



**PROPOSED CONSTRUCTION OF A
TELECOMMUNICATION TOWER AT NKURENKURU
EXTENSION 6- KAVANGO WEST REGION BY
POWERCOM**

ENVIRONMENTAL ASSESSMENT SCOPING REPORT

MEFT APPLICATION NUMBER: APP 250915006430

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ENVIRONMENTAL ASSESMENT FOR THE FOR THE PROPOSED TELECOMMUNICATION
TOWER AT NKURENKURU EXTENSION 6- KAVANGO WEST REGION

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Table of Contents

LIST OF ACRONYMS.....	v
Chapter one: Introduction	1
1.1. Background of the Study.....	1
1.2. The Environmental Assessment (EA) Process	2
1.2.1. The Environmental Consultant	2
1.3. Project Location	3
1.6. Project Desirability or Drivers	4
1.7. Development and Site Specification	5
1.8. Terms of Reference (TOR) and Scope of Work	6
1.9. Land Ownership	7
1.10. TOWER ALTERNATIVES	7
1.10.1. The “No-go Alternative”	7
1.11. Tower Location	8
2.0. CHAPTER TWO: PROJECT DESCRIPTION AND PROPOSED ACTIVITIES	9
2.1. Planning and Design Phase	9
2.2. Construction Phase	10
2.3. Project input and Resource Requirements	10
2.3.1. Project Personnel and Accommodation	10
2.3.2. Waste Management	11
2.3.3 Water Supply.....	11
2.3.4. Power Supply	11
2.3.5. Health and Safety.....	11
2.3.6. Site Access (Roads).....	12
2.3.7. Fencing	12
2.4 Site rehabilitation (post construction) and decommission phase	12
2.5. Operational and Maintenance Phase	13
3.0. Policy, Legal and Administrative Framework.....	14
3.1. Introduction	14
3.2. Conclusion.....	23
4.0. PUBLIC AND STAKEHOLDER CONSULTATIONS.....	24

4.1. Introduction	24
4.2. Importance of Public Participation	24
4.3. Notification of Public and Stakeholders.....	24
4.3.1. Background Information Document	24
4.3.2. Newspaper adverts	24
4.3.3. Site and Public notices	25
4.4. Public meeting	25
4.5. Public and Stakeholders comments.....	26
4.6. Conclusion.....	26
5.0. CHAPTER 5: ENVIRONMENTAL BASELINE	27
5.2. Introduction	27
5.3. Socio-Economic status	27
5.3.1. Land use	27
5.4. Climate	28
5.4.1. Precipitation.....	28
5.4.2. Rainfall	29
5.4.3. Temperature	30
5.4.4. Data Sources	31
5.6. Flora and Fauna.....	32
5.6.1. Flora	32
5.6.2. Fauna.....	32
5.6.3. Habitat categorization.....	33
5.6.4. Amphibians Diversity	33
5.6.5. Mammals Diversity	34
5.6.6. Reptile Biogeography	35
5.7. Avifauna	35
5.8. The General Geology, Surface and Ground Water	36
5.8.1. Local Geology	36
5.8.2. Water Sources.....	36
5.8.3. Water Vulnerability.....	36
5.9. Topography	37

6.0. CHAPTER SIX: IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION.....	38
6.1. Identification of Potential Impacts	38
5.2. Impact Assessment Methodology.....	39
5.2.1. Impact Assessment Criteria	39
5.2.2. Impacts Significance.....	41
5.3. CONCLUSION AND RECOMMENDATIONS.....	46
REFERENCES.....	47
APPENDIX A: ENVIROMENTAL AND SOCIAL MANAGEMENT PLAN	48
APPENDIX B MAPS, SITE PLANS AND STRUCTURAL LAYOUTS	49
APPENDIX: C : PUBLIC CONSULTATION TEMPLATES.....	50
APPENDIX: D LEAD EAP CV.....	51

LIST OF ACRONYMS

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EMPr	Environmental Management Plan Report
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&APs	Interested and Affected Parties
MET: DEA	Ministry of Environment and Tourism's Directorate of Environmental Affairs
NEMA	Namibia Environmental Management Act
NTC	Nkurenkuru Town Council
NVTC	Nkurenkuru Vocational Training Centre
UNFCCC	United Nations Framework Convention on Climate Change

i. Purpose of This Environmental Impact Assessment Report

This Environmental Scoping Report (ESR) follows the Scope of Work delineated by POWERCOM Pty Ltd. Existing information and input from commenting authorities, Interested and Affected Parties (I&APs) was used to identify and evaluate potential environmental impacts (both social and biophysical) associated with the proposed project.

Environmental flaws associated with the proposed project were identified through the ESR. A conscious decision was made based on the recommendations and guidelines of the Directorate of Environmental Affairs EIA guidelines to assess both significant and less significant environmental impacts proposed by the development. The developed Environmental Management Plan (EMP) for this proposed activity will have to be effectively implemented by the client, to ensure that adverse environmental impacts are avoided or brought to acceptable limits.

A detailed assessment of the anticipated impacts was undertaken by the Environmental Assessment Practitioner (EAP) to highlight any areas of concern regarding the proposed project during its construction, operation and decommissioning phase. In addition, an independent sensitivity mapping analysis was also undertaken to highlight the proposed development site's significant environmental aspects while noting the site's suitable and unsuitable (no-go) development footprint areas. This action guided the final footprint of the telecommunication tower.

This report will also be used to motivate and define the previously identified project alternatives (i.e. site, technology, and layout) based on the findings of the environmental baseline study and the suitability of the site to the type of development. This EIAR has been compiled in accordance with the regulatory requirements stipulated in the EIA Regulations (2012), promulgated in terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007))

The ESR aims to:

- Provide an overall assessment of the social, physical, and biophysical environments of the area affected by the proposed establishment of the tower;
- Undertake a detailed environmental assessment, in terms of environmental criteria and impacts (direct, indirect, and cumulative), and recommend a preferred location for the proposed telecommunication tower (based on environmental sensitivity);
- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- Undertake a fully inclusive Public Participation Process (PPP)
- GIS sensitivity mapping was conducted to identify potential impacts, propose mitigation and inform the sensitivity analysis.

ii. Assumptions And Limitations

The following assumptions and limitations underpin the approach to this EIA study:

- The information received from the stakeholders, desktop surveys, and baseline assessments are current and valid at the time of the study;
- A precautionary approach was adopted in instances where baseline information was insufficient or unavailable;
- Mandatory timeframes will apply to the review and adjudication of the reports by the competent authority and other government departments; and
- No land claims have been registered for the proposed site at the onset and registration of the study.

NB: The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposed of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social and cultural impacts associated with the proposed project.

1.0. CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Over the years Namibia has been witnessing a swift growth in mobile communication services, driving increased local demand for the expansion of telecommunications infrastructure. PowerCom (PTY) LTD, hereafter referred to as the proponent, has identified various areas in Namibia requiring enhanced communication solutions due to population growth and increased economic activities. To address this need for improved telecommunication connectivity, PowerCom has been commissioned by its sister company, Telecom Namibia, to establish telecommunication towers across multiple locations nationwide, including one at Nkurenkuru Extension 6. This initiative aims to enhance connectivity, alleviate network congestion, and promote ICT development in rural and peri-urban areas. This will help decongest connectivity and promote ICT in Nkurenkuru Extension 6, a newly serviced with residential plots and business plots.

Telecommunication tower and related infrastructure developments are among listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The relevant listed activities as per EIA regulations are:

10.1 (g) The construction of masts of any material or type and of any height, including

those used for telecommunication, broadcasting, and radio transmission.

The ENVIRONMENTAL MANAGEMENT ACT works hand in glove with other environmental Conservative legislations detailed in **Chapter three as POLICY, LEGAL & ADMINISTRATIVE FRAMEWORK** in this report to ensure a Sustainable Project Development in the Republic of Namibia.

1.2. The Environmental Assessment (EA) Process

With reference to the guide of the **Environmental Management Act No 7 of 2007**, no one (including private bodies and Government bodies) can carry out any listed activity without an environmental clearance certificate. If an environmental clearance certificate is required, the Environmental Commissioner may first require an environmental assessment undertaken by a qualified Environmentalist. In some cases, an environmental clearance certificate can be issued without an environmental assessment depending on the DEA's decision.

Environmental assessments serve the following purposes:

- *Ensure that activities which may have a significant effect on the environment follow the principles of environmental management planning and development process;*
- *Analyze the possible environmental impacts of activities, and look at ways to decrease negative impacts and increase positive ones;*
- *Make sure that the environmental effects of proposed activities are given adequate consideration before they are carried out and*
- *Provide an opportunity for public participation in considering the environmental impact of a project.*

The establishment of the proposed telecommunication tower forms part of the Scope of Works of the EA and are considered in all the phases of the project.

1.2.1. The Environmental Consultant

D&P Engineers and Environmental Consultants (Pty) Ltd have been appointed by **Powercom** as an independent environmental consultant to conduct the required Environmental Assessment (ESIA) study.

By submitting this report Powercom has also subscribed to sustainable business development and environmental sensitiveness to maintain a balance in social development, economic sustenance and bio-physical environment.

1.3. Project Location

The proposed telecommunication tower will be erected in Nkurenkuru Extension 6. Extension 6 is a newly serviced residential and business plot. Nkurenkuru (1.093 m above sea level) is a town on the south-western banks of the Kavango River. It is the capital of the Kavango West Region of northern Namibia, located 140 kilometres (87 mi) west of Rundu. Nkurenkuru is one of the smallest towns in Namibia, and the only self-governed settlement in the Region of Kavango West. On the opposite, north-eastern banks of the river lies Cuangar in Angola and the two towns are linked via a nearby Katwitwi border post. Table 1 below shows the proposed project site coordinates.

Table 1: Project site coordinates

Site Name	Region	Geo Reference
Nkurenkuru Ext 6	Kavango West	17°38'26.25"S 18°35'57.87"E

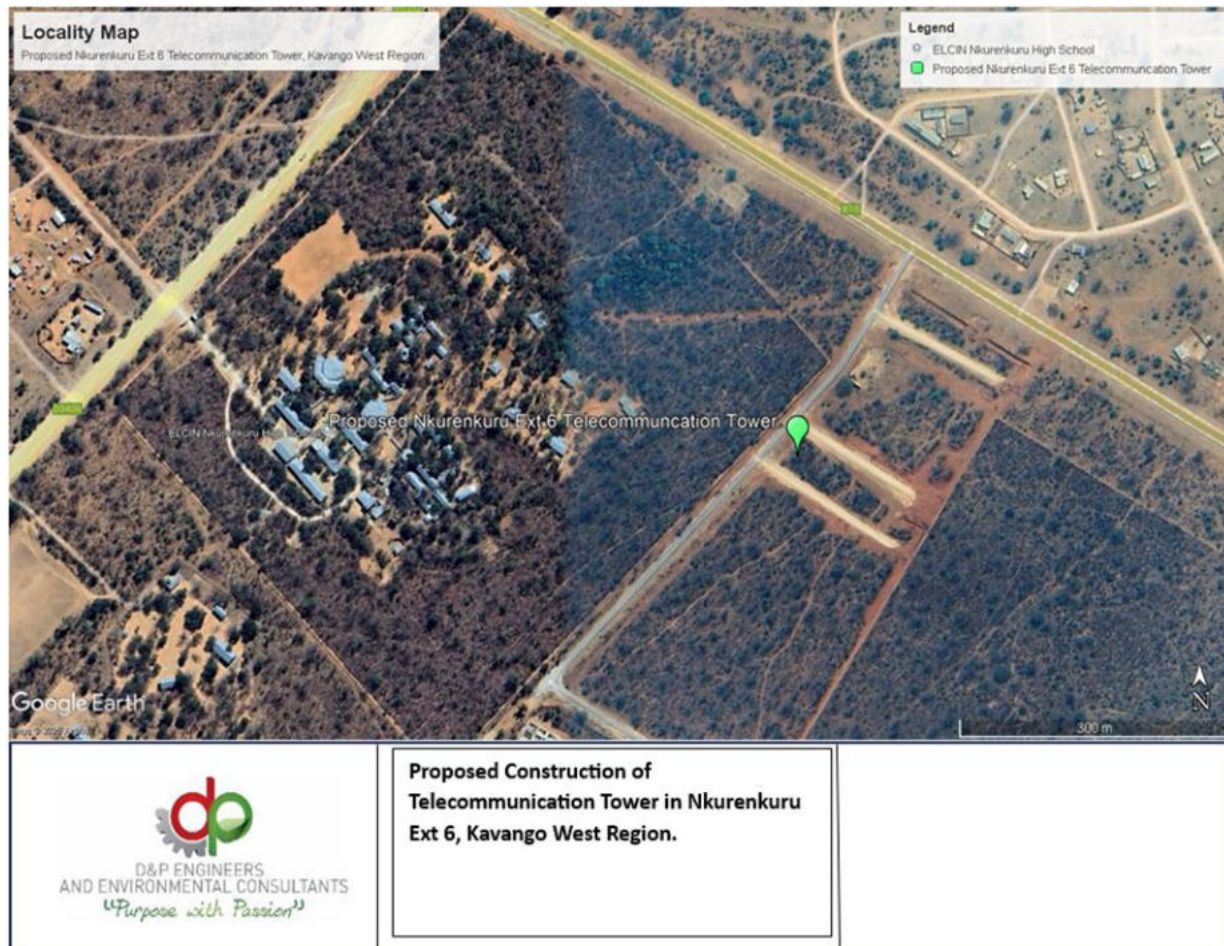


Figure 1: Locality Map

1.6. Project Desirability or Drivers

Over the years Namibia has been witnessing a swift growth in mobile communication services, driving increased local demand for the expansion of telecommunications infrastructure. PowerCom (PTY) LTD, hereafter referred to as the proponent, has identified various areas in Namibia requiring enhanced communication solutions due to population growth and increased economic activities. To address this, PowerCom has been commissioned by its sister company, Telecom Namibia, to establish telecommunication towers across multiple locations nationwide, including one at Extension 6 of Nkurenkuru. This initiative aims to enhance connectivity, alleviate network congestion, and promote ICT development in rural and peri-urban areas. This will as well decongest connectivity.

Sinalumbu 2025, urbanization and the emergence of a newly developing Nkurenkuru town may also bring about great socio-economic benefits and opportunities to the community. According to Muronga (2022), the majority of the Kavango West region's residents live in communal areas, which account for around 90% of the territory. Between the year 2011 and 2023, the Kavango West Region saw a significant population increase of more over 40.4% (Namibian Statistics Agency, 2024).

1.7. Development and Site Specification

POWERCOM (Pty) Ltd, a subsidiary of TELECOM Namibia, is spearheading a nationwide initiative to construct telecommunication towers. This effort aims to enhance internet and voice connectivity, expand the company's footprint and asset base, while providing ready-to-use infrastructure for telecommunication service providers. By targeting underserved areas with weak or no network coverage, PowerCom plans to develop several telecommunication towers across the country, including a proposed site at Nkurenkuru Ext 6. Refer to Appendix B for locality Map and Layout of the proposed tower).

The telecommunication tower erection will include the following:

- Construction of a 30 meters lattice tower with a footprint size of a 14m x 14m area including network support structures;
- The site is to accommodate TN Mobile service and other service providers.
- The structure will be fenced to limit public access to it and it will be electrified to prevent vandalism.

- Access to the area will be strictly controlled through a locked gate. Figure 2 below illustrates the lattice tower.

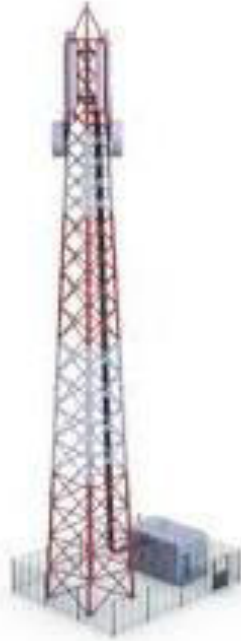


Figure 2: Illustration of the proposed tower

1.8. Terms of Reference (TOR) and Scope of Work

This Environmental Scoping Assessment (ESA) was conducted in accordance with the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. Guided by the project's Terms of Reference, the scope of work included:

Assessing the suitability of the proposed site for tower construction and identifying alternative sites if necessary. Conducting the required Environmental Scoping Assessment (ESA). Consulting all relevant interested and affected parties (I&APs). Preparing an ESA report and a draft Environmental Management Plan (EMP). Securing an Environmental Clearance Certificate for the proposed tower.

The primary objectives of the ESA are to:

- Identify, analyse, and assess the biophysical and socio-economic impacts of the proposed activity.
- Develop management action plans, detailed in the draft EMP, to help the Proponent and/or their contractors minimize negative impacts where avoidance is not possible and enhance positive outcomes.

1.9. Land Ownership

The town council Nkurenkuru agreed that a portion of public open space on ERF 2426 Extension 6 be leased to Powercom at a prescribed fee for the period of ten years. Powercom will be liable to renew the contract 3 months before the agreement lapses.

1.10. TOWER ALTERNATIVES

The project proponent took time to assess the project alternatives for this site. Both technical, economical, and environmental factors including the rationale for choosing the preferred tower were considered. For this very site a 47.9 m lattice tower was chosen considering both technical, economic and environmental factors. While there may be several other types of telecommunication towers design and forms, this particular tower was selected to decongest network connectivity in Extension 6 and the entire Nkurenkuru town.

There were alternatives that were considered for the proposed tower at Extension 6 of Nkurenkuru other than the “No-go alternative”

1.10.1. The “No-go Alternative”

The “No-go” alternative is the option of not proceeding with the activity, which typically implies a continuation of the status quo. In this case, this would mean, the status quo of the proposed site remains unchanged with poor to no network/communication signal. Should the proposed project be disapproved, the poor

to no network coverage in Nkurenkuru will continue and there will be no improvement in local socio-economic development, in terms of communications services in this area. Taking this into account, and the anticipated benefits that the proposed project will have on the local communities, the no-go option is not a preferred option.

1.11. Tower Location

Prior to the EIA process consultations were made with the relevant stakeholders like the Town Council. Nkurenkuru Town Council (NTC) agreed to lease a portion of public open space ERF number 2426 Nkurenkuru Extension 6 to erect a communication tower. The sites were selected looking at the network coverage and how the tower would address any network coverage issues in Nkurenkuru. NTC expressed their approval of the tower through a consent letter directed to Powercom (**Refer to Appendix C**).

Taking the above factors into consideration, the Environmental consultant hereby recommends the approval of the project on the proposed site. The proponent (Powercom) will ensure maximum environmental and safety performance systems are enforced during all phases of the project.

2.0. CHAPTER TWO: PROJECT DESCRIPTION AND PROPOSED ACTIVITIES

2.1. Planning and Design Phase

All contractors venturing in the development of telecommunication towers in Namibia are required to take into account some planning and design factors. Proponent was guided by the Communications Act No. 8 of 2009 to seek all necessary licencing and regulatory compliances. All necessary permits and approvals from all relevant authorities such as the Communication Regulatory Authority of Namibia (CRAN), Ministry of Environment, Forestry and Tourism and the Ministry of Information and Communication Technology (MICT) supported by consents from interested and affected parties (I&APs) through an EIA process were sought. A comprehensive EIA study was also conducted as per the Environmental Act. No. 7 of 2007 and its regulations to ensure that potential impacts on biodiversity, soil, water, and air quality are assessed and mitigated. The assessment also provided an opportunity to ascertain that all alternatives to minimizing environmental footprint are considered and negative impacts are controlled by following the developed Environmental and Social Management Plan (ESMP).

Site selection and zoning was another important factor that the proponent considered during this phase. To ensure tower security, a suitable location for this tower was selected taking into account land-use and zoning regulations. Prior consultations with the local authority offices were also done to obtain consent over the use of the land. This process also includes the consultation of I&APs, which includes local communities, government authorities and other relevant stakeholders. This process was key in addressing potential concerns (health, anaesthetics, property value etc) related to the proposed development, security of land access and use including lease and ownership rights.

In terms of the technical aspects, the proponent took into account the technical requirements for optimal coverage and capacity, including tower height, antennae type, and power supply. To minimize infrastructure overload, co-location of equipment was considered to minimize the number of towers, reduce costs, and mitigate visual

and environmental impacts, however due to lack of available infrastructures a new tower was proposed for development. The proposed tower is a 30m lattice, with a footprint of 14m² which will cater for the tower and its associated accessories.

2.2. Construction Phase

Typically, the construction of the tower is expected to take about one month, and minimal earthworks will be required to prepare the site. The site will be cleared, levelled, and marked for the tower's foundation. During this time a fence will be demarcated around the construction area to secure the area and to ensure that access to the tower is only limited to authorised personnel. Fencing will also prevent vandalism of the tower and its associated accessories. The tower's foundation will be constructed using reinforced concrete to ensure structural stability and proper grounding (earthing) will be integrated into the foundation to protect it against lightning strikes.

The tower structure will be assembled on-site, often using manual labour. All technical work will be carried out by an appointed contractor, who will work during weekdays, preferably between the hours of 08h00 and 17h00. The number of workers expected for this work will depend on the local contractors appointed and their standard human capacity for development of the project. Preference for the construction works will be given to locals, i.e., contractors from Kavango West Region whenever possible. All non-skilled labour will also be given to Nkurenkuru local residents. No workers will be housed on site, necessary accommodation (where needed) will be arranged for all workers. For safety reasons, the appointed contractor will be responsible for providing appropriate Personal Protective Equipment (PPE) to all workers during construction.

2.3. Project input and Resource Requirements

2.3.1. Project Personnel and Accommodation

The exact number of workers required for the tower's construction will be determined by the appointed contractor after the Environmental Clearance Certificate (ECC) is issued. The workforce will include skilled, semi-skilled, and unskilled personnel as

needed. Priority for unskilled labour will be given to local residents, preferably those living in Nkurenkuru.

2.3.2. Waste Management

Construction waste, such as packaging, scrap metal, and concrete debris, will be properly managed and disposed of according to environmental regulations. All hazardous materials, if any, will be handled with special care. The proponent will enforce the availability of portable toilets for the construction team, during the duration of the construction phase.

2.3.3 Water Supply

A minimal amount of water will be required during construction, primarily for drinking and for use in the in-situ concrete mixture. The water will mainly be utilized during the foundation casting phase. The water will be sourced from the available bulk water supply point subjected to an agreement with the local authority.

2.3.4. Power Supply

No electricity is required during the construction of the tower. However, it will be required during the operational maintenance phase of the tower. This tower is strategically placed close to a local transformer and to which it will be connected to ensure power will be available for operational maintenance of the tower. The project proponent might consider a back-up generator or solar to cater for power outages.

2.3.5. Health and Safety

All project and construction personnel will be provided with adequate and appropriate Personal Protective Equipment (PPE) while working on site. For safety purposes a first aid kit will be readily available at the site for emergency purposes. Basic fire-fighting equipment such as fire extinguisher will be available on site and in all construction vehicles.

2.3.6. Site Access (Roads)

The site is located in an urban setup in Extension 6 of Nkurenkuru along the B10 Road. The land was already serviced with electricity, sewer and roads. The site can be accessed from the B10 road on the way to the newly established Nkurenkuru Vocational Training Centre. There are existing roads, serving these services, hence contractors will utilize the existing access roads.

2.3.7. Fencing

For safety and security reasons, the tower site will be fenced off. This will also be done to ensure that access to the tower is limited to authorized personnel (such as maintenance team) only and to prevent vandalism of the tower and their associated accessories/structures.

2.4 Site rehabilitation (post construction) and decommission phase

Once construction phase has been completed, the associated works will be ceased, and site cleaned up in preparation for the next phase (operations). The Proponent will need to properly decommission the construction works and rehabilitate disturbed site. The aim is to ensure that the project related disturbed site areas are left close to their pre-work state as much as possible.

The activities to be carried out to clean up and rehabilitate the site post-construction are as follows:

- Dismantling and removal of all temporary infrastructures and structures (erected or set up to support construction) that will no longer be required for the operational and maintenance phases. These will be transported to designated storage facilities offsite.
- Removal of all construction related vehicles, machinery, and equipment from site to designated parking and storage site off site, respectively.
- Carrying away the waste storage containers and disposal of waste to the designated local approved waste management site.

- If any, closure of all onsite access roads that may have been created for the construction phase and no longer required for operational phase.
- Levelling of all stockpiled topsoil and where possible, backfilling of all construction excavated pits and trenches, respectively.

(Detailed information is captured in the EMP)

Decommissioning of the network tower is not anticipated given the demand of mobile communication and other associated services. In the case of decommissioning recommendations will be provided in the impact assessment chapter and ESMP.

2.5. Operational and Maintenance Phase

This is the phase during which the tower and its associated infrastructure will be operational and providing telecommunication signal to the residents of Nkurenkuru. Maintenance of the tower is to be carried out by the Proponent's Maintenance Department, as and when required. No onsite accommodation will be required during this phase, as the maintenance works are not expected to last for more than a day. In the event that maintenance works are lasting more than one day, accommodation arrangements are to be made by the Proponent for their maintenance team. The Proponent is to ensure that all employees carrying out maintenance works on site are provided with appropriate Personal Protective Equipment (PPE).

3.0. CHAPTER THREE: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1. Introduction

Combined, policy, legal and administrative frameworks, facilitates sustainable development. Mentioned below are acts and policies that have relevance to the establishment of a tower. These pieces of legislation include the environmental Management Act of 2007, Environmental Impact Assessment Policy, Water Act and many other Occupational Health, Safety and Environmental Management Statutory instruments and legislations.

The Environmental Management Act 7 of 2007 is the principal defender to the environment aiming 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.

Section 56 of the Environmental Management Act, 2007 (Act No.7 of 2007), the Minister has made the protocols for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

These protocols necessitate that all developments/projects that have a detrimental effect on the environment must be accompanied by an EIA Under section 27 of the Environmental Management Act, 2007 (Act No. 7 of 2007), and after following the consultative process referred to in section 44 of that Act, the Minister lists in the Annexure to the above-mentioned Schedule, activities that may not be undertaken without an environmental clearance certificate. In both the Environmental Management Act and its guidelines, all activities that may not be undertaken without an environmental clearance are listed.

The fruits of sustainable development are conducted by a comprehensive statutory framework which was used in this section. All the relevant legal instruments and prescribed procedures have been acknowledged.

Table 2: Policy, Legal and Administrative Framework

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
The Constitution of the Republic of Namibia (1990)	The articles 91(c) and 95(i) commits the state to actively promote and sustain the environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include: • Guarding against overutilization of biological natural resources, • Limiting over-exploitation of non-renewable resources, • Ensuring ecosystem functionality, • Maintain biological diversity.	Through the implementation of the environmental management plan, the proposed development will be conformant to the constitution in terms of environmental management and sustainability, by bringing development in an environmentally sensitive way.
Vision 2030 and National Development Plans	Namibia's overall Development ambitions are articulated in the Nations Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.	The proposed project is an important element in the propelling and connectivity in the country.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
Environmental Assessment Policy of Namibia 1994	The Environmental Assessment Policy of Namibia requires that all projects, policies, Programmes, and plans that have detrimental effect on the environment must be accompanied by an EIA. The policy provides a definition to the term "Environment" broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes and plans.	The construction and operation of the tower will only commence after being awarded an environmental clearance certificate, thus by abiding to the requirements of the Environmental Assessment Policy of Namibia. The EIA and EMP will cater for the sustainable management of biophysical environment.
Environmental Management Act No. 07 of 2007	The Act aims at • Promoting the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; • To provide for a process of assessment and control of projects which may have significant effects on the environment; • The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process.	This document is compiled in a nature that project implementation is in line with the objectives of the EMA. EIA guiding procedures developed by MEFT were also used in the course of this project.
Electricity Act 4 of 2007	• Requires that any generation and or distribution complies with laws relating to health, safety and environmental standards (s 18(4)(b)) • In the event that exemption from acquiring a license is granted, the Minister may impose conditions relating to public health safety or the protection of the environment.	Obliges PowerCom to comply with all relevant provisions of the Act and its regulations when installing electrical connections to the tower.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
The Atomic Energy and Radiation Protection Act, Act 5 of 2005:	Provides for the adequate protection of the environment and of people against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionising radiation sources according to the standards set out by the ICNIRP.	To determine the "safe distance" around the site. Installation of the network transmitter will be done in accordance with the safety protocols required for non-ionizing radiation protection.
Hazardous Substances Ordinance 14 of 1974 Regulations Made In Terms Of Hazardous Substances Ordinance 14 of 1974 sections 3 and 27	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of 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.	PowerCom will have to conform to this Act and its regulations through application for relevant licenses with the relevant bodies highlighted thereto.
Civil Aviation Act No. 74 of 1962	Gives effect to certain International Aviation Conventions and makes provision for the control, regulation, and encouragement of flying within the Republic of Namibia and for other matters incidental thereto.	Provides the regulations for setting up cellular as well as other masts structures in Namibia.
Convention on International Civil Aviation, Annex 14	Annex 14 to the Convention on International Civil Aviation. Chapter 4: Obstacle restrictions and removal Chapter 6: Visual aids and donating of obstacles	The proposed new structures may be obstacles to some aerodromes in Namibia. Those that are close to existing aerodromes need to be assessed in accordance with the document. Visual aids to the new structures to make them visible to aircraft need to be applied in accordance with this Convention.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
“Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300GHz)” (April 1998 developed by the International Commission on Non-ionizing Radiation Protection (ICNIRP))	Provides international standards and guidelines for limiting the adverse effects of non-ionising radiation on human health and well-being, and, where appropriate, provides scientifically based advice on non-ionising radiation protection including the provision of guidelines on limiting exposure.	Cell phone towers and other antenna installations are usually located on rooftops, towers, and utility poles. Cell phone towers operate at a higher power than cell phones but the radiofrequency EMF they emit is much further away from your body. This means your exposure from such antennas is usually much lower than the exposure level from using a cell phone.
Soil Conservation Act 76 of 1969	The objectives of this Act are to: • Make provisions for the combating and prevention of soil erosion, • Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic.	The project will have a rather localized impact on soils and the soil through clearance for the tower platform. Soil protection measures will be employed and preservation of trees as much as possible.
Protected Areas and Wildlife Management Bill	This bill, when it comes into force, will replace the Nature Conservation Ordinance 4 of 1975. The bill recognizes that biological diversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems be maintained. It protects all indigenous species and control the exploitation of all plants and wildlife.	Environmental recommendations and considerations on this project have ensured that the proposed activities will not fall within the boundaries of any protected area and that the project will not affect heavily endangered vegetation and animals on its site.
Forest Act, 2001 (Act No. 12 of 2001)	The Act gives provision for the protection of various plant species through the Ministry of Agriculture, Water and Forestry (MAWF), Directorate of Forestry).	The site has 4 matured trees which will be removed to pave way for development. Where possible the contractor will be advised to avoid removal of such trees. There are sparsely distributed shrubs.
National Rangeland Policy and Strategy, 2012	The policy aims at enabling resource users (farmers and managers) to manage their rangeland resources in a sustainable manner and sustainable in that they are economically viable, socially acceptable, environmentally friendly and politically conducive.	This proposed project will ensure that the local community benefits both economically and socially from the project, this in line with the recently declared Harambee Prosperity Plan and NDP 4&5.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
National Biodiversity Strategy and Action Plan (NBSAP2)	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia putting together management of matters to do with ecosystems protection, biosafety, biosystematics protection on both terrestrial and aquatic systems.	The project proponent has been advised by DPEE and recognises the need for ecosystem protection to manage the changing climatic environment.
Wetland Policy, 2004	The policy provides a platform for the conservation and wise use of wetlands, thus promoting inter-generational equity regarding wetland resource utilization. Furthermore, it facilitates the Nation's efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA's).	In compliance to this Policy, the development will ensure a standard environmental planning such that it does not affect any wetlands within its locale through recognition of wetlands to promote the conservation and wise utilization of wetlands resources. There are no wetland around the project area.
Water Resources Management Act, 2013 (Act No. 11 of 2013)	This Act provides for the management, protection, development, use and conservation of water resources. This also forms the regulation and monitoring of water resources.	The proposed development will get water from the existing water infrastructure during the construction phase.
National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	During the project implementation as soon as objects of cultural and heritage interests are observed such as graves, artefacts and any other object believed to be older than 50 years, all measures will be taken to protect these objects until the National Heritage Council of Namibia have been informed, and approval to proceed with the operations granted accordingly by the Council.
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	"No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: (a) any meteorite or fossil; or (b) any drawing or painting on stone or a petroglyph known or commonly believed to have been executed by any people who inhabited or visited Namibia before the year 1900 AD; or (c) any implement, ornament or structure known or	The proposed site of development is not within any known monument site both movable or immovable as specified in the Act, however in such an instance that any material or sites or archeologic importance are identified, it will be the responsibility of the developer to take the required route and notify the relevant commission.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
	commonly believed to have been used as a mace, used or erected by people referred to in paragraph (b); or (d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or (e) any other archaeological or palaeontological finds, material or object; except under the authority of and in accordance with a permit issued under this section.	
Pollution Control and Waste Management Bill	This bill has not come into force. Amongst others, the bill aims to “prevent and regulate the discharge of pollutants to the air, water and land” Of particular reference to the Project is: Section 21 “(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse.” Section 55 “(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment.”	To control air, water and land pollution as agitated by the Act the project proponent will ensure that the development will prevent pollution in all forms during construction and operation phases.
Public Health Act (No. 36 of 1919)	Section 119 states that “no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.”	The Proponent and all its employees or contractors should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
Public and Environmental Health Act No. 1 of 2015	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	The Proponent and their contractors should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health and that the noise which could be considered a nuisance remain at acceptable levels. The Proponent should ensure that the public as well as the environmental health is preserved and remain uncompromised.
Communications Act, 2009 (Act No. 8 of 2009)	• (10) The Authority may impose specific obligations and requirements on a licensee	As a pre requisite, telecommunication towers would require environmental clearance certificates and, in this respect, Powercom authorised this EIA to obtain such.
	• regarding to masts, towers or other facilities including requirements relating to the • environmental or aesthetic impact of such facilities;	
Communication Bill 2009	• Provide for the regulation of telecommunication activities. The bill provides licencing and enforcement of conditions, and the approval or equipment and technical standards to ensure public health and safety.	As per relevant spectrum, network equipment should be as per licenses.
Convention on Biological Diversity (CBD)	• Namibia is a signatory of the Convention on Biological Diversity and thus is obliged to conserve its biodiversity.	The project will preserve tree species on as part of their plans for greed and sustainable development.
United Nations Convection to combat Desertification	Namibia is bound to prevent excessive land degradation that may threaten livelihoods.	It will be the responsibility of the proponent to conserve vegetation on and around the area, to avoid encroachment of the desert environs in the area.

LEGISLATION/POLICY/GUIDING DOCUMENT	RELEVANT PROVISION	PROJECT IMPLICATION
Local Authorities Act No. 23 of 1992	To provide for the determination, for 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.	NTC council is the Local Authority responsible for the project site. Therefore, the council will ensure that the network tower establishment activities are in compliance with the Act and its Regulations, as relevant to the proposed project
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required.	Mitigation measures should be provided for since the project activities will make use of the public roads during construction phase.

3.2. Conclusion

These pieces of regulations should be observed throughout the project's life cycle. Any deviations from these policies, regulations and administrative frameworks may have catastrophic results to the environment (including man power) and the work environment. These laws bring about rational work ethics that support the protection of the environment. Strict monitoring by relevant authorities will bring about sound environmental practices. NTC Council shall enforce these regulations on its area of jurisdiction and constant monitoring will be done in form of inspections and audits.

4.0. CHAPTER FOUR: PUBLIC AND STAKEHOLDER CONSULTATIONS

4.1. Introduction

This chapter gives a brief summary of the interested, affected and stakeholders reached by the EIA team. A background Information document and the layout plans were shared with relevant stakeholders and circulated within community members. Purposive sampling technique was used to approach the immediate neighbors to the proposed tower. It made interviews much useful to the study.

4.2. Importance of Public Participation

The public participation process was undertaken in accordance with the requirements of the Environmental Management Act of 2007 and its guidelines. The process is mandatory and it is very important as it serves various purposes. It helps in sustainable project implementation and decision-making processes giving equitable contributions towards project design.

4.3. Notification of Public and Stakeholders

The involvement of the public was done prior to the fulfillment of the EMAAct and the comments were recorded electronically and manually. Notification was done in via emails and WhatsApp to reach out to identified I&APs (Please refer to appendix C)

4.3.1. Background Information Document

A background Information Document (BID) for the proposed developments was made available during the public consultations. It was distributed upon request by interested parties. Appendix C has a final BID made available to the interested and affected parties.

4.3.2. Newspaper adverts

Notification of interested and affected parties was done through the newspapers twice in the Confidente and Windhoek Observer. This was done prior to the fulfillment of the EMAAct. Public notices were placed on the weekly newspapers dated from 19 September and the 3rd of October 2025 in both Newspapers. (Refer to Appendix C of the scoping report).

4.3.3. Site and Public notices

Site notices were placed on one of the Town council's notice boards and on site calling interested and affected communities to attend a public meeting which was scheduled on the 07th of October 2025 at 09:30 Hrs on site. Figure 4 (A) and (B) below shows the evidence of site notices.



Figure 3(A) and (B) Public Notice on the transformer near project site and Nkurenkuru Town Council Notice board.

4.4. Public meeting

A public meeting was scheduled to held on the 7th of October 2025 on site but there was no turnover because the plot is a bit isolated from the existing houses and business places. The EC arranged for a stakeholder meeting with the town council and decided to allow them to give their insights through questionnaires attached as appendix C. The EC interviewed the only existing neighbor to the site, NVTC to introduce the project. They were added to the Stakeholders list and their opinion was captured.

There are no occupiers of land opposite, adjacent and close to the proposed site since its new development.

4.5. Public and Stakeholders comments

Key stakeholder to the proposed projects were consulted via emails. Listed were, Nkurenkuru VTC, National Radiation Protection Authority, CRAN, MICT and Namibia Civil Aviation Authority (NCAA). Nkurenkuru Town Council was as well consulted and their comments were recorded inform of questionnaires as well their inputs were incorporated in the ESMP.

Deadline for the submission of comments was set on the 24th of October 2025. I&APs will still have room to comment on the proposed activity through the Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs using the online platform. One can follow the application process after the deadline of submission of comments.

4.6. Conclusion

The public and stakeholder consultations were done in respect to the EMAAct and the outcomes gave a green light for the project implementation that is if the ESMP designed by D&P consultants is instrumental.

5.0. CHAPTER FIVE: ENVIRONMENTAL BASELINE

5.2. Introduction

In this chapter, the findings of the EIA team on baseline surveys, public consultation and desk reviews undertaken are in respect to the ecology, society, economy and geo-political set up of the proposed project area. The geological structure and metrology of the project site will also be discussed in this chapter to give an in-depth understanding of the project area in question.

5.3. Socio-Economic status

Kavango West Region is one of the fourteen regions of Namibia. Its capital and only self-governed settlement is Nkurenkuru. The Region was created in 2013 when the Kavango Region was split into Kavango East and Kavango West. In the north, Kavango West borders the Cuando Cubango Province of Angola. Domestically, it borders the regions of Kavango East to the east, Otjozondjupa to the south, Oshikoto to the west and Ohangwena to the northwest. The region contains a multi-country conservation park and six locally managed wildlife reserves.

Socio-economic activities in Kavango West are primarily based on subsistence agriculture, including small-scale farming of crops like *mahangu* and livestock rearing. Other important activities include fishing, woodcarving, and tourism, especially along the Kavango River. The region is also exploring further development in manufacturing, value addition, and logistics, with government support focused on leveraging its agricultural potential and the Kavango River's resources.

5.3.1. Land use

The proposed project site is a public open space of Extension 6 of Nkurenkuru Town. It was recently serviced with sewer, electricity, roads and its open for development (pleases refer to the layout plan attached as Appendix B of the scoping report).

5.4. Climate

Kavango West has a subtropical steppe climate (Köppen classification: BSh) characterized by hot, dry summers and mild, dry winters. The average annual temperature is around 25.67°C (78.21°F). The region experiences relatively high temperatures from January to February, with mild nights and daytime highs peaking around 37°C (98°F). As the seasons shift into April and May, nights become cooler, with temperatures potentially dipping to 4°C (40°F) in May. The coldest months, June and July, see consistently low minimum temperatures of 4°C (39°F) alongside mild daytime highs, creating a brief winter chill. Climate and vegetation report for the year 2023/2024 attached to this report as Appendix (v) was published by Namibian Association of CBNRM support Organisations (NASCO).

5.4.1. Precipitation

According to weatherspark.com, A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Nkurenkuru varies very significantly throughout the year. The wetter season lasts 4.4 months, from November 19 to March 30, with a greater than 27% chance of a given day being a wet day. The month with the most wet days in Nkurenkuru is January, with an average of 16.0 days with at least 0.04 inches of precipitation.

The drier season lasts 7.6 months, from March 30 to November 19. The month with the fewest wet days in Nkurenkuru is July, with an average of 0.0 days with at least 0.04 inches of precipitation. Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. The month with the most days of rain alone in Nkurenkuru is January, with an average of 16.0 days. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 55% on January 30.

Based on the beach/pool score, the best times of year to visit Nkurenkuru for hot-weather activities are from April 20 to April 28 and from late August to mid-October.

5.4.2. Rainfall

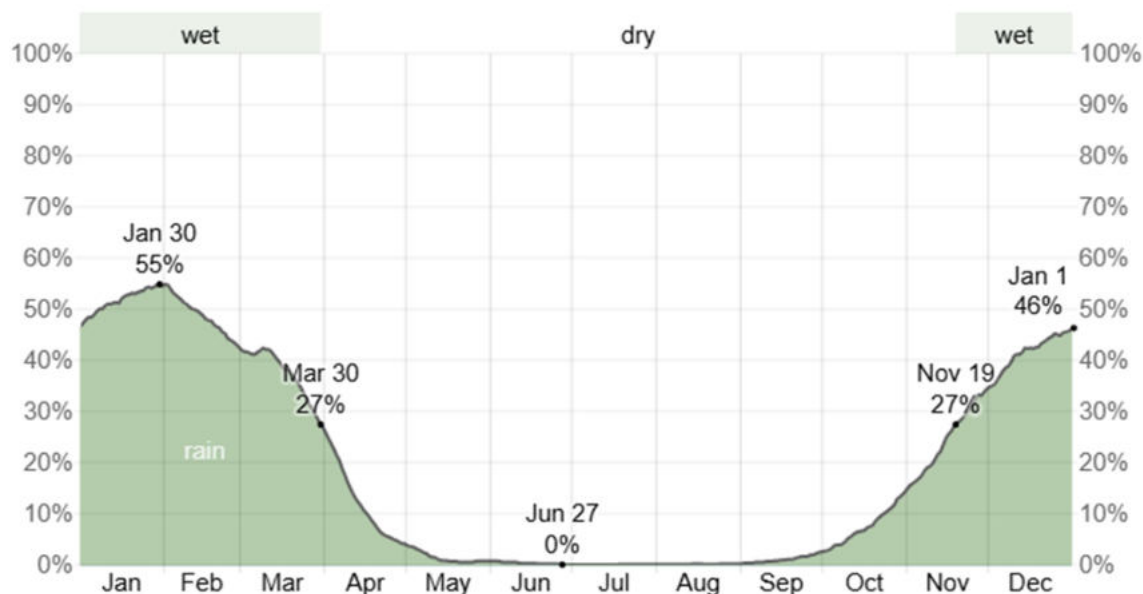


Figure 4: Figure 11: Average Monthly Rainfall in Nkurenkuru, <https://cedarlakeventures.com/weatherspark>

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centred around each day of the year. Nkurenkuru experiences extreme seasonal variation in monthly rainfall. The rainy period of the year lasts for 6.0 months, from October 20 to April 22, with a sliding 31-day rainfall of at least 0.5 inches. The month with the most rain in Nkurenkuru is January, with an average rainfall of 5.1 inches. The rainless period of the year lasts for 6.0 months, from April 22 to October 20. The month with the least rain in Nkurenkuru is July, with an average rainfall of 0.0 inches.

5.4.3. Temperature

The hot season lasts for 2.1 months, from September 13 to November 16, with an average daily high temperature above 95°F. The hottest month of the year in Nkurenkuru is October, with an average of 98°F and low of 69°F. The figure above shows you a compact characterization of the entire year hourly average temperatures. The horizontal axis is the day of the year, the vertical axis is the hour of the day, and the colour is the average temperature for that hour and day.

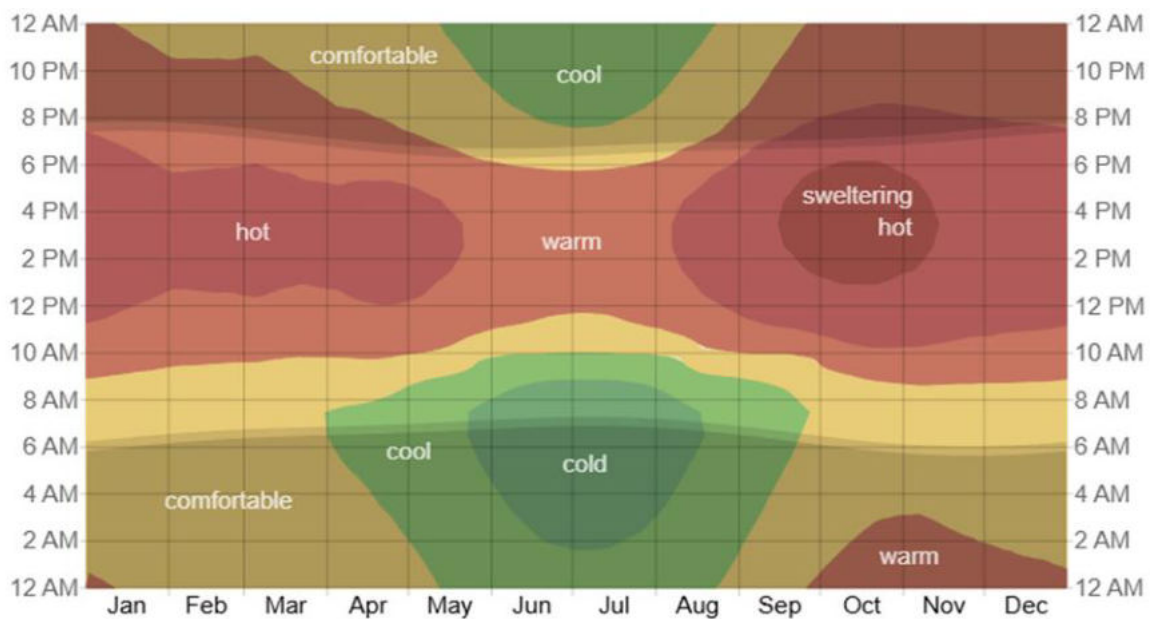


Figure 5: Average High and Low Temperature in Nkurenkuru, Source <https://cedarlakeventures.com/weatherspark>

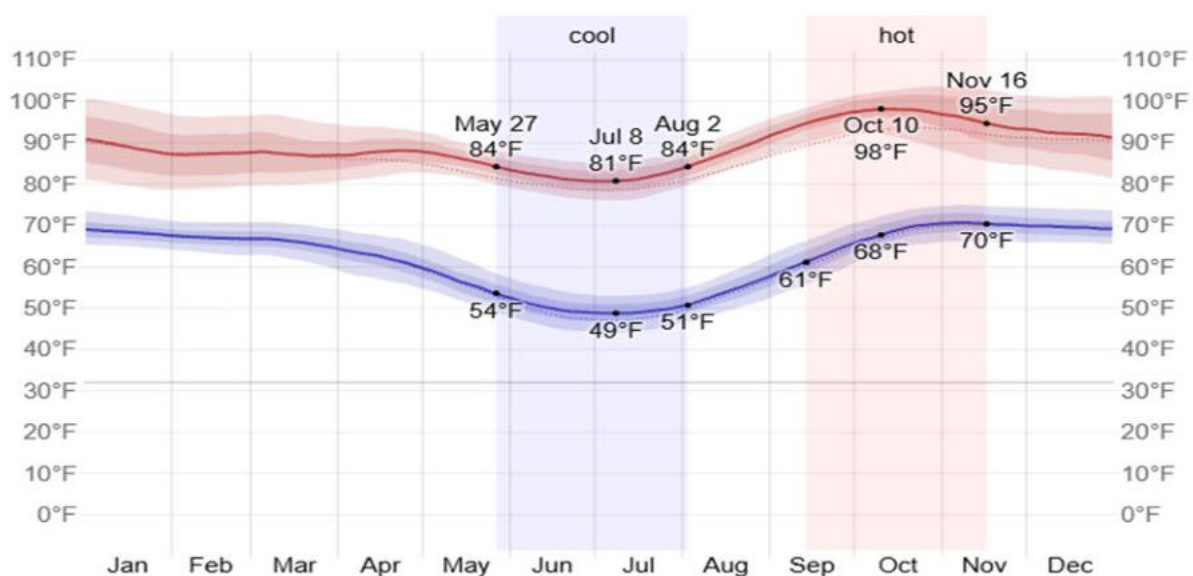


Figure 6: Average Monthly Temperature in Nkurenkuru, Source <https://cedarlakeventures.com/weatherspark>

The cool season lasts for 2.2 months, from May 27 to August 2, with an average daily high temperature below 84°F. The coldest month of the year in Nkurenkuru is July, with an average low of 49°F and high of 82°F.

5.4.4. Data Sources

This report illustrates the typical weather in Nkurenkuru, based on a statistical analysis of historical hourly weather reports and model reconstructions from January 1, 1980 to December 31, 2016.

Nkurenkuru is further than 200 kilometres from the nearest reliable weather station, so the weather-related data on this page were taken entirely from NASA's MERRA-2 satellite-era reanalysis. This reanalysis combines a variety of wide-area measurements in a state-of-the-art global meteorological model to reconstruct the hourly history of weather throughout the world on a 50-kilometer grid. The temperature and dew point estimates are corrected for the difference between the reference elevation of the MERRA-2 grid cell and the elevation of Nkurenkuru, according to the International Standard Atmosphere.

Land Use data comes from the Global Land Cover SHARE database, published by the Food and Agriculture Organization of the United Nations. Elevation data comes from the Shuttle Radar Topography Mission (SRTM), published by NASA's Jet Propulsion Laboratory. Names, locations, and time zones of places and some airports come from the GeoNames Geographical Database. Time zones for airports and weather stations are provided by AskGeo.com.

5.6. Flora and Fauna

5.6.1. Flora

The Kavango West area is home to a diverse array of tree species, each contributing to the region's unique ecosystem. From towering Baobabs to the resilient African teak trees, the flora of Kavango West plays a crucial role in supporting local wildlife and maintaining the ecological balance. The trees not only provide shelter and food for various animals but also offer resources for local communities.

Kavango West's woodlands are characterized by dry, medium to tall savanna and woodland, with a notable presence of *Pterocarpus angolensis* and *Guibourtia coleosperma* trees. The region also features fine-leaved savanna dominated by *Acacia* species, particularly in the south. The Okavango River and its floodplains contribute to the area's green landscape.

5.6.2. Fauna

Kavango West in Namibia is characterized by a rich diversity of fauna, particularly within its woodland and savanna ecosystems. Notable species include elephants, buffalo, roan antelope, kudu, impala, and Burchell's zebra, along with predators like leopard and hyena. The area is also known for its abundant birdlife, with over 400

species recorded. The Kavango River and its associated wetlands support aquatic life like crocodiles and hippos, and unique species like sitatunga and red lechwe.

5.6.3. Habitat categorization

The proposed project site consists of open plains with deeper soil and scattered bushes and shrubs. It relatively consists of least species richness. It as well has watercourses that are perennial within the vicinity of the project area (The Okavango River). The proposed project is approximately 6km away from the mighty Kavango River. The watercourses are marked by having more bushes and scattered trees along their length, and the substrate is usually sandy and un-compacted.

Each of these habitats has its own distinctive food, shelter and refuge characteristics, but each harbour almost the same faunal component. In comparison, watercourse habitats and open plains are more widespread and more homogeneous. Therefore, avoidable disturbance in any of the area should be minimized, since they all support different types of flora and fauna species.

Note: The construction and operation of the proposed 30m lattice tower and its footprint area will not affect the watercourses of the Kavango river.

5.6.4. Amphibians Diversity

According to the desktop research, AI overview, the Kavango River is home to a diverse range of amphibians, including various frog and toad species. Some notable examples include the Kavango Pygmy Toad, the African Bullfrog, and several species of reed frogs and platannas. The river and its surrounding wetlands provide vital habitat for these creatures, supporting a complex ecosystem. Amphibian Diversity in the Kavango River can be grouped as follows:

- **Kavango Pygmy Toad:**

This toad, specifically named for the Kavango region, is a common inhabitant of the area.

- **African Bullfrog:**

A large and prominent frog species, the African Bullfrog is another well-known resident of the Kavango River ecosystem.

- **Reed Frogs:**

The Kavango River basin supports a variety of reed frog species, including the Longnose Reed Frog, Benguella Reed Frog, and Water Lily Reed Frog.

- **Platannas:**

Several species of platannas, also known as clawed frogs, are found in the Kavango River, including Peters's Platanna and Müller's Platanna.

- **Other Frogs and Toads:**

The Kavango River also hosts a range of other frog and toad species, such as the Guttural Toad, Lemaire's Toad, and various ridged frogs and rain frogs.

- **Challenges:**

While the Kavango River provides a rich habitat, the amphibians face challenges like habitat loss, pollution, and the impacts of climate change.

5.6.5. Mammals Diversity

Kavango West, Namibia, is home to a variety of mammal species, including elephants, buffalo, hippos, and various antelopes like lechwe, roan, and sable. Other notable mammals include lions, wild dogs, and various smaller species like jackals, monkeys,

and porcupines. The region's proximity to the Kavango River and the Okavango Delta contributes to its rich biodiversity, AI overview.

5.6.6. Reptile Biogeography

The Kavango region of Namibia boasts a rich reptile biodiversity, particularly along the Okavango, Kwando-Chobe, and Zambezi rivers, which provide essential aquatic and wetland habitats. These rivers support diverse reptile species, including terrapins (like *Pelusios* sp.), aquatic snakes, and water monitors (*Varanus niloticus*). The area also hosts Nile crocodiles (*Crocodylus niloticus*).

5.7. Avifauna

Kavango West region in Namibia boasts a rich variety of birdlife, with over 676 of Southern Africa's 887 bird species potentially found within its diverse habitats. The area is known for its green floodplains along the Kavango River, which supports a wide range of bird species, including those that favours wetland environments. Some notable species include the African fish eagle, darter, black-crowned night herons, and various heron species.

Here's a more detailed look at the avifauna:

- **Wetland Habitats:**

The Kavango River and its floodplains are crucial for many bird species, particularly those that rely on aquatic environments. These include the African fish eagle, darters, herons, and various cormorant species.

- **Diverse Habitats:**

The region's varied landscapes, from floodplains to woodlands, support a wide array of birdlife.

- **Endemic and Near-Endemic Species:**

Namibia is home to 15 endemic and near-endemic bird species, some of which may be found in the Kavango West region.

- **Birding Hotspot:**

The Kavango area is recognized as a prime birding location, attracting birdwatchers eager to spot sought-after species like the Rüppell's Korhaan, Hartlaub's Spurfowl, Rüppell's Parrot, and Violet Wood-hoopoe.

5.8. The General Geology, Surface and Ground Water

5.8.1. Local Geology

The Kavango West region in Namibia is characterized by Kalahari Group geology, with extensive sand deposits and dune formations. Specifically, the region features aeolian sand and dune formations overlying calcrete erosion surfaces. Dominant soil types are sands, and the region's landforms include stabilized seif dunes and sand plains.

5.8.2. Water Sources

The project area is likely to have underground water aquifers sources due to its proximity to the mighty Okavango River. The proposed activities will be done in a way that reduces surface runoff.

The project proponent will use the existing bulk water services from the Town council during construction phase of the project.

5.8.3. Water Vulnerability

The proposed project is likely to have no major negative impacts on the water resources. The local area does not seem to have economic water resources. Therefore, the development of the proposed project is likely to have no negative impacts on water resources. The combined effects of unsaturated and saturated flow

probabilities were used as indicator for groundwater vulnerability. However, groundwater or surface water will only be vulnerable to contamination if the following three (3) component are all present at the same time and at a site-specific area within project area:

- (i) Contaminant sources resulting from proposed construction program;
- (ii) Potential pathways for contaminant migration such as major high order discontinuities (ephemeral river channels, valleys and gullies;
- (iii) Targets (economic water resources) present within the project area. Overall, the limited local groundwater resources found in the area form part of the poorly developed metamorphic rocks based confined and unconfined aquifer system that is moderately vulnerable to any sources of pollution

During designing and construction flood protection measures should be implemented.

5.9. Topography

For the purposes of this report, the geographical coordinates of Nkurenkuru are - 17.617 deg latitude, 18.600 deg longitude, and 3,602 ft elevation. The topography within 2 miles of Nkurenkuru contains only modest variations in elevation, with a maximum elevation change of 180 feet and an average elevation above sea level of 3,617 feet. Within 10 miles also contains only modest variations in elevation (322 feet). Within 50 miles also contains only modest variations in elevation (446 feet).

The area within 2 miles of Nkurenkuru is covered by grassland (85%), within 10 miles by grassland (65%) and shrubs (17%), and within 50 miles by grassland (61%) and shrubs (20%).

6.0. CHAPTER SIX: IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION

6.1. Identification of Potential Impacts

The proposed activities are usually associated with potential positive and negative impacts. For an environmental assessment, the focus is mainly placed on the negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control, while maximizing the positive impacts of the project to promote sustainable development and environmental and social protection. The potential positive and negative impacts that have been identified are listed as follow:

Positive impacts:

- **Telecommunications convenience:** Current and future residents (mobile users) will have an improved infrastructure and will not have to struggle with network coverage.
- **Employment creation:** Creation of a few temporary jobs during the construction of the tower.
- **General contribution to local economic development** through reliable communications services.

Negative impacts:

- **Physical land / soil disturbance:** excavation activities to erect the tower could potentially lead to site soils' disturbance.
- **Noise:** During tower' construction, the presence of the construction team and movement of heavy vehicles and machinery may disturb the immediate neighbors to the site.
- **Visual impact:** The presence of the tower in the neighborhood may be a nuisance to locals.
- **Impacts to Human Health:** Electromagnetic Radiation emitted from the antennae of cellular structures may affect human health.

- **Potential occupational health and safety risks** associated with mishandling of construction and operations equipment.
- **Civil Aviation concerns:** The proposed site designs and location need to be verified to ensure that it meets the approval of the Directorate of Civil Aviation regarding the height of the masts and the position and stability of transmitters.
- **Environmental pollution** from improper disposal of waste generated during construction and maintenance phases.
- **Vehicular traffic safety** from increased number of vehicles moving around the project site and slow-moving trucks transporting project structures during construction, and
- **Archaeological or cultural heritage impact** through unintentional uncovering of unknown archaeological objects or site by certain project activities such as excavation (the minimal site works).
- **Waste Generation** from improper disposal of waste generated during construction and maintenance.
- **Dust Generation** from construction works and vehicular traffic
- **Loss of Avifaunal Biodiversity**

6.2. Impact Assessment Methodology

The Environmental Assessment is primarily a process used to ensure that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is in accordance with Namibia's Environmental Management Legislation (Environmental Management Act No. 7 of 2007) and its EIA Regulations of 2012.

6.2.1. Impact Assessment Criteria

The identified impacts were assessed in terms of probability (likelihood of occurring), scale/extent (spatial scale), magnitude (severity) and duration (temporal scale) as presented in Table 3 overleaf. The recommended mitigation measures prescribed for each of the potential impacts (as captured in the ESMP) contributes towards the

attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were applied in this impact assessment:

Table 3: Impact Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%

Medium	25-75%
High	>75%

5.2.2. Impacts Significance

After the impact has been assessed, its significance is then determined. The impact significance is determined through a synthesis of the above impact characteristics. The table below captures the significance rating scale which was used to rate the identified impacts.

Table 4: Impacts Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

Table 3: Environmental Impacts and Aspects Assessment

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
TOPOGRAPHY	Landscape Scenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor	Tower construction
SOIL DISTURBANCE AND POLLUTION	Soil	Contamination to soil from paints and other potentially hazardous substances	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Tower construction
	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor	Tower construction
	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower construction
LAND CAPABILITY	Terrestrial ecology	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	Tower construction
	Carrying capacity	Increase in human activities in the environment	Construction and Operations	Moderate	Moderate	Regional	Direct	Low <25%	Minor	Tower construction
WATER	Surface water quality	Water pollution from potential oils, lubricants and chemicals spillages.	Construction and Operations	Moderate	Small	Local	Direct	Medium 25 - 75%	Moderate	Construction hydrocarbons

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
AIR QUALITY	Air Quality	Construction phase dust	Construction	Short	Small	Local	Direct	Low <25%	Minor	Tower construction
WASTE	Groundwater quality	Hazardous waste such as waste lubricants and stored chemicals may be released into the environment.	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower construction
	Surface water quality	Threatened from chemicals being washed into nearby water bodies	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower construction
	Surface water quality	Construction and Operational solid waste	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower construction and maintenance
FAUNA	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower construction
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills; and fence)	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower construction

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
SOCIAL	Noise Pollution	Increased noise levels	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower construction
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive	Tower construction
	Socio Economic Activities	Climate change impacts	Operations	Long	Moderate	Regional / National	Direct	High >75%	Positive	Tower construction
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Construction and Operations	Short	None	Regional / National	Direct	Low <25%	Positive	Tower construction
HERITAGE	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Construction and Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Tower construction
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Tower construction
	Property and human life	Electrocution, fires resulting in fatalities,	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower housing and maintenance

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
		damage to properties, veld fires and power surges.								
	Natural Environment	Spillage/ release of chemicals into the environment	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower maintenance
	Humans, Vegetation, Animals	Potential impacts from non-ionizing radiation propagated by masts.	Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Tower maintenance
AVIAN IMPACTS	Air traffic	Air Traffic disturbances	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower
	Avifauna	Bird fatalities	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Tower
TRAFFIC	Access roads	Vehicular accidents	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower

The potential negative impacts stemming from the proposed activities are described and assessed. Further mitigation measures in a form of management action plans are provided in the draft Environmental and Social Management Plan (ESMP).

5.3. CONCLUSION AND RECOMMENDATIONS

In conclusion, this Environmental Impact Assessment (EIA) has been conducted to comprehensively evaluate the potential environmental, social, and economic impacts associated with the proposed Construction and Operation of the Nkurenkuru Ext 6 Telecommunication Tower. The assessment considered the baseline environmental conditions, anticipated project activities, and input from stakeholders to identify and address key concerns and opportunities for mitigation.

The findings indicate that while the project presents certain environmental and social challenges, these can be effectively managed through the implementation of the recommended mitigation measures outlined in the Adherence to the Environmental Management Plan. Adherence to the Environmental Management Plan will ensure compliance with relevant legislation, minimize adverse impacts, and enhance positive outcomes for the environment and affected communities.

We emphasize the importance of regular monitoring, stakeholder engagement, and adaptive management throughout the lifecycle of the project. These steps will not only ensure compliance with environmental standards but also foster a collaborative approach toward sustainable development.

Based on this assessment, we recommend that the project proceed, subject to the adoption of the mitigation measures and commitments outlined in this report and EMP. We trust that this EIA provides a robust framework for informed decision-making by the relevant authorities.

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APPENDIX A: ENVIROMENTAL AND SOCIAL MANAGEMENT PLAN

APPENDIX B MAPS, SITE PLANS AND STRUCTURAL LAYOUTS

APPENDIX: C : PUBLIC CONSULTATION TEMPLATES

APPENDIX: D LEAD EAP CV