short-term, low-impact direct and indirect effects are negligible. In the long run, these effects might potentially cause land degradation. Yet, this cumulative impact's magnitude might be regarded as being quite modest. If excellent building standards and processes have been followed under the supervision of qualified engineers, benefits can be observed on the site's soil type, which is primarily flat. The predicted direct, indirect, and cumulative effects of the construction and operating activities on the biological environment are compiled in Table 7 below.

Table 7. Impacts of the construction and operational activities on the biological environment

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Loss of plant species	soil erosion	<ul style="list-style-type: none"> • Land degradation • Loss of natural beauty • Loss of important ecological processes
Loss of mini-fauna species	Reduction of mini-fauna species richness and diversity	Reduction of local species diversity
Operational Phase		
None	None	Land degradation



The proposed mitigation measures for the construction and operational activities impacts on the biological environment are presented in Box 2.

6.3. Pollution, Solid Waste Generation and Disposal

Box 2. Mitigation measures for addressing the impacts of construction and operational activities on the biological environment.

- Plants that will not be directly affected by construction activities should not be removed.
- Disturbance of the existing vegetation around the site should be kept minimal.
- No animal (either reptiles or birds) within the construction should be killed during the land clearing / construction process.

Environmental contamination will undoubtedly be an outcome of the construction process. Four forms of pollution, including air pollution, water pollution, land contamination, and noise pollution, are predicted. There is a good chance that these will have a substantial effect on the surrounding environment and the environment at the construction site. The many forms of pollution that could be produced are explained below.

6.3.1. Air Pollution

There will be several operations that have the potential to pollute the air, including land clearing, earthmoving, using diesel earthmovers, and dealing with hazardous chemicals. Dust may be produced during land clearing, earthmoving, and concrete mixing and can be transported over great areas and for a very long time before it dissipates.

There is no question that air pollution may directly harm the environment. To be more precise, air pollution can impair sight and harm nearby flora during the construction process. Human health may also be directly impacted by air pollution, particularly that of individuals near construction sites and in the neighborhood. In addition to its direct effects, air pollution can also have indirect effects on individuals who come into touch with those who are already impacted by it through the transfer of illnesses, especially those that damage the respiratory system (Table 8). Thus, it is crucial to implement mitigation strategies; otherwise, long-term effects such as psychiatric illnesses and cardiovascular issues would accumulate.

In general, the direct impacts of air pollution can be considered as significant, while their significance can be rated as moderate. Fair enough, they are rather short-term, particularly because they are more likely to be experienced during the construction phase than the operational phase. Nevertheless, the fact remains that the direct impacts of the operational phase will last for the long-term but can be rated as low. The indirect and cumulative impacts can be rated as moderate and can have lasting impacts if no mitigation measures are implemented.



Table 8. Impacts of air pollution from the construction and during operational activities, on the environment and on human health

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Exposure to dust	<ul style="list-style-type: none"> • Eye irritation • Skin irritation • Dust Inhalation (resulting in coughing and sneezing, hay fever and asthma attacks) 	<ul style="list-style-type: none"> • Long term eye irritation • Allergies • Psychological and physiological disorders • Health risks for construction workers
Odor nuisance	<ul style="list-style-type: none"> • Quality of life impacts (discomfort) depending on the concentration • Eyes, nose, throat, and lungs irritation • Dizziness 	Human health problems
Human health problems		
Operational Phase		
Odor nuisance	Discomfort	None

The proposed mitigation measures for air pollution from the construction activities are presented in Box 3 below.

<p>Box 3. Mitigation measures for air pollution impacts resulting from the construction activities.</p> <ul style="list-style-type: none"> • Dust must be regularly settled using water during construction. • The construction teams must be provided with dust masks, which are able to block dust particles. • Open stockpiles of cement bags must be avoided and must be always covered. • The sewerage system should be regularly maintained to avoid smell nuisance from the septic tanks. • No burning of waste should be done at the site or elsewhere. • Construction should be stopped in days of heavy wind blows. • Bitumen standard roads should be used on busy sections during the operational phase.
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6.3.2. Water Pollution

Water will, without a question, be a key component of the proposed development during both the building and operating phases. It goes without saying that a considerable amount of water will be required during the construction process, especially to settle dust, for compaction, curing, mixing concrete, and cleaning construction equipment. Also, water will be utilized by personnel at the site for normal activities including cooking, drinking, and bathing. The availability of adequate water throughout the operation phase is equally crucial. Water may, however, become polluted when utilized in an unregulated way. Other sources of water pollution at the site may be diesel and oil from the construction equipment, paint, solvents, cleaning and other harmful chemicals, sewage as well as the construction materials.

It is necessary to clear the area before building can begin, which will require removing topsoil. Hence, continued water consumption at the location is likely to cause soil erosion, which will then cause sedimentation. Since it may be polluted by pollutants like fuel and oil, hazardous chemicals, and construction materials, surface water run-off may have severe negative environmental effects when it is used in an uncontrolled manner. Such contaminants may pollute water sources that often provide drinking water to animals and, in some circumstances, humans, causing the water to become murky and dangerous to drink. The same contaminants can seep into the soil and contaminate groundwater, which serves as both an animal and human source of drinking water. Water contamination can also develop through the interaction of water with soil that has been polluted with the same contaminants.

In addition to the effects of water pollution that have been highlighted, there are additional effects that may be direct or indirect. These include plant deaths brought on by the accumulation of pollutants from the polluted water, the uptake of pollutants by plants that can be passed up the food chain, and the development of waterborne diseases (rashes, skin infections, cholera, damage to the nervous system, liver and kidney damage and many others). As a result, mitigating strategies must be established and put into practice. If not, negative effects such catastrophic plant losses, animal, and human illnesses, and even fatalities, might result. The direct effect of contaminated water might be categorized as moderate to low in importance. The indirect and cumulative effects, which might also be rated low, follow the same rules.



The anticipated impacts of pollution from the construction activities are summarized below in Table 9.

Table 9, Effects of construction-related water pollution on the environment, people, and operational processes.

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Water contamination	<ul style="list-style-type: none"> • Plant deaths • Animal deaths • Waterborne diseases 	<ul style="list-style-type: none"> • Severe plant losses • Animal deaths • Human health problems and deaths • Reduction in biodiversity
Soil contamination	<ul style="list-style-type: none"> • Absorption of soil contamination by plants (bioaccumulation) in the vicinity • Plant deaths 	Human health problems and deaths
Operational Phases		
<ul style="list-style-type: none"> • Water contamination • Soil contamination 	<ul style="list-style-type: none"> • Waterborne diseases • Human health problems • Animal health hazards 	Human and animal health problems



Box 4. Mitigation measures for water pollution impacts resulting from the construction activities.

- Water usage during construction should be kept to a minimum, and excessive water consumption should be avoided.
- The concrete constructions should be sprayed with the curing water.
- To prevent water from evaporating during drying, cement and sand mortar should be used to build ponds.
- The current municipal sewerage system should be used to securely dispose of wastewater instead of allowing it to flow into the open environment.
- To reduce excessive water contamination, paint and cleaning supplies must be properly disposed of.
- There should be no interaction between polluted water from the commercial and recreational sectors and potable water.
- To stop the spread of infectious illnesses among users, recreational water facilities should be carefully managed and routinely cleansed.

The proposed mitigation measures for water pollution impacts from the construction activities are listed in Box 4 below.

6.3.3. Land Pollution

Solid waste, which will be produced during both building and operation, is the main cause of land contamination. The bulk of the produced solid waste will be created during the soil excavation that comes before the foundation is laid. Solid waste in the form of excavated soil will be produced in large quantities because of the service station (and potential other infrastructure) that will be built, necessitating good waste management. In addition to soil excavation, additional forms of land pollution or solid waste include construction supplies, such as cement sacks, paint cans, oil cans, and numerous other containers for the products to be utilized, as well as the reuse of waste materials.

Other sources of solid waste throughout the building and operating phases include material procurement and material handling. It's expected that several building sites will amass a significant amount of packaging waste, papers, and plastics during the two periods. Nonetheless, waste creation happens at any stage of construction, with possibly little influence, despite the sources that have been recognized.

More garbage should be anticipated to be produced during the operating phase in addition to the waste that will be produced during the building phase. It is very much likely that the biggest source of solid waste during the operation phase will be the procurement of stock, particularly in the business area, whereby the stock containers will end up being waste materials. The operating phase is therefore likely to result in the accumulation of a sizable amount of solid waste in the form of plastics, glassware, boxes, tins/cans, and papers. Considering this, one should expect an influx of people from various backgrounds when working on the proposed site.



When it comes to the direct effects of solid waste on development sites, throughout both the building and operation stages, the primary issues will be soil and water contamination as well as environmental damage to the land, including littering. Such pollution will therefore change the aesthetic attractiveness of the place and its surroundings. It is anticipated that the biggest negative impact of solid waste on the land environment will be reduced visual appeal / anesthetic view. Soil contamination can further lead to the deaths of soil inhabiting species. In addition to the direct effects, indirect effects are also predicted. They are likely to happen when solid waste, such as paper and plastic containers, is washed or blown away, making the entire site and vicinity less attractive. The wind-blown or washed-away waste is also likely to cause degradation of the terrestrial environment around the development sites, as well as the contaminating of water supplies (producing mosquito breeding grounds). Also, it is projected that solid waste may indirectly cause significant biological cycles to disappear.

If solid waste in the terrestrial environment is not properly managed, land degradation is likely to occur over time due to the cumulative effects. Waste can also deplete space in the landfill sites if waste is carelessly disposed of. Decreased aesthetic perspectives brought on by uncontrolled waste will accelerate the degradation of landscapes and, in the long run, harm the environment's reputation. If left unchecked, it can even result in fewer people visiting the service station in the future. The EMP presents more information about waste management.

It's important to note that waste may affect the economy in both good and bad ways. On a larger view, rising waste generation might result in higher building costs. This is especially true because it is possible for some materials to be misused or wasted, which would need their replacement. Several studies indicate that the entire cost of trash is around 30% of the cost of the materials. Waste can have good economic effects in addition to negative ones, notably through recycling. Waste materials that can be recycled can be bought and sold to be rejuvenated or utilized for other beneficial purposes, which generates revenue.

Although liquid waste is also likely to be present, solid waste is predicted to be the main source of pollution on land. During building or other operations like cleaning, liquid construction pollutants like oils, paints, cement, and detergents may be washed away or off, spill or leak, and may flow off together with water. Rainfall may possibly make this situation worse.

Since the creation of solid waste is unavoidable, particularly for this kind of growth, the magnitude of the impacts of waste may be graded as high overall.

Table 10 provides a summary of the direct, indirect, and cumulative effects of waste during the building and operating stages.



Table 10: Impacts of solid waste during the construction and operational phases on the environment.

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
<ul style="list-style-type: none"> • Soil contamination • Death of soil inhabiting species e.g., microorganisms and insects 	<ul style="list-style-type: none"> • Water resources contamination • Loss of important ecological cycles 	Land degradation
Water contamination	Land pollution	Land degradation
Destruction of the visual looks of the site	Destruction of visual looks in the neighbouring areas	<ul style="list-style-type: none"> • Deterioration of landscape/tarnished image of the environment • Reduction of potential visitors
Accumulation of waste materials	Destruction of visual looks	Depletion of space in the landfill sites
Accumulation of waste	Accrual of construction costs	Need for increased budget
Recycling opportunities	Income generation	Long-term partnership with recycling companies
Operational Phase		
Destruction of the visual looks at sites	Destruction of the visual looks in the neighboring areas	Land degradation
Soil contamination and water contamination	Land pollution	<ul style="list-style-type: none"> • Land degradation • Groundwater pollution • Biodiversity loss • Human health hazards
Accumulation of waste	Accrual of construction costs	Need for increased budget

None of the effects on the development are likely to provide a significant concern. Therefore, mitigating strategies must be put in place to prevent the damaging effects in the long run.

The suggested mitigating strategies for the damaging effects of solid waste on the environment are shown in Box 5 below.

Box 5. Mitigation measures for the solid waste impacts from the construction and operational activities

- Educate the contractors and the community on the basic waste management practices.
- Waste should be minimized as much as possible.
- Where possible, waste generation must be eliminated/avoided.
- Useful waste materials must be re-used.
- Unlawful deposit of waste on open land should be avoided.
- Enough and well distributed waste bins should be made available both during the construction and the operational phases.
- A temporary disposal site must be constructed to ensure safe disposal of waste.
- The existing disposal site should be utilized during the operational phase to ensure safe disposal of waste.
- An environmentally sound sewage system e.g., eco-toilets for the construction workers should be constructed prior the actual construction.
- Recycling of waste materials should be promoted. All recyclable materials such as papers, cans, plastics, and glasses can be separated and be placed in different well labelled containers, to be transported to the recycling companies within the Kavango West Region.
- All tax paying operating businesses; like the service stations for example, must be provided with refuse bins and awareness on waste segregation. This should be created as much as necessary for easy waste collection and recycling.

6.3.4. Noise Pollution

In the Kavango West Area, a few meters from the Trans Caprivi Highway, is where the Gcamade Mbonza service station development is planned to be constructed. It is further situated in proximity of dispersed residential settlements. For this reason, construction and operational activities are presumed to be some of the sources of noise pollution. The earthmoving machinery and construction trucks are expected to produce noise, as will the workers themselves and anybody else present at the site. During the operation phase, the movement of vehicles to and from the development site and the use of the local routes will potentially be the cause of noise pollution. Although noise pollution would harm the ecosystem, its impact would be minimal.

The effects of noise pollution are shown in Table 11 below, during both the building and operating stages.

Table 11: impacts of noise pollution during the construction and operational phases on the environment.

Construction Phases		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Noise disturbance	Increased stress	None
Operational Phase		
Noise disturbance	Increased stress Sleeping disturbance	None

Noise pollution from the development site is not considered as being significant. Nevertheless, the proposed mitigation measures for noise pollution are listed in Box 6 below.

Box 6. Mitigation measures for the noise pollution impacts from the construction and operational activities.

- Night-time construction activities must be avoided. Construction should at least end at 18H00 to allow people to sleep without further disturbance.
- Speed limit to and from the construction sites should be set.
- Industrial business activities should not be permitted in the area.
- Late night activities must be minimised.
- Use of sport facilities should be announced to inhabitants directly affected whenever necessary.
- The use and timing of heavy construction machinery which may cause disturbing vibrations should be controlled and well managed.

6.4. Socio-economic Impacts

The projected development is anticipated to significantly help with the socioeconomic problems that the Gcamade village in the Kavango West Region is currently dealing with. These include the; lack of employment, limited business opportunities and limited access to basic facilities such as basic service providers and lack of public open market space for small/micro enterprises. Hence, it is projected that access to necessities like food, employment, development and all the other demands mentioned above would be satisfied or will improve significantly once the suggested facility is in place.

In essence, this refers to the fact that people who had to travel long distances to get the services that the proposed service station will be providing. Those living in the area will save on travel costs. There will be closer contact between residents living nearby the construction site and those



traveling on the Trans Caprivi route. Also, this development will draw individuals from various backgrounds, which is a positive factor for cultural fusion in Gcamade Mbunza.

Employment is anticipated to have the greatest socioeconomic impact, particularly during the construction phase, given the magnitude of the proposed development. Up to four principal businesses may be employed during the construction phase, and they are anticipated to employ additional businesses as subcontractors. In all, approximately 100 employees will be employed throughout the construction phase under the abovementioned contracts. These workers might be skilled, semi-skilled, or unskilled, depending on the kind of labor needed. Together with the employment opportunities that will be available during the construction phase, the operational phase will lead to the establishment of roughly 15 positions as well as the opportunity for entrepreneurship. With Namibia's current high unemployment rate of 34%, the proposed development's employment generation should be viewed as having a beneficial influence (NSA, 2016).

The local economy's empowerment should be the open market's main advantage. In general, free markets should be viewed as social and economic institutions with a variety of goals (EC, 2007). They have a significant influence on providing people with access to nutritious food, expanding marketing opportunities, fostering social interaction in urban areas, providing local communities with employment prospects, and promoting entrepreneurship, and boosting local economic growth. All these activities help the development of the local economy. Also, there is a good probability that free markets will benefit the local economy by boosting tourism.

Table 12 lists the development's planned operating and construction-related direct, indirect, and cumulative socioeconomic consequences.

Table 12: Socio-economic impacts of the construction and operational activities

Construction Phase		
Direct Impacts	Indirect Impacts	Cumulative Impacts
Employment creation	Local economic empowerment	Urban development
Operational Phase		
Employment creation	Local economy upliftment	Urban/city development
Entrepreneurship opportunities	Local community empowerment	Community economic development and sustainable development



Access to basic facilities	<ul style="list-style-type: none"> • Reduced pressure on income. • Increased sources of income. 	Sustainable development
Tourism opportunities	Income generation opportunities	Local economic upliftment
	Poverty reduction	Increase in local income generation

The proposed mitigation measured for the socio-economic impacts are presented in Box 7.

Box 7. Mitigation measures for the socio-economic impacts resulting from the construction and operational activities.

- To guarantee the success of the projected development, top emphasis should be given to Namibian businesses in the fields of architecture, civil engineering, structural engineering, electrical engineering, mechanical engineering, town planning, land surveying, and quantity surveying.
- Contracts with Namibian construction firms should be made to build the homes and other infrastructure.
- All products, including building supplies, ought to come from Namibia, ideally Rundu or neighbouring towns.
- The bulk of those hired for both the building and operational stages should be residents of Gcamade Mbunza or the Kavango West Region, or at the very least, the surrounding districts. A few supporting (experienced) employees should be hired from outside when there is a shortage of skills, but local levels should be given precedence before regional ones.

7. ALTERNATIVE TECHNOLOGIES

In this section, the available options and alternative materials and technologies that could be considered during construction and operation phases are presented.

7.1. Construction of the service station

It is crucial to take environmental ethics into account in all types of development given the mounting strain on the environment, which has negative consequences including climate change and land degradation. The proponent must thus prioritize maintaining the integrity of the environment as part of the planning for the building operations. It is advised that the proponent adopt environmental practices and, whenever feasible, materials and technology that will aid in environmental management and conservation for this purpose. Building so-called "green

buildings," where the materials to be utilized should be environmentally friendly, is one of these methods. Furthermore, the proponent could consider using the available space sparingly in such a way that the development of the service station could be done in such a way that it will be able to engage with the local markets.

The following can therefore be put into practice:

- Making use of environmentally friendly building materials or recycled materials.
- Making use of non-toxic materials.
- Using water efficiently during the construction and operation phases.
- Making use of energy efficient equipment.
- Making use of renewable energy; and
- Maximizing construction activities during rainy seasons.

7.2. Waste Management

It is inevitable that waste would be produced during the building and operating stages. It is crucial that waste be properly handled given its effects, which were previously mentioned. It is advised that the technologies that will support sound waste management be considered both during the construction phase and during the operating period. The techniques or technologies listed below might be used to guarantee sound waste management.

- Re-using waste building materials / building rubbles and any other possible usable waste materials generated.
- Minimizing the construction waste through re-using and recycling of waste materials.
- Putting recycling into practice through developing a system of collecting the recyclable materials from the source.
- Taking away the disposable waste materials to approved disposal sites.
- Installing septic tanks for the purpose of managing sewage.
- Placing garbage bins and skip containers in various places within the development.

7.3. Energy Conservation

Energy conservation is one of the environmental management techniques. Such a method requires exerting great effort in energy consumption reduction through energy efficiency. When it comes to the construction of businesses, non-renewable energy sources (such as coal and nuclear energy) are frequently used and are frequently expensive. Using energy-efficient technology that relies on renewable energy sources is crucial for the long-term goal of ensuring energy conservation in the proposed structures. Considering this, it is advised that the projected development, particularly the homes, consider utilizing alternative energy-saving technologies, such as solar energy (including solar geysers), as much as necessary. Also, it is advised to install energy-saving Light-Emitting Diode (LED) lamps in the building of the service station because they are thought to be efficient in terms of energy use.



It is important to note that the Ministry of Mines and Energy (MME) has advocated the use of solar power due to Namibia's rising electricity prices. The solar energy supply technology is environmentally benign and produced using a renewable energy source. Namibia is noteworthy for having a reliable solar supply source. Yet, the advocate should weigh the expenses of adopting solar energy against those from other sources.

8. TECHNICAL SPECIFICATIONS

The development plan consists of a service station. They will offer services to the locals who live nearby as well as to drivers, other road users, and tourists that come to the region or that use the Trans Caprivi Highway. The planned development will only take place in one phase: The construction of the service station and its accompanying facilities will constitute the complete scope of Phase 1; these facilities include:

- A convenient store
- Ablution facilities for the patrons
- Adequate paved parking bays
- Banking facilities in the form of ATMs



Figure 18: Images illustrating the clearing of land vegetation in Gcamade Mbunza village in preparation to create space for the construction.

9. POTENTIAL IMPACTS

The following are potential impacts, both positive and negative that have been identified:

9.1. Positive impacts

- Aesthetic (visual) impact;
- Socio-economic;
- Urban development (including an increase in business activities);
- Increased access to services (recreation and business retails at community's doorsteps);
- Expansion of commercial facilities will benefit village's revenue inflow; and
- Sales and income to be generation from the available services will boost tax revenue.

9.2. Negative impacts

- Environmental destruction / landscape damage;
- Biodiversity reduction (both local flora and fauna);
- Destruction of ecological balance;
- Possible impacts of activities associated with liquid, solid and air pollution;
- Increased noise pollution (especially from construction activities and vehicles on the road);
- Excessive use of water (a scarce commodity in Namibia);
- Increased possibility of water runoff (from road pavements);
- Increased solid waste pollution.

10. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The assessment has anticipated limited and insignificant impacts on the environment. In cases where there are any impacts the Draft Management Plan and its mitigation measures should be adhered to.

The EIA study results showed minor negative environmental impacts of varying degrees depending on the nature of the activity and impacts arising thereof; and it also shows significant positive impacts especially in terms of socio-economic aspects. The potential impacts and mitigation measures are indicated in the EMP. The EMP ought to be implemented throughout the project lifecycle and an Environmental Management System prepared and implemented based on the EIA study findings.

The planned expansion, which would expand the urban area in Gcamade Mbunza and deliver development and basic services to people in need, will enhance the Kavango West Region. In other words, it will advance the financial position of the Kavango West Region. This scoping assessment does not recommend a full EIA, as there will be no need for specialist studies. Thus, an EMP is included with this scoping report.

It is therefore recommended to the MEFT that the proponent be issued with an Environmental Clearance Certificate for the development of a service station at Gcamade, Mbunza, Kavango-West Region.



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List of annexures

Annexure A:	Application for Environmental Clearance Certificate
Annexure B:	Background Information Document (BID)
Annexure B:	Locality Map
Annexure C:	Environmental Management Plan (EMP)
Annexure D:	Notice to I&AP
Annexure E:	Advertisements
Annexure F:	Registration& comments form
Annexure G:	Credentials of Consultant

