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Company Reg: cc/2012/2523

ENVIRONMENTAL SCOPING REPORT (ESR)

(Source: FutureBeef, 2022)

FOR THE CONSTRUCTION AND OPERATION OF A 1,000 CATTLE STANDING CAPACITY FEEDLOT AND RELATED INFRASTRUCTURE AT ETUNDA, OMUSATI REGION

Prepared for:

Ministry of Agriculture, Fisheries, Water and Land Reform

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+264 61 225 776 / +264 811 220 114
info@tec.com.na / www.tec.com.na
P.O.Box 35473, Kleine Kuppe, Windhoek
Unit 17, No. 40, Berg Street, Klein Windhoek, Windhoek, Namibia

Tortoise Environmental Consultants(TEC)

DOCUMENT INFORMATION		
Title	Environmental Scoping Report (ESR) for the Construction and Operation of a 1000 cattle standing capacity feedlot and related infrastructure at Etunda, Omusati region	
ECC Application Reference number	**APP: 005712**	
Listed Activity (EMA, Act No. 7 of 2007 and EIA regulations of 2012)	**Activity 2.** Waste Management, Treatment, Handling and Disposal **Activity 5.** Land Use and Development Activities **Activity 10.** Infrastructure	
Location	Etunda, Omusati Region	
Proponent	Ministry of Agriculture, Fisheries, Water and Land Reform Contact person: Private Bag. 13184, Windhoek 152 Robert Mugabe Avenue, Windhoek Tel: 061 208 7111	
	Signature	**Date**
		25.06.2025
Author:	**Signature**	**Date**
Ms. Laina Alexander (EAP)[1]		25.06.2025
Reviewer: Mr. Jonas Heita (EAP)		25/6/25

[1] *EAP – Environmental Assessment Practitioner*

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ABBREVIATIONS

DEA	Department of Environmental Affairs
DSR	Draft Scoping Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA	Environmental Impact Assessment
EIF	Environmental Investment Fund
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
ESR	Environmental Scoping Report
GRM	Grievance Redress Mechanism
I&APs	Interested and Affected Parties
MAFWLR	Ministry of Agriculture, Fisheries, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
SM	Site Manager
TEC	Tortoise Environmental Consultant

1. INTRODUCTION

1.1 Project Background

The Ministry of Agriculture, Fisheries, Water and Land Reform through the Directorate of Agricultural Production, Extension and Engineering Services (DAPEES) with support from the European Union proposes to develop a Cattle Feedlot at Etunda Irrigation Green Scheme of the Ruacana Constituency in the Omusati Region. The project is being implemented with the aim to support an ongoing program to improve livestock efficiency and marketability in the Northern Communal Areas (NCAs) of Namibia (Mafuta Environmental Consultants, 2020).

1.2 Motivation for feedlot construction at Etunda

Livestock production in the Northern Communal Areas (NCAs) is primarily directed toward local markets, with a smaller share reaching neighboring countries like Angola and Zimbabwe (Burmeister and Partners, 2020). Despite this, more than half of the meat consumed through formal channels in Namibia must be sourced from outside the NCAs (Burmeister and Partners, 2020). Currently, only about 12% of the cattle population in the NCAs is sold or consumed— a figure known as the off-take rate— compared to 25–30% in commercial farming areas (Burmeister and Partners, 2020).

Low and variable rain has been identified as one of the major challenges in Northern Communal Areas (NSAs) that affects and hinders agricultural activities. Additionally, animal diseases such as the Foot and Mouth Disease (FMD) specifically negatively contribute to the marketing of livestock in the area (Burmeister and Partners, 2020).

This is further worsened by the low rate of livestock off-take which contributes to overcrowding of animals and the deterioration of rangelands. Considering the current constraints in market access, it is therefore crucial for the government to strengthen the capacity of small and medium-scale agricultural producers and agri-processors to ensure fair access to local, regional and international markets (Ministry of Agriculture, Water and Forestry, 2020).

1.3 Project Rationale

The primary objective of the proposed project is to support Namibia's national development goals as outlined in the Fifth National Development Plan (NDP5), the Harambee Prosperity Plan (HPP), and Vision 2030. Additionally, the project aims to contribute to the realization of several key national frameworks, including the Harambee Comprehensively Coordinated and Integrated Agricultural Development Programme (HACCIADEP), the Namibia Agricultural Policy, the Marketing and Trade Policy and Strategy, as well as the Grow at Home Strategy, among others.

Cattle feedlots in the Northern Communal Areas (NCA) are expected to:

- **Ensure a more consistent supply of higher-grade cattle to local abattoirs.** This increased supply will drive up demand, enabling farmers to receive better

prices for their cattle and injecting much-needed income directly into the local economy at the primary producer level.

- Improve access to formal markets, reduced cattle prices due to biosecurity restrictions north of the Veterinary Cordon Fence (VCF), inconsistent rainfall affecting feed availability and cattle quality, and exclusion from international export markets.

1.4 Environmental Management Plan (EMP)

In-addition to the EIA Scoping Report, an Environmental Management Plan (EMP) is required under the EMA as part of the ECC application. The EMP is key document and consists of the set of measures to be taken during implementation and operation to eliminate, offset, or reduce adverse environmental impacts to acceptable levels. Also included in the plan are the actions needed to implement them (Ministry of Environment and Tourism, 2008).

The EMP has been developed and is attached to the ESIA.

1.5 Application for ECC

Upon completion, the EIA Scoping Report and Environmental Management Plan (EMP), will be submitted to MEFT for review and decision, in accordance with Section 8 of the EIA Regulations.

2. PROJECT INFORMATION

2.1 Project Location – Etunda

The proposed project site covers a surface area of 4 hectares (ha) and is under the leadership of AGRIBUSDEV. The site is located about 18 km southeast of Ruacana Town and 50 km west of Outapi Town (Mafuta Environmental Consultants, 2020).

The project area is accessible through the C46 asphalt surfaced (trunk) road that connects Outapi and Ruacana Towns and then locally accessed from the C46 via local access single track road.

Table 2-1: Boundary coordinates of the proposed feedlot

Point	Latitude	Longitude
A	17°29'59.69"S	14°32'39.24"E
B	17°29'57.99"S	14°32'44.04"E
C	17°30'07.95"S	14°32'45.74"E
D	17°30'08.94"S	14°32'42.01"E

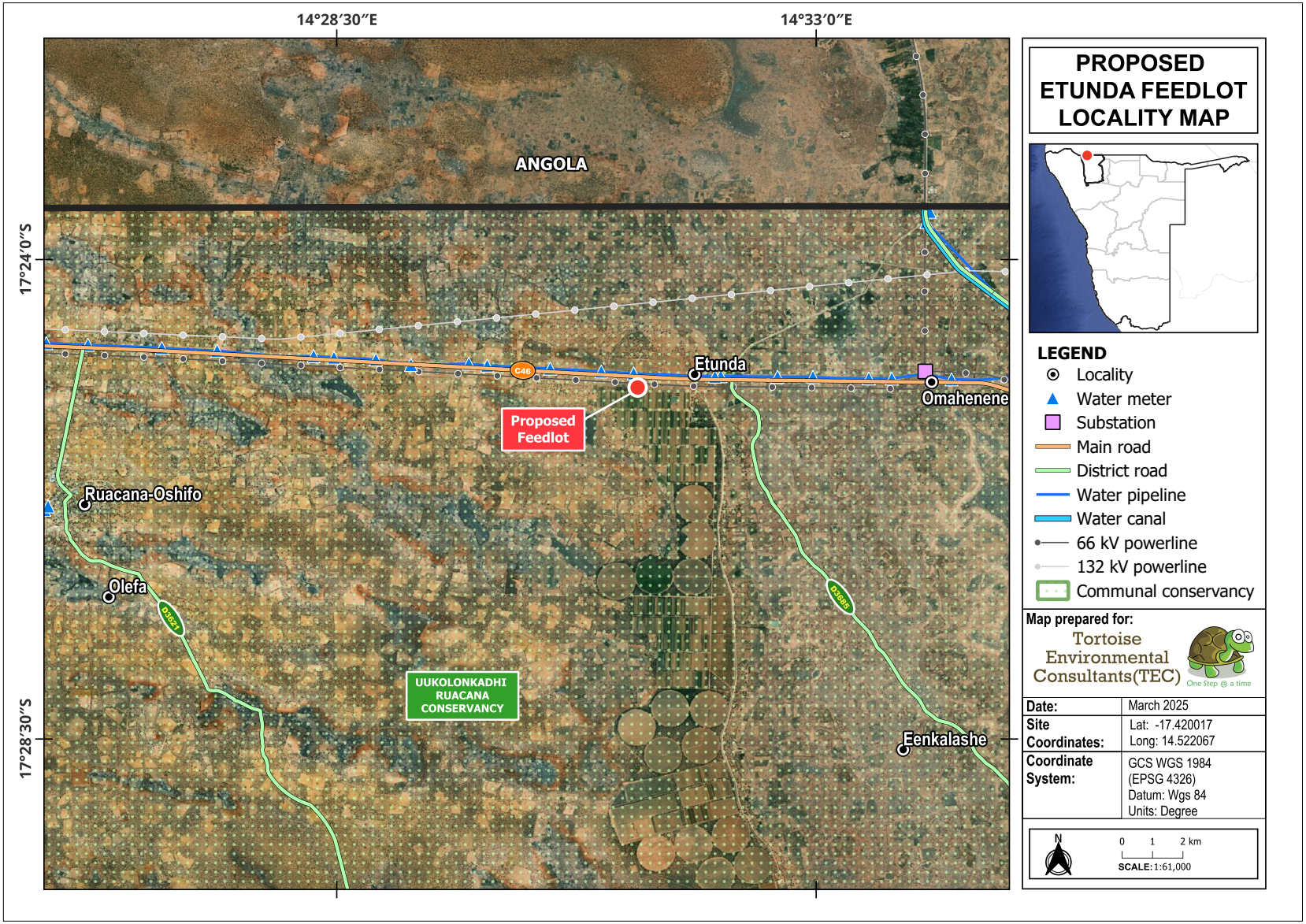

Figure 2-1: Locality map of the proposed feedlot, Etunda

2.2 Description of the project

The proposed feedlot is designed to accommodate up to one thousand (1000) weaners. However, Burmeister & Partners (2020) noted that the seasonal nature of cattle supply and potential inconsistencies in the quality of cattle provided could initially present challenges for the feedlot's operations. Nonetheless, it is expected that once the feedlot is operational and farmers become more aware of the advantages of marketing their weaners. Along with the financial incentives tied to weaner production, the facility will begin to benefit from the sizable cattle population in the NCAs, thereby enabling it to operate as intended.

2.2.1 Project infrastructure and services – Overview

The following table provides a summary of the existing infrastructure and service components available at the proposed feedlot site within the Etunda Green Scheme.

It outlines key aspects such as site access, boundaries, sanitation, water supply, electricity, and solid waste management, which are essential for understanding the current conditions and planning for the project's development

Figure 2-2: Existing infrastructure and services at project site

Component	Description
Access	The Etunda Green Scheme is situated about 3 km south of the Namibia–Angola border and approximately 11 km east of Ruacana Town. It is accessible via the C46 road, which is built to bitumen standard.
Boundaries of the site	The site forms part of the Etunda Green Scheme and is bordered by adjacent operations, an access road, and surrounding plantations.
Water	Water for the site will be sourced from the existing Green Scheme canal abstraction station, located about 1.6 km from the feedlot.
Electricity	The current site is supplied via a 200 kVA (11 kV to 415V) minisub

2.2.2 The Feedlot process

The feedlot process is presented below:

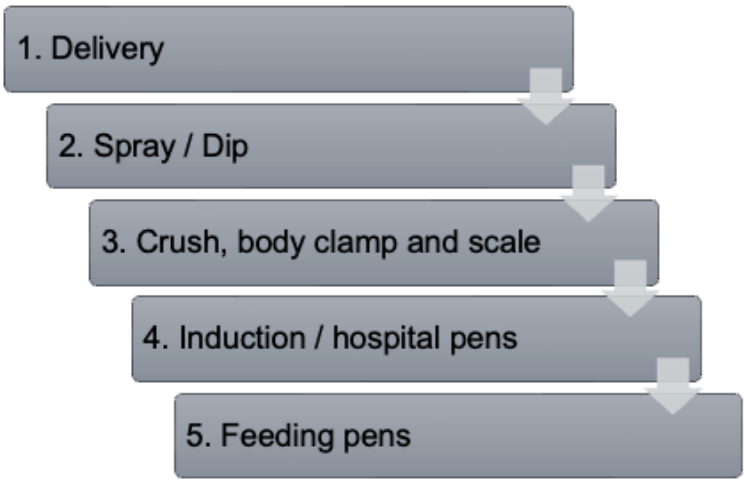

Figure 2-3: The feedlot process

- The three main cattle handling activities involved during the lot feeding of cattle are: i**nduction, performance, and dispatch** ***(see Table 2-2).***

Table 2-2: Three main cattle handling activities

Induction	Performance	Dispatch
• Unloading of cattle • Biosecurity inspections • Inserting and recording individual feedlot identifier ear tag • Dehorning or tipping • Recording visual details • Weighing • Mouth dentition for age classification • Vaccination, drenching and/or injections • Pregnancy testing • Health check • Classifying/segregating/drafting by sex, weight, age, type, cattle class, market specification or health observation	• Scanning and weighing • Classifying/segregating/drafting based on performance to date • Health treatment • Health check	• Classifying/segregation/drafting by weight, market specification, market destination, or vendor • Washing muddy cattle • Scanning for loading out – withholding period checks, export slaughter interval checks, days on feed checks.

2.2.3 Proposed infrastructure

The infrastructure planned for the facility will include cattle handling and feeding areas (pens), feed storage and mixing zones, administrative buildings, staff amenities, waste management systems, water and electricity supply infrastructure, office space for administration, staff accommodation for cattle herders, as well as storage facilities for tools and equipment (Mafuta Environmental Consultants, 2020).

The abovementioned infrastructure and facilities are further explained below as per the Engineering drawings and plans:

Table 2-3: Proposed infrastructure

Component	Description
Feedlot pens	• Multiple pens will be arranged to optimize space while providing sufficient room for cattle movement. • Fencing and partitions will be installed to enhance cattle safety and reduce the risk of injuries. • Water troughs and feed bunks will be strategically positioned to ensure easy access and minimize feed and water waste. • Efficient pathways will be designed to facilitate smooth and stress-free movement of cattle between feeding areas, veterinary zones, and loading points.
Animal handling area	• Weighing Stations: Monitor cattle growth and weight gain progress. • Loading and Unloading Zones: Allow efficient cattle movement into and out of the feedlot. • Veterinary Checkpoints: Dedicated areas for health monitoring, vaccinations, and disease control. • Quarantine and Isolation Pens: To prevent the spread of disease by isolating sick cattle
Water supply and drainage management	• Reservoir: Will provide a continuous water supply for both drinking and cleaning purposes. • Water Distribution Network: Will be designed to ensure sufficient water access across all pens and operational areas.

	• Improved Wastewater Management: Sewer ponds to improve drainage efficiency and promote environmental sustainability.
Waste management and environmental sustainability	• Manure Stockpile Relocation: The manure stockpile will be located away from the cattle pens to improve sanitation and control odors. • Effluent Treatment System: Sewer ponds to enhance wastewater processing and reduce environmental impact. • Manure Utilization: Collected manure will be processed into organic fertilizer for use in sustainable agriculture.
Administrative and support infrastructure:	• Office and Staff Facilities: Administrative buildings for record-keeping and management. Worker accommodation and welfare facilities. • Security Measures: Perimeter fencing to prevent unauthorized access and cattle theft. Surveillance systems and lighting for safety and monitoring.
Transport and Accessibility	• Newly Introduced Gravel Road: Improves transport access within the feedlot and for external logistics.
Utility Infrastructure	• Electricity Supply: Powers feeding systems, lighting, and security equipment. • Backup Power Generation: Ensures operations continue during power outages. • Communication Systems: Facilitate coordination with suppliers, veterinary services, and market partners

3. INPUT MATERIALS

This section highlights the key input material needed for the operation of the proposed feedlot.

Table 3-1: Input material for the feedlot

Component	Description
Labour	The Etunda Feedlot will create jobs during the **construction phase** and **permanent jobs** during **operation** likely employing **a feedlot manager, veterinary/nutrition professionals, and multiple general workers**. The exact number would depend on the operator's staffing plan, but small feedlots (like the 1000-head Etunda model) typically employ **10–20 people** directly.
Feed	Feed will be sourced from the Etunda Green Scheme, which is mandated to supply the feedlot. A formal coordinated agreement is recommended between MAWF, Agribusdev, and Green Scheme operators to ensure consistent supply. Typical feed ingredients expected to be produced (or sourced locally) include: • **Maize, sorghum, wheat, alfalfa, lucerne, oats** • **Byproducts like cotton or soybean** • **Premixed vitamin and mineral supplements** The feedlot will feed cattle an **80:20 grain-to-roughage mix**, consuming **12 tons of feed per day** for a 1000-head operation.
Water	Water for the feedlot will be sourced from the existing Green Scheme canal abstraction station, located approximately 1.6 km from the site, and directed to on-site bulk storage reservoirs. A piped system is already in place to convey water from the canal to the facility. On-site water treatment will be conducted to ensure quality, with pressure maintained through pumps housed in the designated pump house. The estimated water demand per cattle: **14 – 75 litres/head/day** **Average = 44.5 litres / head / day**
Electricity	The current site is supplied via a 200 kVA (11 kV to 415V) minisub

Table 3-2: Water source and demand

Source	Flow m^3 / day	Current demand & evaporation				New demand – Feedlot (1000 cattle)
		People	Livestock	Irrigation	Evaporation	
Calueque – Oshakati canal	329184 m^3 / day (Source: Nahenda, 2020)	Unknown	Unknown	Etunda irrigation sourced from Olushandja dam	0.31 m^3/s (wet) to 0.74 m^3/s (dry)	14 – 75 litres/head/day Av. 44.5 litres / head / day (Source: Feasibility report)

4. COMPLIANCE AND LEGAL FRAMEWORK

This chapter outlines the regulatory framework

4.1 Compliance to the ESMP

The EMP is binding to the proponent, and all contractors / sub-contractors. This implies that every entity that may have any kind of engagement or involved in/with the activities of the feedlot should comply with the ESMP throughout the project lifespan. Non-compliance may have serious consequences e.g License withdrawal.

4.2 Environmental Management Act (No.7 of 2007)

Section 27 of the Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) provides a list of activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (herein referred to as: listed activities). The proposed feedlot project triggers the following listed activities.

The EMP should conform to the provisions of the Environmental Management Act (EMA), Act No. 7 of 2007 and EIA regulations of 2012 (Government Notice: 30).

The EIA Regulations defines a '*Management Plan*' as:

"…a plan that describes how activities that may have significant impacts on the environment are to be mitigated controlled and monitored."

4.3 ESMP Requirements

Table 4-1: ESMP Requirements as outlined in Section 8 of the EIA Regulations

Requirement
(j) a draft management plan, which includes – *(aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure;* *(bb) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and* *(cc) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.*

4.4 Listed Activities

Listed Activities may not be undertaken without an Environmental Clearance Certificate (ECC), and hence an Environmental Impact Assessment (EIA) is required.

As the organ of the state responsible for the management and protection of its natural resources, the MET: DEA is committed to pursuing the principles of environmental management. The EMA provides a list of activities that require an EIA and wastewater treatment is among the listed activities or activities that may not be conducted without at ECC.

The purpose of listed activities for projects is to ensure that the associated impacts on the environment are carefully considered.

The proposed construction and operation of the feedlot triggers a number of Listed Activities as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) (herein referred to as the EMA) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) (herein referred to as the EIA Regulations).

Table 4-2: Listed activities triggered by the proposed project

Listed Activity	Activity Description
Activity 2. Waste Management, Treatment, Handling and Disposal	2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste
Activity 5. Land Use and Development Activities	5.1 the rezoning of land from - c) Agricultural use to industrial use
Activity 10. Infrastructure	10.1 the construction of – b) public roads h) administrative buildings and accommodation i) a feedlot and supporting infrastructure

Table 4-3: Policies, Plans and Strategies

Policy / Plan	Relevancy/Summary	Applicability to the Proposed Project
5th National Development Plan (NDP) and Vision 2030	Outlines the country's national development ambitions, in line with the Harambee Prosperity Plan, and Vision 2030. NDP5 incorporates the principles and recommendations contained in the Stockholm Declaration on the Human Environment (1972) and associated Action Plan, as well as Agenda 21 which merged from the Convention on Biological Diversity, Rio De Janeiro (1992).	The proposed project is a development that forms part of the bigger picture of achieving economic progression, social transformation and environmental sustainability.

Table 3.2: National Statutes

National Statutes	Relevance/Summary	Applicability to the Proposed Project
Environmental Management Act, 2007 (Act No. 7 of 2007)	Promote sustainable use of natural resources based on the principles of environmental management. Regulates environmental clearance certificate for listed activities	Provides the framework for the EIA and development of mitigation measures outlined in the ESMP
Pollution Control and Waste Management Bill (in preparation and adopted as best practice)	Intent to repeal the outdated Atmospheric Pollution Prevention Ordinance (11 of 1976).	Aim to regulate and prevent the discharge of pollutants into the environment (land, air and water).
Water Resources Management Act, 2013 (No. 11 of 2013)	Came in force in August 2023. Provide framework for managing water resources based on the principles of integrated water resource management (IWRM)	Section 44 – Regulates water abstraction licenses Section 68 – Prevent water pollution. Section 69 and 72 regulates and licensing of wastewater treatment plants and effluent discharge
Soil Conservation, (Act 76 of 1969) and Amendment (Act 38 of 1971)	Makes provision for the prevention and control of soil erosion	Through vegetation removal there may be the risk of affecting soil quality.
Forest Act 12 of 2001 Forest Act Regulations 2015	To provide for the protection of the environment and the control and management of forest.	Provision for the protection of protected or endangered plant species.
National Heritage Act, No. 27 of 2004.	The Act provides for the protection and conservation of places and objects with heritage / archaeological significance.	Potential for chance find of cultural heritage or archaeological artefacts
Public and Environmental Health Act (Act No. 1 of 2015)	The Public Health Act aims to protect the public from nuisance or other condition liable to be injurious or dangerous to health	The proponent should ensure that the workers are provided with protective gear to safeguard their wellbeing.
Labour Act No. 11 of 2007	Occupational Health is aimed at the promotion and maintenance of physical, mental and social wellbeing of workers in all occupations.	Prevent or manage work-related hazards and maintain healthy standards at the workplace and protection of workers against exploitations

5. RECEIVING ENVIRONMENT

The environmental baseline for the proposed project has been collected through a desktop study as well as a site assessment.

The assessment is categorised into two categories, the socio-economic aspect and physical and biological environment.

5.1 Socio – Economic Aspect

5.1.1 Population

According to the National Housing and population Census 2023, Omusati region recorded a population of approximately 316 671 (147265 male and 169406 females) with the Ruacana constituency recording a population of 27261 people.

5.1.2 Land tenure and land use

The project site and its surroundings are primarily communal land governed by the Uukolonkadhi Traditional Authority. The proposed feedlot will be located within the Etunda Green Scheme (Mafuta Environmental Consultants, 2020). While the site falls within the Green Scheme boundaries, the specific area allocated for the feedlot is currently unused and has been designated for this development.

The Etunda Green Scheme spans 600 hectares, divided equally between commercial and small-scale farming. The commercial section (300 ha) mainly produces maize, while small-scale farmers cultivate a variety of seasonal vegetables including wheat, potatoes, cabbage, onions, melons, and bananas (Ministry of Agriculture, Water and Forestry, 2019). Beyond the scheme, surrounding land is mostly used for subsistence farming, including crop cultivation, livestock, and poultry farming (Mafuta Environmental Consultants, 2020).

As in many rural areas, the primary land use around the project site is subsistence farming, involving both crop cultivation and livestock rearing, along with some local small businesses. Commonly grown crops include mahangu (pearl millet), sorghum, maize, beans, and watermelons. Livestock typically consists of cattle, goats, sheep, and donkeys.

5.1.3 Economic Development

One of the main primary economic activities in Omusati region is agriculture, as per the 2023 Census, 20.7% people in the region engage in crop and/or livestock farming.

Outapi Town in Ombalantu serves as the capital and economic hub of the Omusati Region. The proposed project site is located approximately 20 km southeast of Ruacana, home to the Ruacana Waterfalls, a popular tourist attraction (Mafuta Environmental Consultants, 2020). This places the site along key routes connecting

not only to Ruacana but also to the Uukwaluudhi Conservancy, a recognized local tourism destination. Other notable tourist attractions in Omusati include the Otjipahuriro Community Campsite, Omugulugwombashe National Heritage Site, Ombalantu Baobab Tree, Okahao Baobab Tree, Outapi War Museum, Olufuko Festival Centre, and the Giant Baobab Tree near Tsandi Village Council.

5.2 Physical and biological environment

5.2.1 Climate

The project area has a semi-arid climate, with average annual temperatures typically above 22°C. Maximum temperatures range between 34°C and 36°C, while minimums fall between 6°C and 8°C. The area receives relatively higher rainfall compared to southern and western Namibia, averaging between 350 and 550 mm annually.

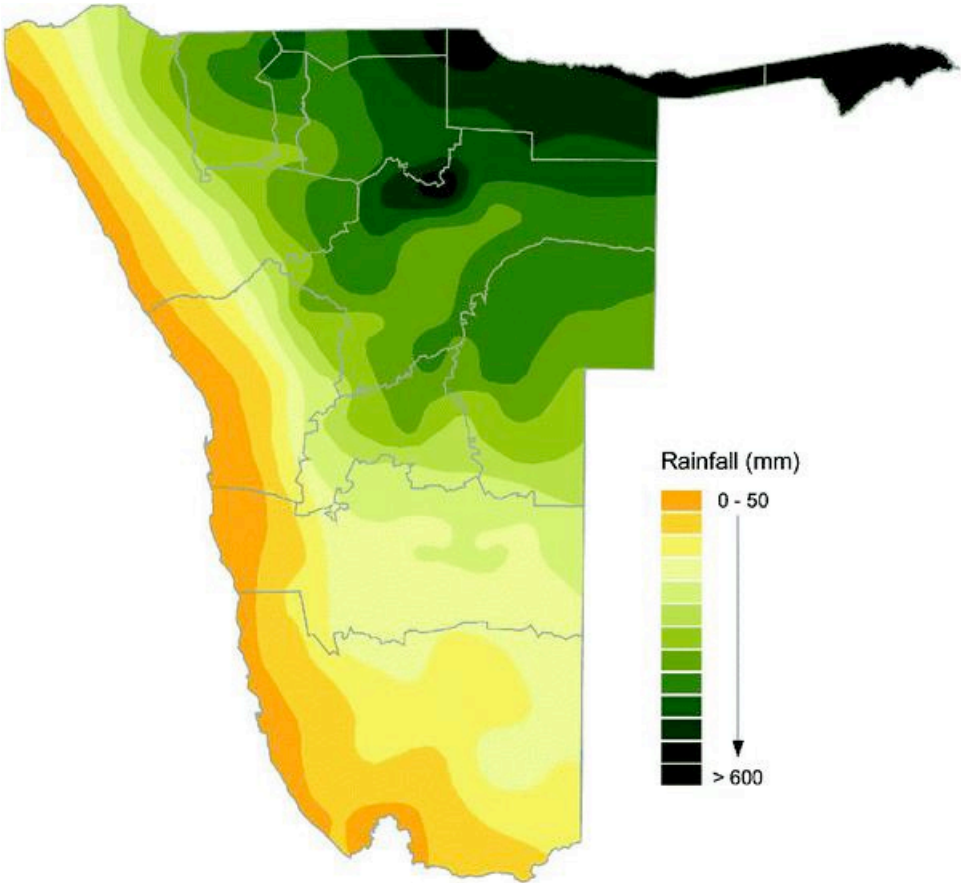

Figure 5-1: Namibia Rainfall Pattern (First Capital Namibia, 2022)

5.2.2 Topography, Landscape and Soils

The topography of the Omusati Region is generally flat, except for the Ruacana area near the Angolan border, which features mountains and rolling hills. As noted by the Omusati Regional Council (2016), the region's landscape consists of a sequence of sand dunes of varying depths, interspersed with waterways. The specific project area is predominantly flat, with uniformly level soils.

According to the Dominant Soil Map by Mendelson et al. (2002), the main soil types in the Omusati Region are Cambic Arenosols, with some areas containing Eutric Cambisols. Soil composition varies across the region, with much of it made up of loose sands mixed with small amounts of silt and clay (Arenosols). In the northeast, soils originate from oshana deposits, while the southern parts feature clayey soils (Luvisols), Cambisols, and rocky outcrops. The area generally has sandy and loamy soils that have been reshaped by wind and water, resulting in a mix of deposits. These soils are often saline, supporting mopane vegetation. However, there are pockets of less saline sandy and loamy soils that are suitable for crop cultivation (Environam Consultants, 2019).

5.2.3 Hydrogeology - Surface and groundwater

The project area is located within the Cuvelai-Etosha Basin (CEB), the Namibian portion of the Cuvelai river catchment, which includes the Omusati, Oshana, Ohangwena, Oshikoto Regions, and parts of Kunene Region (Lohe et al., 2021).

The regional groundwater potential is considered moderate and is primarily stored within the Kalahari sediments. These sediments form aquifers that are subdivided into five major units, typically named after the regions or localities where they are found or were first identified.

Groundwater flow mainly occurs through primary porosity in the Kalahari cover, but it can also follow secondary structures such as fractures and faults (Matrix Consulting Services, 2019). Additionally, the flow may be influenced by geological formations like contact zones between different rock units. Among the aquifer units, the Discontinuous Perched Aquifer (KDP) consists of shallow, locally occurring aquifers with limited spatial extent.

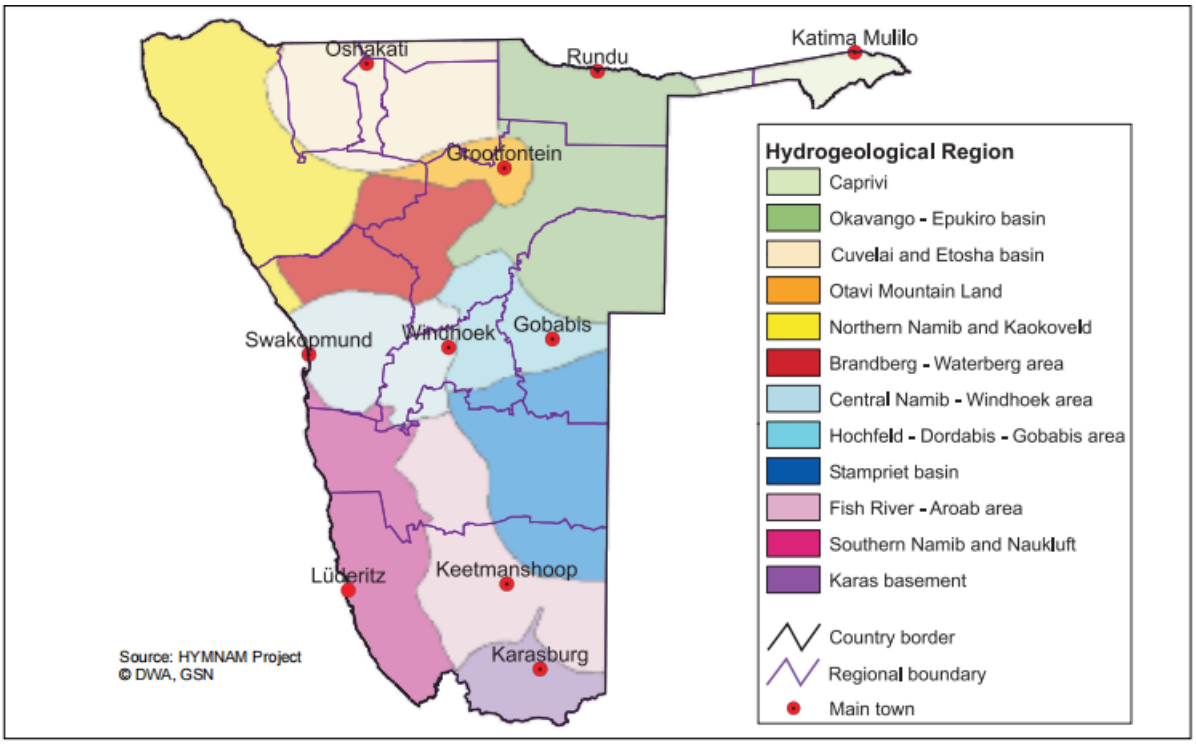

Figure 5-2: Hydrogeology of the Study area (Christellis et al, 2001)

5.2.4 Fauna and Flora

Omusati Region is home to 332,584 cattle and 295,780 goats (Namibian Sun, 2018), along with various other domestic animals such as donkeys, sheep, and pigs. As for wildlife, the region has limited species, with most wildlife found within the Etosha National Park.

Flora in the project area falls within the Cuvelai Drainage vegetation type, part of the Acacia Tree- and Shrub Savanna biome. This area is primarily characterized by floodplain grasslands (Mafuta Environmental Consultants, 2020). In north-central Namibia, Mopane trees are abundant in the Cuvelai Drainage, especially in areas where oshanas carry floodwater from northern Angola during heavy rains (Mafuta Environmental Consultants, 2020). Other common plant species include Hyphanene petersania (Makalani palm), camelthorn trees (Acacia erioloba), and various shrubs. The major vegetation types within the region can be categorized into three landscapes: valleys, highlands, and plains, with each supporting typical vegetation species that can be found around the project site.

5.2.5 Geology

The geology of Omusati is characterized by the unconsolidated to semi-consolidated sands, calcrete and gravel sediments of the Quaternary and Tertiary age of the Kalahari Group (Excel Dynamic Solutions, 2024). According to Environam Consultants (2019), much of the areas in the northern part of Namibia, including Omusati Region fall within the Cuvelai landscape, lies on silt, clay, limestone, and sediment.

6. IMPACT ASSESSMENT METHODOLOGY

6.1 EIA Methodology

The EIA methodology applied to this EIA has been developed using the Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 20 years of combined EIA experience. The method of each step in the EIA process is described in the next sections.

6.1.1 Screening

As per the Draft Procedures and Guideline for Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) (Ministry of Environment and Tourism, 2008), the determination of a proposal and if it triggers a Listed Activity in the EMA is the first stage of the EIA process. The proposed project triggers several Listed Activities as per Section 1.4 and therefore an ECC is required.

6.1.2 Alternatives Considered

As stipulated in the Environmental Management Act (EMA) and EIA regulations, alternatives should be considered during the project design, to determine if an alternative site (different locality) or alternative project (different project) would yield better socio-economic benefits.

a) Alternative projects considered

The Proponent did not consider any alternative projects for the site, nor alternative types of lot feeding, such as poultry or other livestock operations (Mafuta Environmental Consultants, 2020). Other options were not explored because the Proponent aims to strengthen this segment of the agricultural sector within the Northern Communal Areas (NCA) to support socio-economic development (Mafuta Environmental Consultants, 2020).

Establishing the feedlot at Etunda is seen as an ideal opportunity to empower local farmers by enabling them to access formal markets and derive greater value from their livestock (Mafuta Environmental Consultants, 2020). Therefore, the proposed feedlot is considered the most viable and appropriate project option for the site.

b) Alternative sites considered:

Two potential sites, Site A and Site B were considered for the proposed development. Although both are located in the same general area, they are roughly 10 km apart (Mafuta Environmental Consultants, 2020). Their locations are illustrated in *Figure 6.1.*

Site A was the original preferred site due to its proximity to the C46 road. However, after an initial site visit, several concerns emerged (Mafuta Environmental Consultants, 2020).

- The area is relatively busy and situated near existing homesteads. Establishing a feedlot here could result in significant environmental, social, and health risks to the nearby residents.
- Additionally, Site A is densely vegetated with protected tree species such as camel thorn, which would require extensive clearing. This could cause notable biodiversity loss in the area, especially the destruction of these protected trees.

Site B, on the other hand, presented a more suitable option with fewer environmental risks (Mafuta Environmental Consultants, 2020).

- The site is already part of an area used for agricultural activities specifically, an irrigation scheme, making the proposed project more compatible with existing land use. This has led to the selection of Site B (the current proposed site) for which the environmental and social assessment is conducted out for.

Based on the factors above, Site A was deemed unsuitable and was excluded from further consideration in this report. Therefore, this assessment focuses solely on Site B.

The final site was chosen after evaluating several key factors:

- Topography
- Current land use and compatibility with the proposed project
- Access to basic infrastructure such as electricity, water, and roads

Site B is far enough from nearby homesteads to avoid major social and health impacts, has minimal vegetation thus requiring less clearing and is conveniently located near an electricity line and access road. These factors make Site B a feasible and ideal location for the feedlot development.

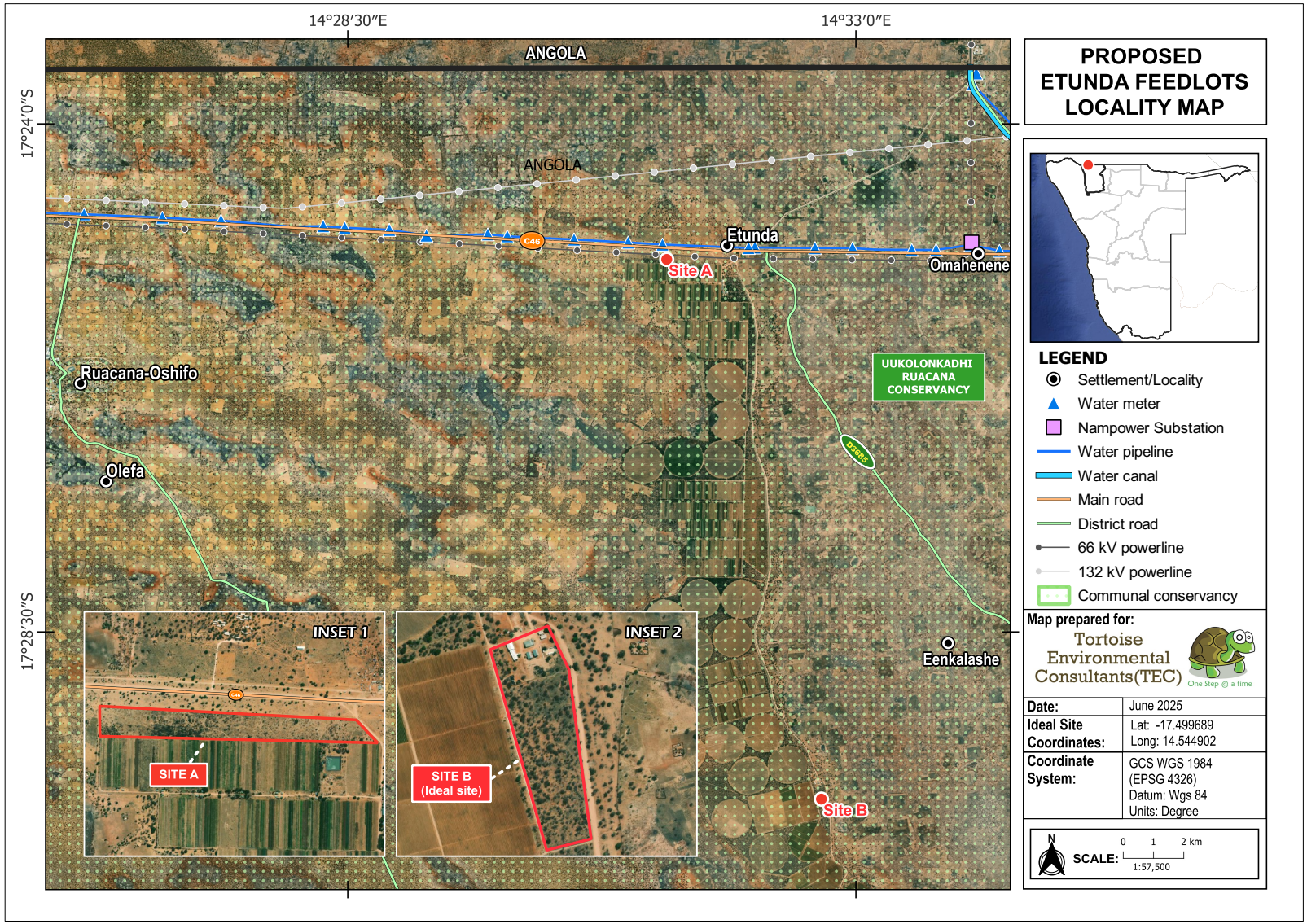

Figure 6-1: Alternative sites considered

6.1.3 Scope of Assessment

The Scoping Process is a fundamental stage in the EIA process. Through a high-level assessment, the likely effects and severity of effects as a result of the development and operations of a proposed project can be identified. Any likely significant effects are taken forward for further assessment (detailed EIA). This stage is important in the EIA process to enable the assessment to be concise and focus on key issues that are central to efficient decision making.

If no likely significant effects are anticipated, a detailed EIA is not undertaken and a Scoping Report detailing the high-level assessment is submitted as part of the ECC application.

As there was uncertainty around the potential effects and their severity, a scoping process was undertaken for the proposed development. The Draft Procedures and Guideline for Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) (Ministry of Environment and Tourism, 2008) were followed to undertake the scoping stage.

The baseline environment that could be affected by the project was reviewed and potential effects on receptors identified. Receptors under the following aspects were considered (Ministry of Environment and Tourism, 2008):

- Geology and soils
- Topography
- Groundwater and surface water resources
- Environmentally sensitive areas
- Air quality
- Sound levels
- Socio-economics
- Infrastructure services
- Cultural resources
- Project Economics

Embedded mitigation and industry best practice measures were considered in the review and conclusion drawn identifying those effects that needed to be assessed further due to the potential severity and significance.

The findings of the scoping process are presented in chapter 7.

6.1.4 Detailed Impact Assessment

Through scoping, potential significant effects were identified. These potential effects are then considered further to determine the level of significance and identify additional mitigation required to avoid, reduce, or compensate for the effect.

6.1.5 Impact Significance

The level of significance is identified through the assessment process in order to understand the potential severity of the effect and identify appropriate mitigation. The significance of effect after mitigation is also considered during the decision-making.

The significance of an impact is determined by considering and measuring the temporal and spatial scales and magnitude of the project and the specific activities associated with the project.

6.1.6 Impact Assessment Criteria

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** will be described. These criteria are used to ascertain the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure/s in place. The mitigation described in the Scoping Report and EMP would represent the full range of plausible and pragmatic measures.

Table 6-1: **Assessment criteria for the evaluation of impacts**

CRITERIA	CATEGORY	DESCRIPTION
Sensitivity or importance/value of receptor	**High**	Of value, importance or rarity on a national scale, and with very limited potential for substitution; and/or Very sensitive to change or has little capacity to accommodate a change.
	Medium	Of value, importance or rarity on a regional scale, and with limited potential for substitution; and/or Moderate sensitivity to change, or moderate capacity to accommodate a change
	Low	Of value, importance or rarity on a local scale; and/or Not particularly sensitive to change or has considerable capacity to accommodate a change.
Extent or spatial influence of impact	**National**	Beyond a 20km radius of the site
	Regional	Within a 20 km radius of the site
	Local	Within a 2 km radius of the centre of the site
	Site specific	On site or within the boundaries of the property
	Zero	
Magnitude of impact (at the indicated spatial scale)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very Low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Zero**	Zero time
	Short Term	Up to 18 months

CRITERIA	CATEGORY	DESCRIPTION
	Medium Term	0-5 years (after operation)
	Long Term	5- 10 years (after operation)
	Permanent	More than 10 years (after operation)
Probability	**Definite**	Estimated greater than 95 % chance of the impact occurring.
	Very likely	Estimated 50 to 95% chance of the impact occurring
	Fairly likely	Estimated 5 to 50 % chance of the impact occurring.
	Unlikely	Estimated less than 5 % chance of the impact occurring.
	Zero	Definitely no chance of occurrence
Confidence	**Certain**	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
	Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
	Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.
Reversibility	**Irreversible**	The activity will lead to an impact that is permanent.
	Reversible	The impact is reversible, within a period of 10 years.

6.1.7 Impact Severity

Impact severity = impact significance. The impact significance is determined using an impact assessment scale**(below).**

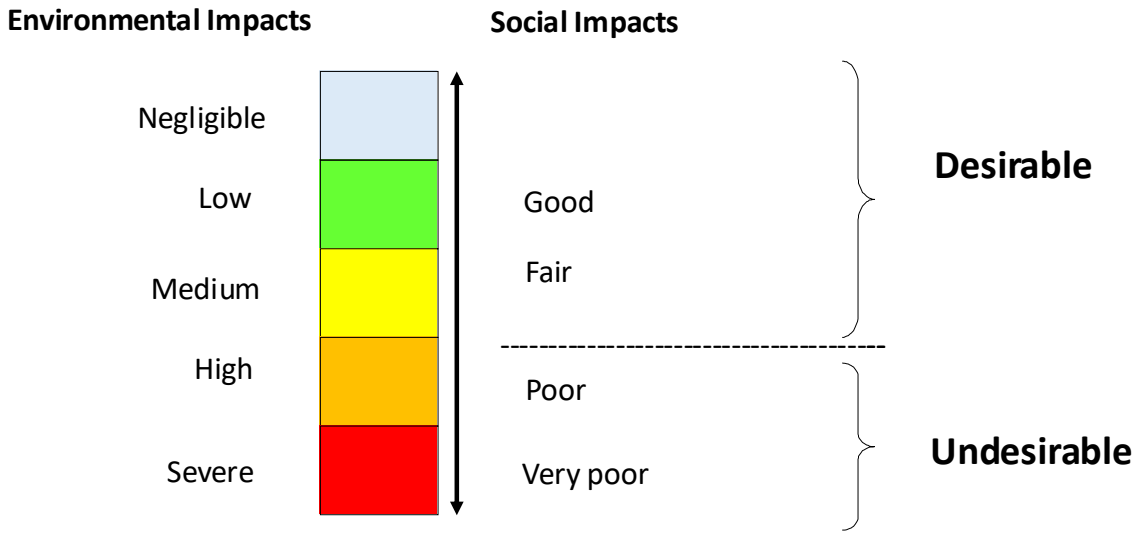

Figure 6-2: Impact Assessment Scale (Source: TEC, 2025)

6.1.8 Impact Significance

The significance of an impact is identified determined by qualifying the potential severity of the effect, before and after mitigation. The impact significance after mitigation should be considered during the decision-making process.

The significance of an impact is determined by assessing the magnitude of scale (both temporal and spatial.

Significance is not defined in the Namibian EIA Regulations, however the Draft Procedure and Guidance for EIA and EMP states that the significance of a predicted impact depends upon its context and intensity and qualified into the following categories, as guided by literature:

- **High**: effects associated with features or resources of national importance and, if lost, cannot be replaced, and thus likely to be key decision-making factors.
- **Medium**: effects associated with the features or resources of regional importance, but which are unlikely to be key decision-making factors.
- **Low**: effects considered to be local importance, but unlikely to be critical to decision-making factors.

Impact significance is determined by multiplying the potential severity of the effect, and qualitative assessment of the receptor sensitivity and magnitude of change. If effects garner a severity score, they are considered to be significant.

For significant impacts, supplementary assessments / Specialist studies may be required to further enhance understanding on the consequences (e.g through modelling or other assessment techniques) and identification of appropriate mitigation measures to reduce the effect.

6.2 Assessment of Cumulative Impacts

The Environmental Assessment Policy in Namibia requires cumulative environmental impacts to be considered in all environmental assessment processes.

Cumulative impacts can arise when a single resource or receptor is affected by more than one impact or activity of the proposed project. For example, the view of a local resident's property could be altered through the construction phase of the proposed development and noise levels could increase due to excavation activities. In isolation, the impacts may be insignificant, however when combined, the impacts on the local resident may result in a significant impact.

Cumulative impacts may also arise because of the combination of two or more projects on the same receptor. The receptor could be affected by the same activities of these projects resulting in the same impact or by completely different activities resulting in different impacts. An example of this is as follows; dust generated during the construction stage of the proposed project may not cause a significant effect in isolation; however, a sensitive

receptor (e.g. local resident) may be significantly impacted when dust from the proposed project is combined with noise generated from other projects.

A high-level cumulative impact assessment has been undertaken for the proposed project as part of the scoping phase as the anticipated effects are expected to be local and of minor significance. If effects were determined to be significant, a detailed EIA would be required.

6.3 Mitigation Measures

For each impact assessed during the scoping phase and detailed assessment, mitigation measures are identified to reduce and/ or avoid negative impacts. These mitigation measures are also incorporated in the EMP to ensure that they are implemented throughout the lifespan of the proposed project. The EMP forms part of the Scoping Report, and upon project approval, the implementation thereof, would become a binding requirement.

6.3.1 Mitigation Hierarchy

Actions to mitigate a potential impact can be done in as systematic manner as guided by what is referred to as Mitigation Hierarchy (Figure 4.1).

From the onset, the positive impacts of the proposed project should be **enhanced**, however, where an impact in is inevitable, the following sequence should be followed.

Impact avoidance: This step is most effective when applied at an early stage of project conceptualization and planning. It can be achieved by:

- Not undertaking certain projects or elements that could result in adverse impacts;
- Avoiding areas that are environmentally sensitive; and
- Putting in place preventative measures to stop adverse impacts from occurring.

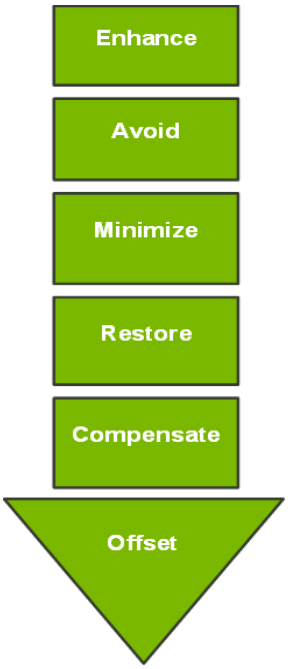

Figure 6-3 - Mitigation Hierarchy

Impact minimisation: This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- Scaling down or relocating the proposal;
- Redesigning elements of the project; and
- Taking supplementary measures to manage the impacts.

Impact compensation: This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- Rehabilitation of the affected site or environment, for example, by habitat enhancement;
- Restoration of the affected site or environment to its previous state or better; and
- Replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

7. ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

7.1 Socio-Economic Impacts

Namibia has one of the highest unemployment rates in the world. According to the Namibia Statistics Agency (NSA, 2025), the official unemployment rate in 2024 is estimated at 37% of the labour force, and the majority (47%) of the unemployed is the youth (including graduates from Universities and Vocational Training Centres).

However, economists from independent institutions dispute the Government or NSA's estimate of 37%, arguing that NSA has changed the "Unemployment Definition" and that the unemployment rate in Namibia is much higher. In a Newspaper Article dated 01 February 2025, Tannan Groenewald from Cirrus Capital data and analytics, argues that if the broad definition of unemployment historically used is applied, only about 46.2 of the working-age population is employed and the true unemployment stands at 54.8%.

7.1.1 Employment opportunities

Impact category	Potential new employment opportunities to be created by the proposed project

Unemployment	Employment
• High unemployment rates (37 – 54%) • Poor livelihoods • Crime	• Creation of job opportunities during the construction phase • Creation of new 20 job opportunities during operation

Rating: Before project commencement							Rating: After project commencement						
Impact type	Extent	Magnitude	Duration	Probability	Confidence	Significance	Impact type	Extent	Magnitude	Duration	Probability	Confidence	Significance
+Ve	Local	Medium	Medium-term	Very likely	Sure	Very Poor	+Ve	Local	Medium	Long-term	Definite	Certain	Good

Monitoring			
Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Number of new employment opportunities created • Number of locals employed	Annually	Human Resource Department: Workers Union	Employment records and database

7.1.2 Access to markets

Impact category	**Improved access to markets for northern communal farmers**

Limited access to markets	**Improved access to markets**
• Low income from livestock farming which leads to poor livelihoods. • Low productivity and off-take rates • Loss of livestock due to draught	• Increased income and improved livelihoods • Improved off-take rates and herd management • Improved quality and production • Job creation and opportunities for the youth

Rating: Before commencement of project							**Rating: After commencement of project**						
Impact type	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**	**Impact type**	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**
+Ve	**Local**	**Medium**	**Medium-term**	**Very likely**	**Sure**	**Very Poor**	**+Ve**	**Local**	**Medium**	**Long-term**	**Definite**	**Certain**	**Good**

Monitoring

Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Number of cattle sourced from northern communal farmers	Annually	Feedlot procurement officer MAWFLR	Procurement records and supplier registers

7.1.3 Local buying power

Impact category	**Enhance local buying power through employees' salaries**

Specific potential positive impacts	**Key measures to maintain or improve +ve impacts**
• Need to enhance the local economy through community buying power	• Enhance the local economy through employee's salaries / buying power (e.g staff income contributes to housing properties (purchase or rent), supermarkets, street vendors, schools, domestic workers, entertainment, car wash etc)

Rating: Before commencement of project							**Rating: After commencement of project**						
Impact type	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**	**Impact type**	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**
+Ve	**Local**	**Medium**	**Medium-term**	**Very likely**	**Sure**	**Poor**	**+Ve**	**Local**	**Medium**	**Long-term**	**Definite**	**Certain**	**Good**

Monitoring

Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Employee income and buying power	Annually	Human Resource Department: Workers Union	Employment records and database

7.1.4 Improve local economy through supply chains

Impact category	**Improve the local economy through Supply Chains**

Specific potential positive impacts	**Key measures to maintain or improve +ve impacts**
• Opportunity for the local supply chain for construction material • Opportunity for small and medium enterprises in Ruacana and beyond • Increase or maintain property value due to increase demand (e.g. rental and purchasing)	• Sustain local economy through supply chains • Procurement of materials and services from local supply chains (e.g Cement, steel, security companies, cleaning companies, entertainment, etc) • Enhance other in-direct local economy support e.g buying power of the feedlot staff (construction and operational phases) and support to housing rental business, supermarkets etc.

Rating: Before commencement of project							**Rating: After commencement of project**						
Impact type	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**	**Impact type**	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**
+Ve	**Local**	**Medium**	**Medium-term**	**Very likely**	**Sure**	**Poor**	**+Ve**	**Local**	**Medium**	**Long-term**	**Definite**	**Certain**	**Good**

Monitoring

Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Value of contractor and operator direct annual procurement from local supply chains and overall impact on the local economy • In-direct employment and spin-offs across supply chains	Annually	Human Resource Department: Workers Union	Supply chain value and overall local economy support

7.1.5 Potential opportunity for CSR

Impact category	**Community Investments through Corporate Social Responsibility**

positive impacts	**Key measures to maintain or improve +ve impacts**
• Support to schools (school renovations, construction of classrooms, setting up of computer and science labs, procurement of books, etc) • Food production (support to agriculture and horticulture projects e.g community gardens)	• Targeted Community Investments and support • Continue with community investment and CSR activities • Explore option to revise the current investment policy and model with a clear exit strategy for self-sustenance goal to reduce long-term dependency

Rating: Before commencement of project							**Rating: After commencement of project**						
Impact type	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**	**Impact type**	**Extent**	**Magnitude**	**Duration**	**Probability**	**Confidence**	**Significance**
+Ve	**Local**	**Medium**	**Medium-term**	**Very likely**	**Sure**	**Poor**	**+Ve**	**Local**	**Medium**	**Long-term**	**Definite**	**Certain**	**Good**

Monitoring			
Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Annual Value of MAFWLR direct CSR • Overall socio-economic impact of MAFWLR CSR on the local economy	Annually	MAFWLR – CSR and MAFWLR Community Trust Administrator/Trustees	MAFWLR CSR Annual Report

7.2 Construction related impacts

7.2.1 Removal of protected tree species on the project site

Impact source	Site clearance and excavation with heavy and mobile equipment	**Key Mitigation Measures:** • Adherence to site vegetation clearance checklist/procedure • i.e. avoid removal of protected tree species which do not directly affect the construction • explore option to relocate and replant some plants such as aloe plants
Classification	Vegetation clearance	
Potential Negative Impacts: • Unselective removal of protected tree species currently on project site		

Without Mitigation							**With Mitigation**						
Impact type	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**	**Impact type**	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**
-ve	**Definite**	**Local**	**Short-term**	**Severe**	**No**	**Medium**	**-ve**	**Definite**	**Site specific**	**Short-term**	**Low**	**Yes**	**Low**
Qualitative assessment							**Qualitative assessment**						

Monitoring Program			
Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Number of trees species removal versus species saved • Number of trees or plant species relocated and successfully replanted	Weekly / Monthly	(e.g Environmental Officer) Authority (Environmental Compliance Officer)	Physical observations

7.2.2 Dust emissions from excavation

<table>
<tr><td colspan="2">Impact source</td><td colspan="7">Site clearance and excavation with heavy mobile equipment</td><td colspan="7" rowspan="2">Key Mitigation Measures:
• Adherence to site standard/safe operating procedure
• Identify and implement appropriate Personal Protective Equipment (PPEs) as a result resort to prevent or reduce exposure to workers
• Dust suppression
• Speed limit as per existing site policy</td></tr>
<tr><td colspan="2"></td><td colspan="7"></td></tr>
<tr><td colspan="9">Potential Negative Impacts:
• Employee exposure to contaminated dust since area is already disturbed site
• Dust emission to environment with potential increase background dust emission</td></tr>
<tr><td colspan="9">Without Mitigation</td><td colspan="7">With Mitigation</td></tr>
<tr><td>Impact type</td><td>Probability</td><td>Extent</td><td>Duration</td><td>Severity</td><td>Reversible</td><td>Significance</td><td>Impact type</td><td>Probability</td><td>Extent</td><td>Duration</td><td>Severity</td><td>Reversible</td><td>Significance</td></tr>
<tr><td>-ve</td><td>Definite</td><td>Local</td><td>Short-term</td><td>Severe</td><td>No</td><td>High</td><td>-ve</td><td>Definite</td><td>Site specific</td><td>Short-term</td><td>Low</td><td>Yes</td><td>Low</td></tr>
<tr><td colspan="9">Qualitative assessment</td><td colspan="7">Qualitative assessment</td></tr>
<tr><td colspan="16">Monitoring Program</td></tr>
<tr><td colspan="6">Monitoring Aspects</td><td colspan="3">Frequency</td><td colspan="4">Responsibility</td><td colspan="3">How</td></tr>
<tr><td colspan="6">• Dust fallout and dust chemical analysis</td><td colspan="3">Weekly / Monthly</td><td colspan="4">MAFWLR (e.g Environmental Officer)
Authority (Environmental Compliance Officer)</td><td colspan="3">Chemical analysis
Physical observations</td></tr>
</table>

7.3 Operational related impacts

7.3.1 Water abstraction

Impact source	Water abstraction for feedlot operations (using existing Green Scheme canal abstraction station and installation of pipeline system).	**Key Mitigation Measures:** • Abstraction volumes to be within licensed and sustainable limits. • Regular inspection and maintenance of pipeline system to prevent leaks and wastage • Monitoring of canal levels and abstraction rates.
Potential Negative Impacts: • Over-abstraction leading to reduced water availability for downstream users and ecosystems.		

Without Mitigation							**With Mitigation**						
Impact type	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**	**Impact type**	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**
-ve	Definite	Local	Short-term	Severe	No	**High**	-ve	Definite	Site specific	Short-term	Low	Yes	**Low**
Qualitative assessment							**Qualitative assessment**						

Monitoring Program			
Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Water abstraction volumes • Inspection of pipeline	Weekly / Monthly	MAFWLR (e.g Environmental Officer) Authority (Environmental Compliance Officer)	Physical observation and measurements

7.3.2 Waste – run off from feeding pens

Impact source	Waste runoff (manure, urine, contaminated stormwater) from the feedlot area	**Key Mitigation Measures:** • Construct proper feedlot drainage system to direct runoff to a lined collection pond or treatment facility. • Regularly remove manure from pens and properly store or process it (e.g., composting). • Install stormwater control features
Potential Negative Impacts: • Contamination of surface water bodies (canals etc) and groundwater through infiltration or overflow. • Degradation of soil quality in surrounding areas. • Odour nuisance and proliferation of flies and pests. • Potential health risks to livestock and surrounding communities.		

Without Mitigation							**With Mitigation**						
Impact type	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**	**Impact type**	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**
-ve	Definite	Local	Short-term	Severe	No	**Severe**	-ve	Definite	Site specific	Short-term	Low	Yes	**Low**
Qualitative assessment							**Qualitative assessment**						

Monitoring Program			
Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Inspection of drainage and waste containment systems] • Water testing	Weekly / Monthly	MAFWLR (e.g Environmental Officer) Authority (Environmental Compliance Officer)	Water sampling and laboratory analysis

7.3.3 Odour

Impact source	Generation of smells and odour from livestock waste (manure, urine) and feedlot operation

Potential Negative Impacts:

- Neighbouring communities exposed to odour from manure handling and stockpiling.
- Negative perception of the feedlot operations

Key Mitigation Measures:

- Regular removal and proper storage of manure to minimize build-up.
- Manure must be collected and sold/donated to local farmers.
- Use of covered or contained manure storage areas where possible.
- Composting of manure in controlled conditions to reduce odours.

Without Mitigation							**With Mitigation**						
Impact type	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**	**Impact type**	**Probability**	**Extent**	**Duration**	**Severity**	**Reversible**	**Significance**
-ve	Definite	Local	Short-term	Severe	No	**Severe**	-ve	Definite	Site specific	Short-term	Low	Yes	**Low**
Qualitative assessment							**Qualitative assessment**						

Monitoring Program

Monitoring Aspects	**Frequency**	**Responsibility**	**How**
• Odour inspections around site boundary • Community complaints log review (through GRM)	Weekly / Monthly	MAWFLR (e.g Environmental Officer) Authority (Environmental Compliance Officer)	Physical observations Grievance Redress Mechanism

8. CONCLUSION

The environmental assessment employed standard EIA Methodology, National regulatory framework and best practices.

Appropriate mitigation measures have been identified for all social and environmental receptors.

On that basis, TEC recommends issuance of an ECC, on conditions that the management and mitigation measures specified in the ESMP are implemented and adhered to.

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