

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A TELECOMMUNICATION LATTICE TOWER AT ONKANI VILLAGE, OMUSATI REGION- NAMIBIA.



ENVIRONMENTAL SCOPING REPORT FINAL

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Acronyms

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
JBIC	Junior Baiano Industrial Consultants
MEFT: DEA	Ministry of Environment Forestry and Tourism's Directorate of Environmental Affairs

EXECUTIVE SUMMARY

Junior Baiano Industrial Consultants (JBIC) cc has been engaged by **Powercom (PTY) LTD** to conduct an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the Construction and Operation of a Telecommunication Lattice Tower at Onkani Village, Omusati Region-Namibia and to apply for an Environmental Clearance Certificate for the proposed project.

The proposed establishment triggered the application for an environmental clearance certificate as the following listed activity will be triggered by the proposed communication infrastructure development.

INFRASTRUCTURE

10.1 The construction of-

(g) communication networks including towers, telecommunication and marine telecommunication lines and cables;

Anticipated Environmental Impacts

- Low potential environmental impacts because the proposed site is already disturbed from human encroachment.
- Adding on a management plan has been developed to mitigate any anticipated possible impacts of the project to the environment.
- Relative or moderate social impact (positive)

Social Impact

The project is generally expected to improve telecommunication connectivity in Onkani Village and Enghodi constituency. Interested and Affected Parties were notified of the project through Site notices and newspaper adverts and all relevant information on consultation is covered in Chapter 4 of this document and Appendix A of the document.

Recommendations

It is concluded that most of the impacts identified during this Environmental Assessment can be addressed through the recommended mitigation and management actions for both the construction and operation phases of the tower.

An Environmental Management Plan has been developed for the development. Should the recommendations included in this report and the EMP be implemented, the significance of the impacts can be reduced to reasonably acceptable standards and durations. All developments could proceed provided that general mitigation measures as set out are implemented as a minimum.

It is therefore recommended that the proposed telecommunication lattice tower receive Environmental Clearance, provided that the recommendations described above and the EMP are implemented.

1. CHAPTER ONE: BACKGROUND

1.1. INTRODUCTION

Powercom (PTY) LTD herein referred to as the proponent has identified different areas in the Northern regions of Namibia that needs improved communication alternatives due to growth in population and economic activities. To achieve the objective of improved telecommunication connectivity, Powercom intends to establish telecommunication towers across the identified different locations. One of the identified areas that needs a telecommunication mast is Onkani Village in Omusati village, which currently have a temporary mobile tower.

In terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)) and the Environmental Assessment Regulations of 2012; an EIA is required to obtain an Environmental Clearance Certificate from the Ministry of Environment and Tourism (MET) before the project can proceed.

Furthermore, as per the requirements of the Environmental Management Act No. 7 of 2007, Powercom has appointed JBIC to conduct an Environmental Assessment (EA) and develop an Environmental Management Plan (EMP) for the proposed project. This has been followed by an application for Environmental Clearance Certificate (ECC) to the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA).

In this respect, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed Onkani Village telecommunication lattice tower, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of 6 February 2012)

1.2. PROJECT LOCATION

The proposed project site is at Onkani Village, Omusati Region-Namibia. The Locality Map Fig 1) gives a local layout view of the project site:

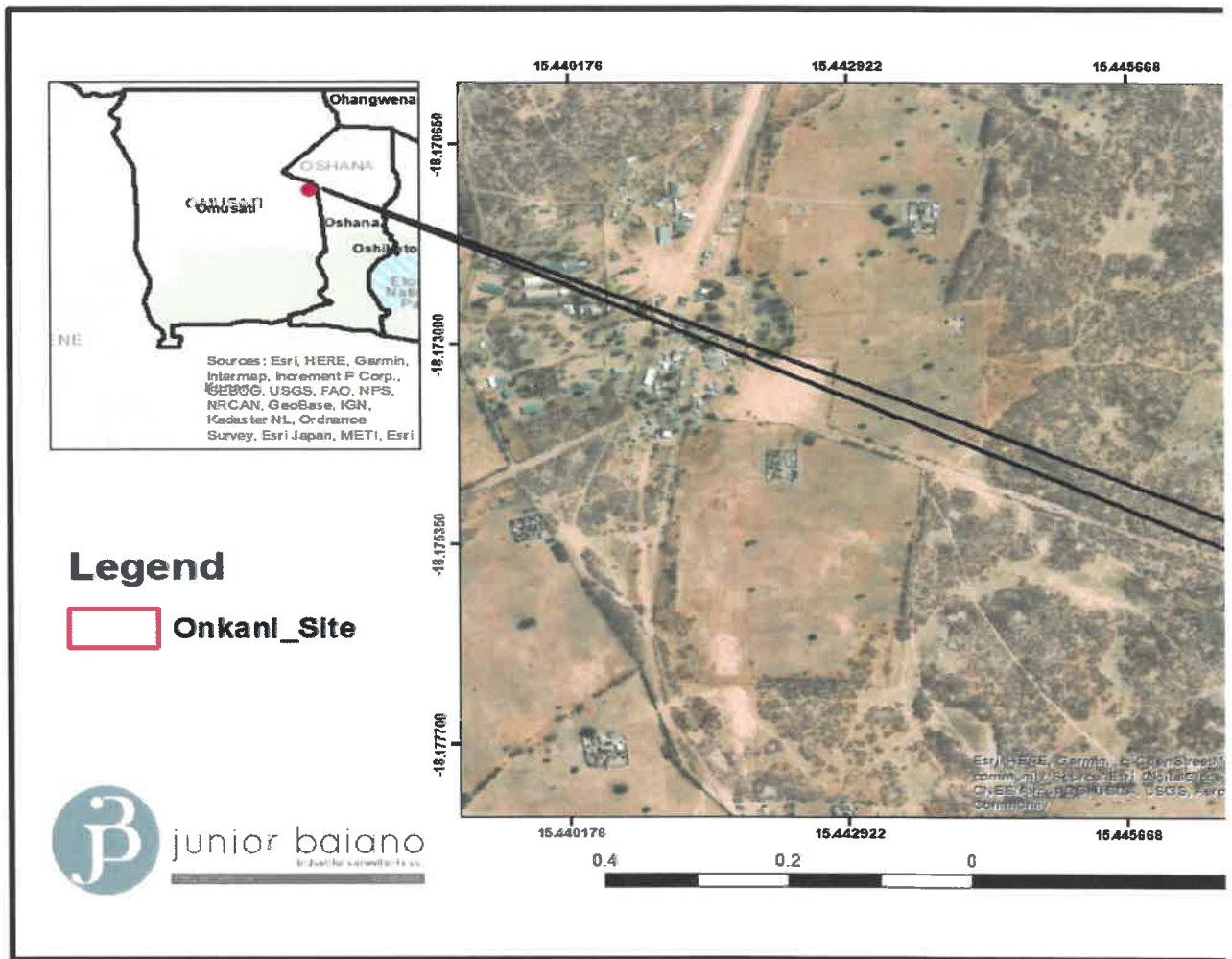


Figure 1: Proposed Project Site at Onkani Village

1.3. PROJECT OVERVIEW

TELECOM Namibia's information and technology infrastructure development subsidiary, Powercom (Pty) Ltd is on a drive of construction network towers across the country. Powercom targets that, other than improving internet and voice connectivity in the regions, there is also a need to increase the company's footprint and asset base to best service ICT stakeholders and offer better connectivity in all regions of the country.

Powercom aims at providing different telecommunication service providers in Namibia with ready to use infrastructure as well as expand TN Mobile's network coverage into the different areas where there is weak or no network connectivity at all.

Behind this backdrop, the applicant, Powercom Pty Ltd intends to develop a telecommunication tower at Onkani Village. The development will include the following:

- The construction of an 80m Guyed mast within the footprint size of a 20m x 20m
- A storage and communication structure for equipment

The structure will be fenced to limit public access to it. The base station will be a secured building and sufficient precaution will be made to prevent access to the antenna support structure. Access to the area will be strictly controlled through a locked gate.

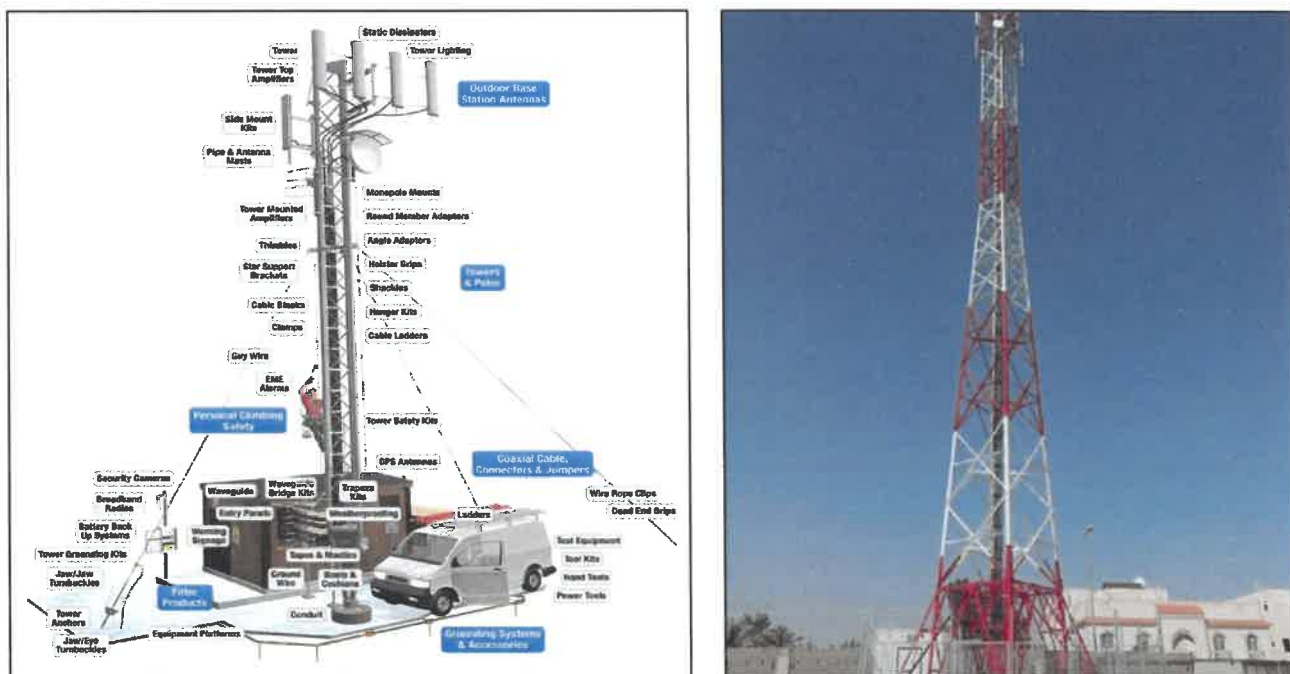


Figure 2: Typical Telecommunication tower (Left) Proposed tower structure (right).

Accessibility

The site is easily accessible from the Onkani Village access road, however, the access road may need to be upgraded.

Infrastructure and Services

Water: Construction water supply can be obtained from the nearby Onkani police station borehole.

Ablution: During construction, employees will use temporary ablution toilets and during operation there is no need for on-site ablution.

1.4. THE PROJECT ENVIRONS

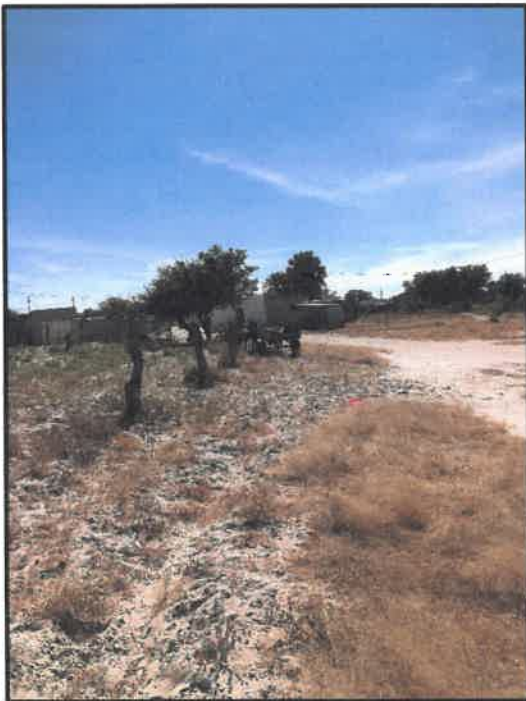


Figure 3: Top Left: Nearby homesteads

Figure 4: Top Right: Nearby homesteads and powerline

Figure 5: Bottom Left: Nearby mahangu field

1.5. NEED AND DESIRABILITY

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and (ii) the National Development Plan 5 (NDP 5) 2017/2018 – 2021/2022 as well as NDPs 1, 2, 3, and 4. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements the Vision 2030 and NDP 5. All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. These Plans also include specific growth targets milestones and strategies for the sustainable deployment of Namibia's resources to achieve the stated economic and social development goals. Communication is one of the major targets aimed in the NDP5 and to stimulate development of any aspect, internet and voice connectivity is a pre-requisite. This project, is a major step in addressing the objectives of the developmental plans and targets of the Namibian government.

1.6. PROJECT ALTERNATIVES

1.6.1. SITE LOCATION ALTERNATIVES

An integrated site selection study was done in order to identify a suitable site for the proposed tower. The proposed site is considered highly desirable due to the following considerations:

- **Strategic Location:** The project location is strategic because of its proximity to Onkani village. The site is also anticipated to cover other surrounding villages with data and voice connectivity.
- **Land suitability:**
 - Sites that facilitate easy construction conditions (relatively flat land with no water-bodies) were favoured during site selection.
 - The site is easily accessible by road and near electrical connection to power the tower components.

It is thus, the consideration of the above criteria resulted in the selection of the preferred site. No further site location alternatives are considered in the EIA process.

1.6.2. TOWER INFRASTRUCTURE ALTERNATIVES

There are several types of telecommunication towers designs and form. In this respect, to be compatible with Onkani Village, the proponent will invest in an eco-friendly telecommunication mast that will blend with the surrounding vegetation.

1.6.3. NO-GO ALTERNATIVE

The current low environmental impacts associated with current land use will be maintained and no change in land use or zoning would be required. The status quo needs to be measured against the proposed facility to determine whether the environmental and socio-economic benefits warrant the approval thereof or whether the status quo should be maintained.

This development alternative entails that the proposed tower will not be constructed on the project site, thus result in the site being left as is. With the current needs in voice and internet connectivity within Tsumeb and its surrounding farms, it is imperative that the tower should be constructed. The non-development of the proposed tower will furthermore impede economic development and socio-economic progress for Onkani Village.

Due to the numerous socio-economic benefits, the environmental advancement and the fact that the identified environmental impacts can be suitably mitigated it has been determined that the No Go option can be eliminated. Should the Competent Authorities (CA) refuse the authorisation of the proposed telecommunication tower, the 'No Go' option will be "implemented" and the status quo of the site will remain intact - leaving the site in its present state.

1.6.4. CONCLUSION

Based on the preceding alternative analysis and option, the project will go ahead and will ensure maximum environmental and safety performance systems are in place.

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. INTRODUCTION

An important part of the EIA is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the construction and land servicing activities. This section looks at the legislative framework within which the proposed project will operate under. The focus is on the compliance with the legislation during the planning, construction and operational phases. All relevant legislations, policies and international statutes applying to the project are highlighted in Table 1: Legal Compliance below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

The pursuit of sustainability is guided by a sound legislative framework. In this section, relevant legal instruments as well as their relevant provisions have been surveyed. An explanation is provided regarding how these provisions apply to this project.

Table 1: Legal Compliance

LEGISLATION/POLICY/GUIDING DOCUMENT	PROVISION	PROJECT IMPLICATION
<p>The Constitution of the Republic of Namibia (1990)</p>	<p>The articles 91(c) and 95(i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include:</p> <ul style="list-style-type: none"> - Guarding against overutilization of biological natural resources, - Limiting over-exploitation of non-renewable resources, - Ensuring ecosystem functionality, - Maintain biological diversity. 	<p>-Through implementation of the environmental management plan, the proposed development will be in conformant to the constitution in terms of environmental management and sustainability, through bringing development in an environmentally sensitive way.</p>
<p>Vision 2030 and National Development Plans</p>	<p>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</p>	<p>-The proposed project is an important element in the propelling and connectivity in the country.</p>

	<p>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.</p>	
<p>Environmental Assessment Policy of Namibia 1994</p>	<p>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.</p>	<p>-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.</p>

<p>Environmental Management Act No. 07 of 2007</p>	<p>The Act aims at</p> <ul style="list-style-type: none"> - 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. 	<p>-This document is compiled in a nature that project implementation is in line with the objectives of the EMA. EIA guiding procedures developed by MET were also used in the course of this project.</p>
<p>Electricity Act 4 of 2007</p>	<ul style="list-style-type: none"> - 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. 	<p>-Obliges Powercom to comply with all relevant provisions of the Electricity Act and its regulations when installing electrical connections to the tower.</p>
<p>The Atomic Energy and Radiation Protection Act, Act 5 of 2005:</p>	<p>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,</p>	<p>-Justifies the need for assessing the impact of electromagnetic radiation from the power line, on the nearby residents.</p>

<p>Hazardous Substances Ordinance 14 of 1974 Regulations Made In Terms Of Hazardous Substances Ordinance 14 of 1974 sections 3 and 27</p>	<p>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.</p> <p>- 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.</p>	<p>- Powercom will have to conform to this Act and its regulations through application for relevant licences with the relevant bodies highlighted thereto.</p> <p>- However, the proposed technologies do not pose such dangers to the public or the natural environment.</p>
<p>“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))</p>	<p>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.</p>	<p>-Justifies the need for assessing the impact of ionising and non-ionising radiation from the operation of the network technologies to be installed on site.</p> <p>-However, the proposed technologies do not pose such dangers to the public or the natural environment.</p>

Soil Conservation Act 76 of 1969	<p>The objectives of this Act are to:</p> <ul style="list-style-type: none"> - 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. <p>To consolidate and amend the laws relating to the conservation of nature; the establishment of game parks and nature reserves; the control of problem animals; and to provide for matters incidental thereto.</p>	<p>-The project will have a rather localized impact on soils and on the soil through clearance for tower platform. Soil protection measures will be employed and preservation of trees as much as possible.</p>
Nature Conservation Ordinance 1996		<p>The proposed project implementation is not located in any known or demarcated conservation area, national park or unique environments. The project site was selected with this ordinance in mind to ensure that Namibian nature is conserved.</p>
Protected Areas and Wildlife Management Bill	<p>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.</p>	<p>Environmental recommendations and considerations on this project has 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.</p>
Forest Act, 2001 (Act No. 12 of 2001)	<p>The Act gives provision for the protection of various plant species through the Ministry of Agriculture, Water and Forestry (MAWF), Directorate of Forestry).</p>	<p>-Land clearing of an extensive piece of land will be done upon approval from the Directorate of Forestry.</p>

		<p>-The proponent will also have to ensure that there is no indiscriminate cutting down of trees during construction and operation</p> <p>-The proposed site is a disused mahangu field, hence there are no trees and or shrubs that are protected requiring prior approval before clearing.</p>
<p>National Rangeland Policy and Strategy, 2012</p>	<p>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.</p>	<p>-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.</p>
<p>National Biodiversity Strategy and Action Plan (NBSAP2)</p>	<p>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.</p>	<p>-The project proponent has been advised by JBIC and recognises the need for ecosystems protection to manage the changing climatic environment.</p> <p>-This project is one of the drivers to reduce the rate of global environmental change given its contribution, to decreased use of burning fossil fuels for energy generation.</p>

<p>National Policy on Climate Change for Namibia, 2010</p>	<p>In harmony with the findings of the IPCC over time and the Earth Summits held annually, the policy seeks to outline a coherent, transparent and inclusive framework on climate risk management in accordance with Namibia's national development agenda, legal framework, and in recognition of environmental constraints and vulnerability. Furthermore, the policy pursues the strengthening of national capacities to reduce climate change risk and build resilience for any climate change shocks.</p>	<p>-Chemical storage, transportation and usage have considerable negative impacts on release of GHGs. There is need to ensure appropriate handling and storage is done on GHGs contributing chemicals.</p>
<p>Wetland Policy, 2004</p>	<p>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).</p>	<p>-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 existing wetlands/peatlands within 2km radius of the proposed project site.</p>
<p>Water Resources Management Act, 2013 (Act No. 11 of 2013)</p>	<p>This Act provides for the management, protection, development, use and conservation of water resources. This also forms the regulation and monitoring of water resources.</p>	<p>-The proposed development will not have any interference with surface and groundwater sources during construction and operation, apart from water requirements for construction which will be supplied through the existing borehole at Onkani police station.</p>

<p>National Heritage Act 27 of 2004</p>	<p>Heritage resources to be conserved in development.</p>	<p>-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.</p>
<p>National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979</p>	<p>“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 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</p>	<p>-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.</p>

	<p>(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.</p>	<p>-To control air, water and land pollution as agitated by the Act the project proponent will ensure that the project site will minimise pollution during construction and operation.</p>
<p>Pollution Control and Waste Management Bill</p>	<p>-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.”</p>	
<p>Communications Act, 2009 (Act No. 8 of 2009)</p>	<ul style="list-style-type: none"> - (10) The Authority may impose specific obligations and requirements on a licensee regarding to masts, towers or other facilities including requirements relating to the <ul style="list-style-type: none"> - environmental or aesthetic impact of such facilities; - Provide for the regulation of telecommunication activities. The bill provides licencing and 	<p>-As a pre requisite, telecommunication towers would require environmental clearance certificates and, in this respect, Powercom authorised this EIA to obtain such.</p>
<p>Communication Bill 2009</p>		<p>-As per relevant spectrum, network equipment should be as per licenses.</p>

	enforcement of conditions, and the approval or equipment and technical standards to ensure public health and safety.	
Convention on Biological Diversity (CBD)	<ul style="list-style-type: none"> - 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.

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. CLIMATE

Table 2: Climatic Table

Classification of climate:	Semi-arid highland savannah (0.2 0.5 p/pet). Climate is classified as subtropical stepper (low latitude dry) with a subtropical thorn woodland biozane.
Average rainfall:	400-500 mm per year
Average Evaporation:	Evaporation in the area is averaged 3000 to 3200 mm.
Precipitation:	Sporadic and unpredictable, high intensity, highly localised storm events between December and March.
Temperature:	During the hottest month of the year, which is mainly November, the average maximum temperature is about 30 - 37 °C. During July which is the coldest month the average minimum temperature is 8 - 10 °C.
Humidity:	The relative humidity during the least humid months of the year (i.e. September and October) is around 10-20% and the most humid month is March with 70-80% humidity. Namibia has a low humidity in general, and the lack of moisture in the air has a major impact on its climate by reducing cloud cover and rain and increases the rate of evaporation.
Wind direction:	Predominantly easterly wind. The area experience strong winds during August/Sep with an average wind of 8-10mph.

3.2. TOPOGRAPHY

The site area has a generally flat terrain with a gradient of less 0.002% implying the importance of a well-drained development to avoid flooding on the area. The site area slopes towards south-west.

3.3. Geology and soils

The site geology comprises primarily sediments of the Kalahari Sequence, ranging in age from late Cretaceous to Quaternary. Its origin is entirely continental, varying from aeolian to fluvial (reworked) deposits. The aeolian material consists of fine-grained well-sorted sands, while the material deposited in a fluvial environment ranges from gravel to clay and often represents braided stream conditions.

While the earlier geological processes mainly produced the basement, what characterises the project area is really the (Kalahari) sedimentation and up-filling of the basin over the last 65 Ma. The Kalahari sediments can be divided in two broad groups. The first and deepest group is much the thickest and consists of layers of clays, conglomerates, water-borne sands, silts and calcretes.

The second top-most and youngest group is a relative thin layer dominated by sand deposited mainly by wind, a fact shown most vividly by the many old dunes in the region. The predominance of the aeolian sand in these layers reflects the generally arid conditions that have persisted over many millennia, although isolated deposits of clays have been laid down by water flowing along the omiramba and in inter-dune valleys during periodic wetter cycles.

3.4. HYDROLOGY, HYDROGEOLOGY

Onkani is underlain by porous aquifers of the Kalahari Group with moderate groundwater potential, but most of the groundwater in this region is highly saline . Most of the area lies within the Owambo groundwater basin, whose lowest point is the Etosha Pan; only the mountainous basin margin in the west is drained by westward flowing ephemeral rivers and their tributaries (Kunene North groundwaterbasin; Atlas of Namibia, 2002).

The Owambo Basin is dominated by arenosols (sandy soils without a significant soil profil), with minor leptosols (shallow soil over hard rock or highly calcareous material), regosols (soil consisting of unconsolidated material from freshly deposited alluvium or sand) and cambisols (beginning of soil formation) along the basin margins; solonchaks (pale or grey soils in arid to subhumid conditions with poor drainage) are present in the Etosha Pan and smaller pans to the west (Atlas of Namibia, 2002).

Onkani village forms part of the Etosha Cuvelai Drainage and the Oshana flood plain which are common in the most parts of the North of Namibia. The groundwater basin underlain is the Owambo basin. The exact proposed project site is not within the flood plains of Omusati Region and however the project area resembles an Oshana type of environmental set up. But due to urbanisation and development within the locale of the site. The area is generally flat with very few evidences of surface erosion. The surrounding area is relatively flat giving limited chance for surface drainage. The proposed tower development project will not have any direct impacts on surface and groundwater sources.

3.5. BIOLOGICAL ENVIRONMENT

3.5.1. FLORA

In North of Namibia the vegetation is classified as Savannah bush and comprises a number of Acacia species and numerous species of perennial thorn trees in the bushes and shrubs and grass on the flat slopes (Lawrence, 1971). According to Giess (1971), savanna bush vegetation type, is mainly characterised by trees such as **Combretum apiculatum** and Acacia species (such as **Acacia reficiens**, **A. hereroensis**, and **A. erubescens**). The grass in this vegetation type mainly comprises of the climax grasses such as **Anthephora pubescens**, **Brachiaria nigropedata**, **Digitaria eriantha** and many other species. There are three main tree species found in the study area as the area is sparsely vegetated. The site has several palm trees and white thorn bushes, in essence the area has been affected with urbanisation within its locale.

Table 3: Onkani Village Common Plant Species

Species	Common name	Status
<i>Acacia erioloba</i>	Camel thorn	Protected
<i>Acacia mellifera</i>	Black thorn	
<i>Acacia reficiens</i>	False umbrella thorn	
<i>Acacia tortolis</i>	Umbrella thorn	
<i>Commiphora tenuipetiolata</i>	White-stem corkwood	
<i>Ficus Cordata</i>	Fig Tree	Protected

3.6. ENDANGERED PLANTS

The study area itself has no endangered plant species, but mopane trees are spotted around, however they are not unique to the project site alone. The Botanical Survey carried out by the EIA team indicated that the surrounding area has other endangered and vulnerable species such as cholophospermum Mopane. The survey findings were correlated with National Botanic of Namibia's databases of endangered species listed in the Forest Act No 12 of 2001 as amended Forestry Amendment No 13 of 2005.

3.7. FAUNA

Onkani area is dominated by human inhabitants which resulted in movement of wild animals away from the area. The EIA team researched and established that around the proposed project has minimum number of wildlife. This could mostly be the case due the presence inhabitants and economic activities that possibly scared away wildlife. Some form of human encroachment in the area may also have contributed to low number of wildlife due to lost and fragmented habitats. Only evidence of the presence of birds, squirrels and soil rodents, termites were observed.

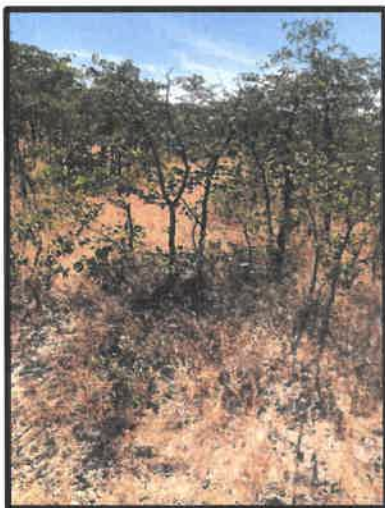


Figure 6: Top images showing young savannah type bushes around the project area



Figure 7: Bottom: Access road to the project site and surrounding mahangu fields

4. CHAPER FOUR: PUBLIC CONSULTATION

4.1. OVERVIEW

The public consultation process forms an important component of the Environmental Assessment process. It is defined in the EIA Regulations (2012), as a “*process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters*” (S1). Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding our process.

Formal public involvement has taken place via public consultations and focal meetings, newspaper announcements to inform the public that the development is under consideration. The public consultation process has been guided by the requirements of Environmental Management Act (EMA) No. 7 of 2007 and the process has been conducted in terms of regulation 7(1) as well as in terms of the EMA Regulations of GN 30 of 6 February 2012 and the World Bank EIA standards and project ToR.

Its overriding goals have been to ensure transparency in decision making and to.

- Ensure stakeholder concerns are incorporated in project design and planning;
- Increase public awareness and understanding of the project and
- Enhance positive development initiatives through the direct involvement of affected people.

The objectives of the public participation are to build credibility through instilling integrity and of conducting the EIA, Educate the stakeholders on the process to be undertaken and opportunities for their involvement and build stakeholders by establishing an agreed framework accordingly. This requires accessible, fair, transparent and constructive participation at every stage of process. Inform stakeholders on the proposed project and associate issues, impacts and mitigation and using the most effective manner to disseminate information.

In this section of the report, the results of consultations with various classes of stakeholders are summarized. The results of consultations with other stakeholders and community members who took part in this EIA are attached as Appendices.

The consultation was facilitated through the following means:

- A Background Information Document (BID) containing the project description, the EIA process and an invitation to participate was shared with stakeholders and community members.
- Invitation to participate notices were published in the local newspapers (New Era and Confidante) as shown in Table 7 below and Appendix A of this document.
- Announcement of EIA process verbally in the common public meeting points.
- Placement of a public notice at the project site and town centre.

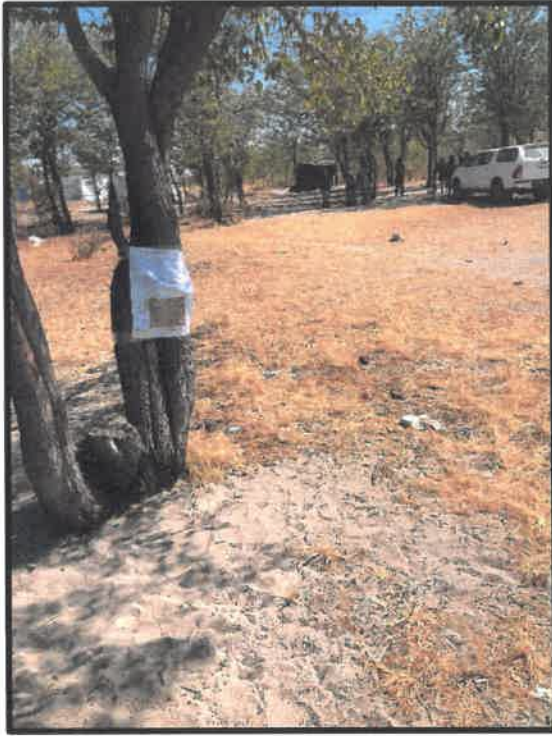
Table 4: Details of public notification of the EIA study

Method	Area of Distribution	Language	Date Placed
The Confidante	Country Wide	English	11 June 2020
			18 June 2020
New Era	Country Wide	English	12 June 2020
			19 June 2020
Site notices	Project site	English	05 June 2020
	Town Council Notice Board	English	05 June 2020
Public Meeting	Onkani Public Meeting Hall	English, Oshiwambo	03 July 2020 @ 14:00 HRS



Figure 8: Public Meeting Proceedings

Figure 9: Public consultation Notices-Onkani Clinic



✓ *Key Stakeholder Engagement Meeting*

A public meeting was organised on 04 July 2020 at Onkani Village and over twenty people attended the meeting. The constituency Office and traditional leadership was also represented during the meeting. Proof of public consultation is given in Appendix A of this document as well the attendance register explaining the project and the EIA study. Given below are the details of the meeting which was held:

✓ *Identification of Interested and Affected Parties (I&APs)*

The EIA team identified and consulted the following I&APs & key stakeholders for the proposed project:

- Onkani Village residents
- Traditional Authority

Figure 10: Site Notice

Other I&APs were allowed to register to the EIA team and compiled a database containing their names and correspondence details. The registration was accomplished over a period of 14 days.

Table 5: Key findings of the public consultation process:

SUMMARY OF ISSUES	
THEME	ISSUE
HEALTH AND SAFETY	<ul style="list-style-type: none"> ▪ The safety of the towers in relation to its height and stability was asked. ▪ Residents were also concerned with possibility of 5G health risks, and it was made clear that there is not direct relationship between 5G and COVID19 and that the proposed network technology is 2G.
SOCIO-ECONOMIC	<ul style="list-style-type: none"> ▪ The proponent should consider employing locals during construction and maintenance periods. ▪ Other surrounding villages without network connectivity were concerned if this tower will service them as well, and it was highlighted that the tower is expected to cover in excess of 30KM radius. ▪ The traditional leadership was concerned if the project was going to be implemented on time, because they needed network connectivity in their area, because some of their cattle points and villages had no data and voice network.

5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. OVERVIEW

Powercom Pty Ltd has committed to sustainable and environmental compliance through coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on linear and communication infrastructure. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimise and mitigate negative impacts. The environmental management plan is being developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

5.2. ASSESSMENT OF IMPACTS

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set out below in Table 6: Assessment Criteria.

Table 6: 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%

(Adopted from ECC-Namibia, 2017)

Table 7: Impact 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

(Adopted from ECC-Namiba, 2017)

Table 8: 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 and Access road
	Soil	Contamination to soil from paints and other potentially hazardous substances	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Tower
SOIL	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
LAND CAPABILITY	Terrestrial ecology	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	Tower
	Carrying capacity	Increase in human activities in the environment	Construction and Operations	Moderate	Moderate	Regional	Direct	Low <25%	Minor	Tower
WATER	Surface water quality	Water pollution from oils, lubricants and chemicals spillages.	Construction and Operations	Moderate	Small	Local	Direct	Medium 25 - 75%	Moderate	Construction hydrocarbons
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	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 Access Road construction
	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 Access Road construction
WATER	Surface water quality	Threatened chemicals washed into nearby rivers	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower Access Road construction
	Surface water quality	Construction and Operational solid waste	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower Access Road construction and maintenance
	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower Access Road construction
FAUNA	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills; fence and powerline mortalities)	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower Access Road
	Noise Pollution	Increased noise levels	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower Access Road
SOCIAL										

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

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure / Activity
		veldt fires and power surges.								
	Natural Environment	Spillage/ release of chemicals into the environment	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower and Access Road
TRAFFIC	Air traffic	Air Traffic disturbances	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower
	Access road	Vehicular accidents	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower

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