

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE OUTAPI FLEXIBLE LAND TENURE SCHEME (FLTS):

ERF 1499, OUTAPI EXTENSION 5, PORTION 15 OF THE
FARM OUTAPI TOWNLANDS NO. 860 AND A PORTION OF
GREEN FIELD IN OUTAPI TOWN, OMUSATI REGION -
NAMIBIA

ENVIRONMENTAL SCOPING REPORT (ESR)

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WATER & LAND REFORM (MAWLR)



HARMONIC TOWN & REGIONAL PLANNING
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Definitions

TERMS	DEFINITION
BID	Background Information Document
DEFRA	The Department for Environment, Food and Rural Affairs
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
ESA	Environmental Scoping Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
FLTS	Flexible Land Tenure System
I&APs	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT: DEAF	Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs and Forestry
NHC	National Heritage Council
N(EMA)	Namibia Environmental Management Act
PRP	Pit Rehabilitation Plan
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

EXECUTIVE SUMMARY

Harmonic Town & Regional Planning Consultants CC (Harmonic Consultants) has been appointed by the Outapi Town Council (OTC) (as supported by the Ministry of Agriculture, Water and Land Reform (MAWLR) to conduct a Feasibility Study for the implementation of the Flexible Land Tenure System (FLTS) in Outapi Town of the Omusati Region, Namibia (*the proposed project*). The Feasibility Study also includes the Environmental Impact Assessment (EIA) Study and development of an Environmental Management Plan (EMP) for the proposed project and to apply for an Environmental Clearance Certificate (ECC).

The FLTS project has triggered the application for an ECC as per the following listed activities:

LAND USE AND DEVELOPMENT ACTIVITIES - 5.1 (d) *the rezoning of land from; zoned open space to any other land use, 8.4 Construction of canals and channels including the diversion of the normal flow of water in a riverbed and water transfer schemes between water catchments and impoundments, and 8.8 Construction and other activities in water courses within flood lines.*

Public & Stakeholders' Consultation and Engagement and Feedback

The public and stakeholders (I&APs) were consulted through the used means, i.e. newspaper adverts, public notices, and face-to-face meetings held in Outapi. The I&APs have raised few but significant comments and these have been incorporated into the EIA documents for consideration and inform the planning & design phase of the FLTS establishment in Outapi.

Key Adverse Environmental Impacts and Issues identified:

- Vegetation removal (deforestation), i.e., loss of Biodiversity (impact on protected floral species such as the Baobab trees, if removed), and Faunal habitat/grazing disturbance (for livestock grazing on the edge of the Town (Greenfield Portion), Pollution (Solid waste, hazardous and wastewater),
- Flooding due to stormwater stagnation on land and water resources pollution,
- Soil Erosion and Disturbance, Health and Safety Risks, and
- Social Grievance due to property relocation/realignment of structures into surveyed ervens.

Positive Social Impacts

The project is set to improve the socio-economic environment of the Outapi Town through a much needed affordable accommodation and improved services such as housing as well as temporary employment creation during the FLTS establishment (construction and upgrading).

Conclusions

Based on the impacts identified by this study during site visit, process analysis, desk study and stakeholder consultations conducted, an integrated environmental risk analysis was carried out using the DEFRA Guidelines for Environmental Risk Assessment and Management 'Green Leaves III' (latest edition) as well as the international Procedures for best practices. The risk analysis shows that the FLTS establishment and related project activities will have some negative impacts on the biophysical and socio-economic environment. However, based on the impacts' description and assessment, the impacts' significance are rated moderate and can therefore, be reduced by the effective implementation of the provided management and mitigation measures. It has also been noted that the project will bring about some positive impacts on the social and economic aspects. However, it is imperative to note that the project is being undertaken within an already disturbed locale (for two of the three selected localities in Outapi). To prevent or mitigate negative impacts and to increase positive impacts, a coordinated project management strategy according to an Environmental Management Plan developed for the FLTS scheme establishment in Outapi.

To ensure that the significant components of the environment as well as issues raised by I&APs (on stormwater) are considered and addressed, a Hydrogeological Assessment Study was done and a Report compiled for this EIA/ESA Study. The aim was to assess the proposed FLTS establishment and related activities on the water resources and provide measures to mitigate the potential impact thereto.

No further specialist studies were necessary for the Detailed ESA, as the potential risks and impacts will be managed and mitigated by the effective implementation of measures contained in the EMP. To ensure that the EMP implementation is effective and yields the desired management results, implementation monitoring should be done by an Environmental Control Officer and Competent Authority during project construction or upgrading stage. Therefore, the ECC may be issued by the Environmental Commissioner for the establishment of the FLTS scheme in Outapi on the three Portions and conditions adhered to by the Proponent and their associated contractors on both sites (selected localities).

1. CHAPTER ONE: BACKGROUND

1.1. INTRODUCTION

The Outapi Town Council as supported by the Ministry of Agriculture, Water and Land Reform (MAWLR), collectively referred to as the Proponent intends to commence with the implementation of the Flexible Land Tenure System (FLTS) scheme in the Outapi Town.

The FLTS implementation is focused on Erf 1499, Outapi Extension 5; Portion 15 of Farm Outapi Townlands and a Portion of a Greenfield to be known as Portion 1 of the Remainder of the Farm Outapi No. 1116. This implementation is done under the Flexible Land Tenure Act, 2012 (Act No. 4 of 2012) creates new forms of secure urban land tenure known as the Starter Title, and Land Hold Title.

In Namibia, town planning activities are one of the listed activities under the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (EMA) No. 7 of 2007 that cannot be undertaken without an EIA or Environmental Scoping Assessment (ESA) Study done and Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner. The EIA Study is aimed at assessing the proposed project potential, socio-economic aspects, infrastructure, and services, environmental, and geohydrology (hydrogeology) aspects of the respective FLTS sites.

Subsequently, the Proponent has appointed Harmonic Town & Regional Planning Consultants to undertake an Environmental Scoping Assessment (ESA) as part of the Feasibility Study, formulate an Environmental Management Plan (EMP) and apply for an Environmental Clearance Certificate (ECC) to the Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs and Forestry (DEAF).

As such, this document forms part of the application to be made to the DEAF for an ECC for the proposed scheme implementation according to the the guidelines and statutes of the EMA and the 2012 EIA Regulations (Government Notice 30 in Government Gazette 4878).

1.2. PROJECT LOCALITIES AND DESCRIPTIONS

The three Portions selected for the FLTS implementation, i.e., Erf 1499 of Outapi Extension 5; Portion 15 of Farm Outapi Townlands and a Portion of a Greenfield to be known as Portion 1 of the Remainder of the Farm Outapi No. 1116 are shown on the map in Figure 1.

The descriptions of the three sites selected for the FLTS establishment has been done based on the site visits conducted on the 28th of February 2022 and 03rd of March 2022.

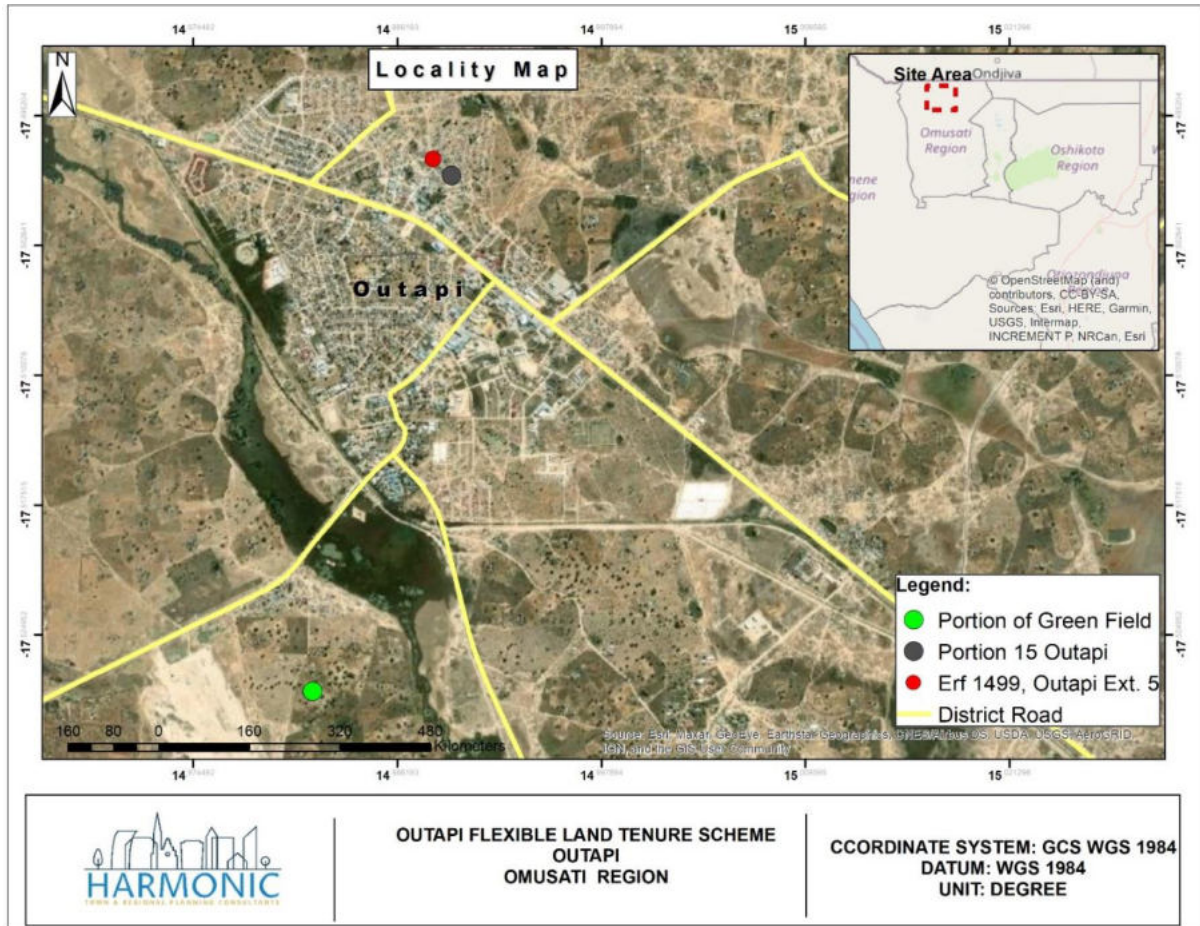


Figure 1: Project Locality in Outapi

1.2.1. PORTION GREENFIELD: PORTION OF REMAINDER OF THE FARM OUTAPI NO. 1116

The portion of the Greenfield is located south of the town and is adjacent to newly establish Outapi Extension 13 covering a surface area of 28.18708 hectares (Ha). The Portion is not formally demarcated and form part of the surrounding villages and has vegetation characterized by trees, shrubs, and low-lying grass. The Portion of the Greenfield is located a few meters from the main D3612 road to Tsandi and adjacent to the Portion is the proposed prison to be constructed by Ministry of Home Affairs, Immigration, Safety and Security. The Portion is in close proximity to the Agricultural Plots across the D3612 road to Tsandi (Figure 2).



Figure 2: The location of the Greenfield south of Outapi

The site area is currently unoccupied (no houses on the Portion of the Greenfield), however, it is surrounded by traditional homesteads where subsistence farmers mainly produce crops and small-medium livestock. The Portion is used as common grazing land for their livestock as seen with some Bird Plum trees (*Berchemia discolorand*) in Figure 3.

The public services such as the hospital, police station, institutions, and the commercial centre of Outapi are within the 2km range which is a 20-minute walking distance that would ensure convenience for future inhabitants of the area (Portion).

The agricultural plots in close proximity to the Portion of the Greenfield will be a positive aspect to the inhabitants of the area as it will provide much needed employment or allow ownership of the plots to allow people to empower themselves.

1.2.2. ERF 1499, OUTAPI EXTENSION 5 (BROWN FIELD)

Erf 1499, Outapi Extension 5 measure approximately 3.6091 hectares (Ha) - Figure 4 and according to the Outapi Town Planning Scheme, the erf currently has a land use zoning of 'Informal Residential' with a density of 1:300. The site is occupied by formal residential buildings that are provided with basic bulk services such as water, electricity, sewer system (vacuum sewer or pneumatic sewer system) and gravel roads. The infrastructure and services are formally planned out on the ground, but the planned subdivision has not been formalised legally.



Figure 3: The observed vegetation and livestock grazing on the Greenfield Portion



Figure 4: An Aerial image of the location of Erf 1499, Outapi Extension 5

In terms of socio-economy, Erf 1499, Outapi Extension 5 is consisting of 59 houses (According to Omusati Shack Dwellers Federation) with families of local people mainly Oshiwambo speaking people (mostly Ombalantu speaking).

The residents like most of the towns, work within Outapi or conduct business in Outapi. The numbers of the people living in the area are mostly low-income families that have been provided with basic services- and are within proximity to services such as the Okamhaku Hospital in Outapi. The Hospital is approximately 2km way which is a 20-minute walking distance from the erf and most services such as shops, police, institutions, and education are also within the 2km range.

1.2.3. PORTION 15 OF THE FARM OUTAPI TOWNLANDS No: 860 (BROWN FIELD)

Portion 15 is located north of Outapi and consists of serviced residential erven within Outapi Extension 12. Portion 15 of the Farm Outapi Townlands No. 860 measures approximately 2,9427 m². Existing on the Portion are single dwelling properties. Portion 15 currently is zoned General Residential with a density of 1 dwelling per 300m², according to the Outapi Town Planning Scheme. The aerial photo of the Portion is shown in Figure 5.

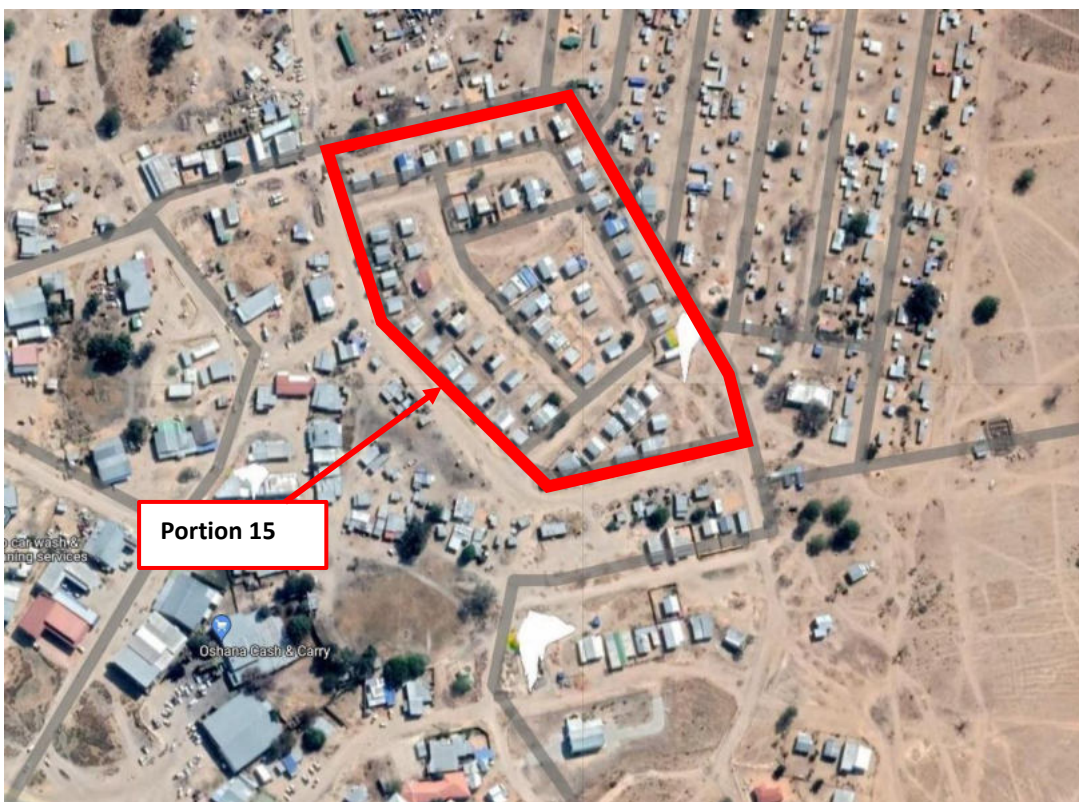


Figure 5: An Aerial image of the location of Portion 15

Portion 15 of the Farm Outapi Townlands No: 860 is consisting of 65 houses with families of local people mainly Oshiwambo speaking people (mostly Ombalantu speaking). People in this area, like most of the town work within Outapi or conduct business in Outapi. The numbers of the people living in the area are mostly low-income families that have been provided with basic services and are within close proximity to services such as the Okamhaku Hospital in Outapi that is approximately 2km way from the study area and most services such as shops, police, institutions, and education are within the 2km range.

1.2.4. INFRASTRUCTURE AND SERVICES

The Town of Outapi is well-serviced with basic services and infrastructure. Some of the main infrastructures are shown on the map in Figure 6.

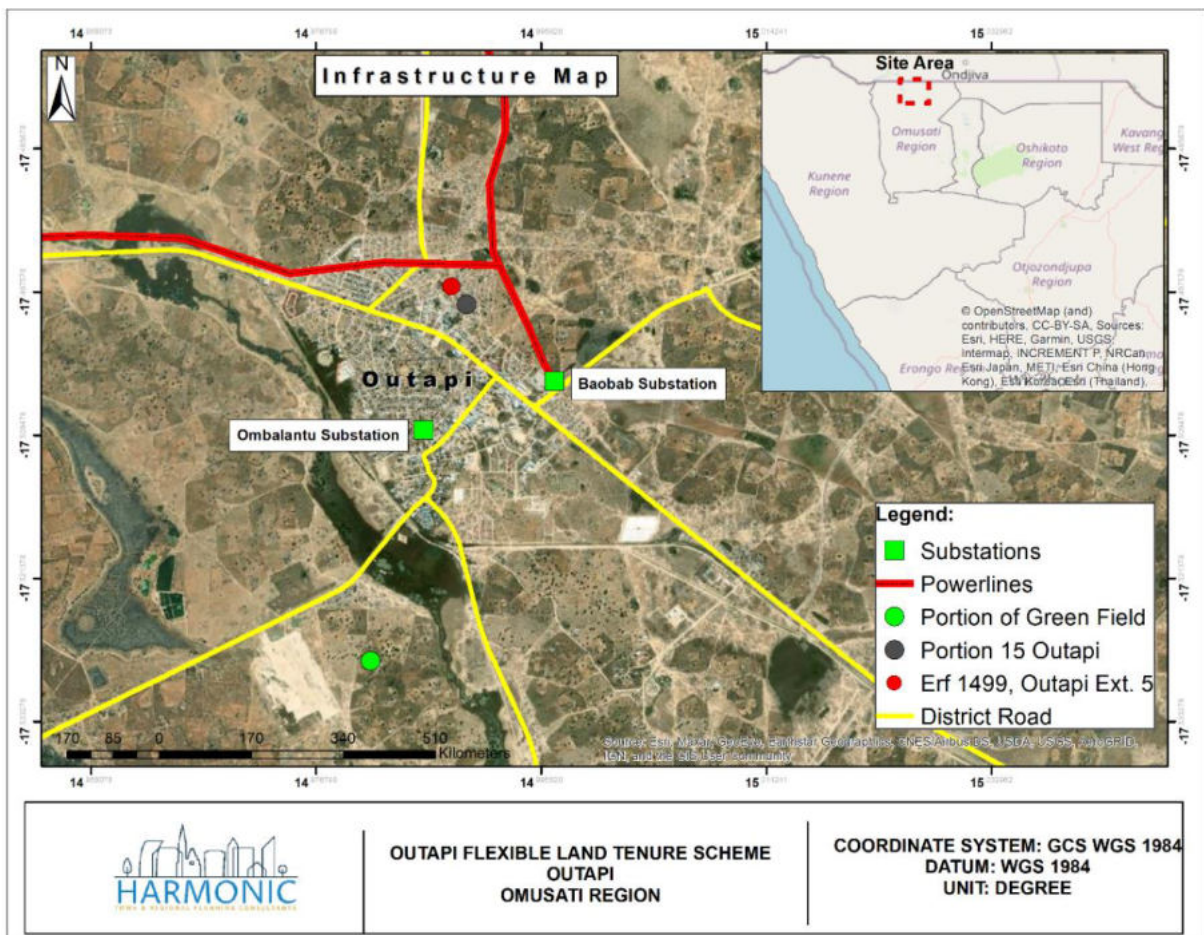


Figure 6: Infrastructure map of Outapi Town

infrastructure and services observed and found on and around the project localities (Portions of the FLTS) are presented below.

A. Portion Greenfield

The newly establish Extension 13 abutting the Portion of the Green field is being serviced with water pipeline which will bring such services closer to the portion of the Greenfield. There is an existing sewer line system that lies north of the main D3612 road to Tsandi. It will be easier to connect to the existing sewer line as it is closer to the Portion. There are however two communal water tanks with taps used by the community which are supplied by the Department of Water Supply & Sanitation Coordination (DWSSC) under the Ministry of Agriculture, Water and Land Reform - Figure 7.



Figure 7: The communal water supply tanks on the Greenfield Portion

Type of Tenure: There are currently no inhabitants on the Portion of the Greenfield. The Portion is part of the Remainder of Farm Outapi No. 1116 and ownership is fully vested in the Outapi Town Council. The land holds potential for township developed on the Portion in the future.

B. Erf 1499, Outapi Extension 5 (Brown Field)

The study area has been serviced with infrastructure and services, a vacuum sewer or pneumatic sewer system (Figure 8-A) is on the site while water and electricity are also provided for. Infrastructure such as roads (± 10 metres wide) and street lighting exist on the erf. Electricity is provided by NORED Electricity (Pty) Ltd, and every house pays directly to the electricity supplier. Other utility services are paid to the Outapi Town Council

Although the area looks formal with formal houses and are demarcated on the ground with fencing, the site has not been legally subdivided in terms of town planning legal procedures. In terms of roads, they have been planned for and scraped but remain sandy and are susceptible to rainwater or

flooding. Like most of the town of Outapi, the study area currently has no stormwater drainage system hence the flooding of the area by rainwater - (Figure 8 - B).



Figure 8: A – The vacuum sewer or pneumatic sewer system used and B - flooded streets in Erf 1499

Type of Tenure: Erf 1499, Outapi Extension 5 was donated by the Outapi Town Council to the Tweshipanda Savings Group under the Omusati Shack Dwellers Federation (OSDF). The OSDF currently consists of 59 residential dwellings (According to Omusati Shack Dwellers Federation). Erf 1499 is fully owned by the Tweshipanda Savings Group. Some of the house type on the Erf 1499 are shown in Figure 9.



Figure 9: The type of housing on Erf 1499, Outapi Extension 5

C. Portion 15 of The Farm Outapi Townlands No: 860 (Brown Field)

The formal houses exist and are demarcated on the ground with fencing on the portion and are serviced with water, sewer and electricity. Infrastructure such as roads (± 10 metres wide) and street lighting exist. The owners have individual accounts with the Outapi Town Council which they pay basic charges which is water, refuse removal and sewer to the Outapi Town Council. Electricity is provided by NORED Electricity (Pty) Ltd, and every house pays directly to the electricity supplier. About 65 dwelling houses exist on the ground according to the Omusati Shack Dwellers Federation.

Type of Tenure: The block (Portion 15) is owned by Namakalu Savings Group which is under Omusati Shack Dwellers Federation – Figure 10. The Portion was sold to the Namakalu Savings Group for a rate of 1 Namibian dollar per sq meter by the Outapi Town Council and which is now fully paid off. The formal houses have been constructed by owners and are serviced with water, sewer and electricity. The houses are formally laid out, but a formal layout does not exist. Portion 15 is not formalised in terms of town planning legal procedures thus that remains a pending process.



Figure 10: The type of housing on Portion 15

The Outapi Town Council will be responsible for the provision of services such as clean water and wastewater reticulation systems, electricity, access roads, and waste management (handling and disposal) to the project sites (Portions). The services are to be provided in accordance with Town Council's standards. All newly created erven and all these upgraded as part of the FLTS will be linked to the municipal/council's bulk reticulation network (water, sewer and electricity).

1.3. NEED AND DESIRABILITY

The land titles established through the implementation of the FLTS will provide for more simpler and cheaper cadastral procedure to administer than existing land titles. These new land titles provide security of title for people living in informal settlements and those with low-income housing in Outapi. The titles can be held by individuals or by groups. The FLTS also provides for quicker land delivery and allocation on green field sites..

It is therefore, crucial that the Feasibility Study to provide recommendations on establishing the Flexible Land Tenure Schemes (FLTS) on the respective study areas, thus, ensuring the successful implementation of the FLTS scheme in Outapi.

1.4. OBJECTIVE OF THIS STUDY

This Environmental Impact Assessment is being undertaken in compliance with the Environmental Management Act No.7 of 2007 and the EIA Regulations (GN 30 in GG 4878 of 6 February 2012). It is a prerequisite by the law to have an Environmental Impact Assessment carried out before the implementation of the prescribed projects as elaborated in the EIA Regulations (GN 30 in GG 4878 of 6 February 2012). The main objectives of this study are are to:

- identify and provide mitigation measures of the expected impacts of the proposed project to protect the environment,
- brief the Project Proponent of the legal and policy framework governing the proposed activity,
- identify the possible changes in bio-diversity index that might be because of Project implementation in the area,
- reflect on the various public concerns which will help the National Environmental Action Planners, economist and concerned stakeholders to make decisions,
- develop preventive and precautionary measures for the expected physical and biological environmental negative impacts associated with the proposed project activities, and
- structure an effective environmental management plan for the FLTS scheme (project) activities to minimise and prevent negative impacts while maximising the positive impacts.

1.5. TERMS OF REFERENCE

The Environmental Impact Assessment conducted by Harmonic provides a comprehensive evaluation of the proposed project producing both EIA and EMP report documenting the following:

- A complete description of the project sites,
- Significant environmental issues of concern that were based on the baseline data compiled by the EIA Team, which took into consideration biophysical, social, cultural and heritage information,
- An assessment of the public perception on the proposed FLTS scheme establishment,
- Identification of Policies, Legislation and Regulations relevant to the project,
- Prediction of the likely short, medium and long-term impact of the project on the environment, including direct, indirect and cumulative impacts, and their relative importance to the design of the project activities/facilities,
- Identification of any mitigation action to be taken to minimize predicted adverse impacts and provide associated costs where applicable and practical;
- Development of an environmental monitoring plan which will ensure that the mitigation measures are adhered to during the implementation phase;
- A conclusion and recommendations remarks for the project Proponent on an advisory note.

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 FLTS project activities. The section is a presentation of the legislative framework within which the proposed FLTS related activities will be established and operate under.

The focus is on compliance with the legislation during the planning, construction and operational phases. All relevant legislation, policies and international statutes applying to the project are highlighted in Table 1. 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).

Table 1: Applying Policies, legal and Administrative regulations governing the FLTS implementation and related activities

Legislation / Policy / Guiding document	Provision	Project implication
The Constitution of the Republic of Namibia (1990)	<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.</p>
Vision 2030 and National Development Plans	<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 Commission in the Office of the President. Currently the Government has so far launched a 5th NDP that pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.</p>	<p>The proposed project will increase availability of affordable serviced land as well as creating employment in construction, which will be in fulfilment to the NDP and Vision 2030.</p>
Environmental Assessment Policy of Namibia 1994	<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 development establishment 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 bio-physical environment.</p>
Environmental Management Act No. 7 of 2007	<p>The Act aims at</p>	<p>This document is compiled in a nature that project implementation is in line with the objectives of the EMA Act. Guiding procedures were</p>

Legislation / Policy / Guiding document	Provision	Project implication
	<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; ✓ To provide for incidental matters. <p>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>	<p>also drawn from the act to facilitate for the carrying out of the EIA and drafting the EMP for the proposed development.</p>
<p>The National Solid Waste Management Strategy, 2018</p>	<p>Having identified solid waste as a hazard, the Ministry of Environment, Forestry and Tourism developed the Solid Waste Management Strategy (SWMS) to guide future directions, develop regulations. The SWMS has also been aimed at funding strategy and action plans to improve solid waste management and ensure these are properly coordinated and are consistent with national policy to facilitate cooperation among stakeholders.</p> <p>The objectives of this Strategy are:</p> <ul style="list-style-type: none"> (a) to strengthen the institutional, organisational and legal framework for solid waste management, including capacity development; (b) to instil a culture of waste minimisation and expand recycling systems; 	<p>In terms of the FLTS implementation, the SWMS would be enforced to ensure that the risks to the environment and public health emanating from waste disposal sites and illegal dumping in Namibia. This will include complete improvement of waste collection at all local authorities, in particular in the informal housing settlements, etc.</p>

Legislation / Policy / Guiding document	Provision	Project implication
	<p>(c) to implement formalised waste collection and management systems in all populated areas;</p> <p>(d) to enforce improvements in the municipal waste disposal standards; and</p> <p>(e) to plan and implement feasible options for hazardous waste management.</p>	
<p>The Regional Councils Act No. 22 of 1992</p>	<p>This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social, and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.</p> <p>The main objective of this Act is to initiate, supervise, manage, and evaluate development.</p>	<p>The relevant Regional Councils are Interested &Affected Parties and must be consulted during the Environmental Assessment (EA) process. The project sites fall under the Omusati Regional Council; therefore, they should be consulted.</p>
<p>Local Authorities Act No. 23 of 1992</p>	<p>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.</p>	<p>The Proponent should ensure that the FLTS scheme implementation and related activities are in compliance with the relevant requirements of the Act.</p>

Legislation / Policy / Guiding document	Provision	Project implication
<p>Public and Environmental Health Act No. 1 of 2015</p>	<p>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.</p>	<p>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.</p> <p>The Proponent should ensure that the public as well as the environmental health is preserved and remain uncompromised.</p>
<p>Public Health Act No. 36 of 1919</p>	<p>Under this act, in section 119: “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.”</p>	<p>The project Proponent will ensure that all legal requirements of the project in relation to protection of the health of their employees and surrounding residents is protected.</p> <p>-Personal protective equipment shall be provided for employees in construction.</p> <p>-The development shall follow requirements and specification in relation to water supply and sewerage handling so as not to threaten public health of future residents on these land portions.</p>
<p>Soil Conservation Act No. 76 of 1969</p>	<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>The project will have a rather localized impact on soils and on the soil through construction and access roads construction hence soil protection measures will be employed and preservation of trees as much as possible.</p>
<p>Nature Conservation Ordinance 1996</p>	<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 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>

Legislation / Policy / Guiding document	Provision	Project implication
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.	The project has ensured that their activities do 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 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).	<ul style="list-style-type: none"> - The Proponent will also have to ensure that there is no indiscriminate cutting down of trees. -The proposed site is sparsely vegetated with white thorn tree species, which are not threatened or protected. -The Outapi Town is home to some protected species and notably the Baobab trees (<i>Adansonia digitata</i>). These destruction or removal of these must be avoided.
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.	<p>The proponent has been advised by the EIA Team and recognises the need for ecosystems protection to manage the changing climatic environment.</p> <p>-Through this project, there will be reforestation and fostering of green development, which will be promoting the protection and conservation of the biophysical environment, and with this EIA, it will be ensure that almost 40% of grown tree species on site will not be removed but rather will be part of the development, to promote Greed development.</p>
National Policy on Climate Change for Namibia, 2010	In harmony with the findings of the IPCC over time and the Earth Summits being 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	The proposed project will ensure that there will be limited release of greenhouse gasses such as methane, carbon dioxide, nitrous oxides. Methods such as wet surface operations to reduce dust emissions will

Legislation / Policy / Guiding document	Provision	Project implication
	<p>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>be utilised to remove aerosols emitted into the near-surface atmosphere.</p>
<p>The National Land Policy, 1998</p>	<p>The National Land Policy provides for a unitary land system for Namibia in which all citizens have equal rights, opportunities and security across a range of tenure and management systems. The policy has specific gender provisions consistent with the Namibian Constitution. Women are accorded the same status as men with regards to all forms of land rights, either as individuals or as members of family land ownership trusts.</p> <p>The Policy also provides for multiple forms of land rights, including customary, leaseholds, freeholds, licences, certificates or permits and state ownership. It has provisions on the urban poor, providing that informal settlements need to be given attention through appropriate planning, land delivery, tenure, registration and finance in an environmentally sustainable manner.</p>	<p>The FLTS implementation will need to adhere to the requirements of this Policy by ensuring that the:</p> <ul style="list-style-type: none"> -establishment and proclamation of urban areas as townships and municipalities to promote decentralisation and the close involvement of communities in their own administration. -need to pay attention to the establishment of a transparent, flexible and consultative local authority planning system and development regulations.
<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.</p>

Legislation / Policy / Guiding document	Provision	Project implication
Water Resources Management Act No. 11 of 2013	This Act provides for the management, protection, development, use and conservation of water resources and the regulation and monitoring of water services and to provide for incidental matters. (Department of Water Affairs).	The protection (both quality and quantity/abstraction) of water resources should be a priority. This will include the diversion of stormwater from the structures to a designated water collection point.
National Heritage Act 27 of 2004	Heritage resources to be conserved in development. (National Heritage	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	<p>“No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia:</p> <p>(a) any meteorite or fossil; or</p> <p>(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</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 Proponent to take the required route and notify the relevant commission.

Legislation / Policy / Guiding document	Provision	Project implication
	<p>(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</p> <p>(d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or</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>Pollution Control and Waste Management Bill</p>	<p>This bill has not come into force. Amongst other 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.”</p> <p>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>To control air, water and land pollution as agitated by the Act the project proponent will ensure that erven will have approved drainage on site and that sanitation facilities do not threaten public health, adding on an integrated pollution management strategy following the EMP and will be operationalised on site.</p> <p>Adequate stormwater drainage systems will be designed for the project area.</p>
<p>Convention on Biological Diversity (CBD)</p>	<p>Namibia is a signatory of the Convention on Biological Diversity and thus is obliged to conserve its biodiversity.</p>	<p>The project will preserve tree species on as part of their plans for green and sustainable development.</p>
<p>United Nations Convention to combat Desertification</p>	<p>Namibia is bound to prevent excessive land degradation that may threaten livelihoods.</p>	<p>It will be the responsibility of the Proponent and future land title holders at to conserve vegetation on and around the portions.</p>

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. BIOPHYSICAL CONDITIONS

3.1.1. CLIMATE

The climatic conditions of Outapi are classified as semi-arid. The brief climatic conditions of the Outapi are as follows, according to Matrix Consulting Services (2020).

- A. Rainfall and Precipitation:** The average rainfall in the area is between 350 and 400 mm per year. The variation in rainfall is averaged to be between 40-50% per year. The high summer rains are experienced in February. The storms events occur between October and April, and they are irregular, unpredictable, high intensity and highly localised.
- B. Evaporation:** The average evaporation is between 2,800-3,200 mm per year.
- C. Temperatures:** The project area's highest temperatures are measured in December with an average daily maximum of 31°C and minimum of 17.3°C. The coldest temperatures are measured in July with an average daily maximum of 20.4°C and minimum of 6.4°C (Matrix Consulting Services, 2020).

3.1.2. TOPOGRAPHY

The topography of Omusati Region is generally flat with an altitude ranging from 800 to 1,200m above sea level (Mendelson et al., 2002). The landscape of the project area falls under the Cuvelai System. Outapi and most towns (areas) in northern Namibia are situated in the Cuvelai Basin whereby most of the land surface of is very flat, dipping from 1,150 m above sea level in the northeast to 1,080 m above sea level in the Etosha Pan to the south. All the basin surface drainage, therefore, flows slowly in the direction of the Etosha Pan (Lohe *et al.*, 2021). The elevation map of Outapi with the project Portions is shown in Figure 11.

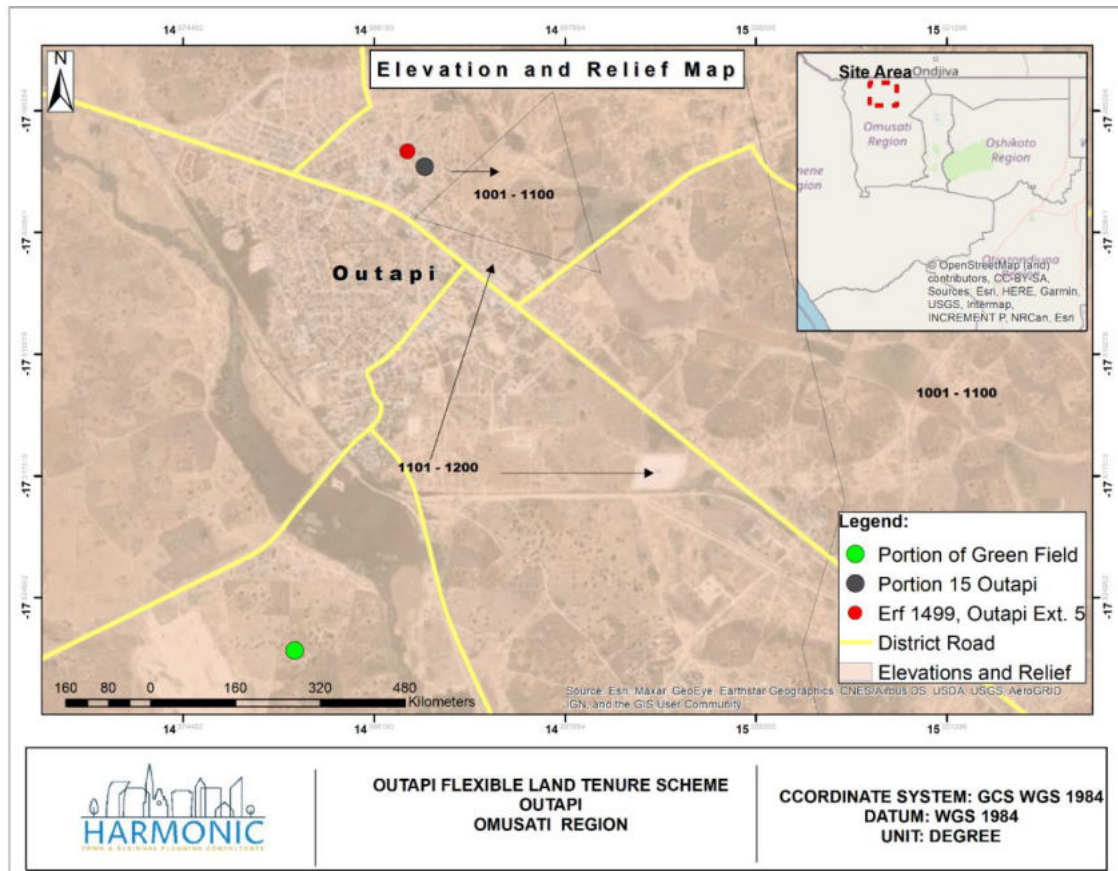


Figure 11: The Elevation map of the Project Portions in Outapi

3.1.3. GEOLOGY AND SOILS

The geology of Outapi is characterized by the unconsolidated to semi-consolidated sands, calcrete and gravel sediments of the Quaternary and Tertiary age of the Kalahari Group. According to Environam Consultants (2019), much of the areas in the northern part of Namibia, including Omusati Region fall within the Cuvelai landscape, lies on silt, clay, limestone, and sandstone sediments. The area is distinguished by a myriad of drainage channels locally known as oshanas. These oshanas are often filled with water during heavy rainy seasons and cut into the underlying sediments. The geology map of the project site area is shown in Figure 12.

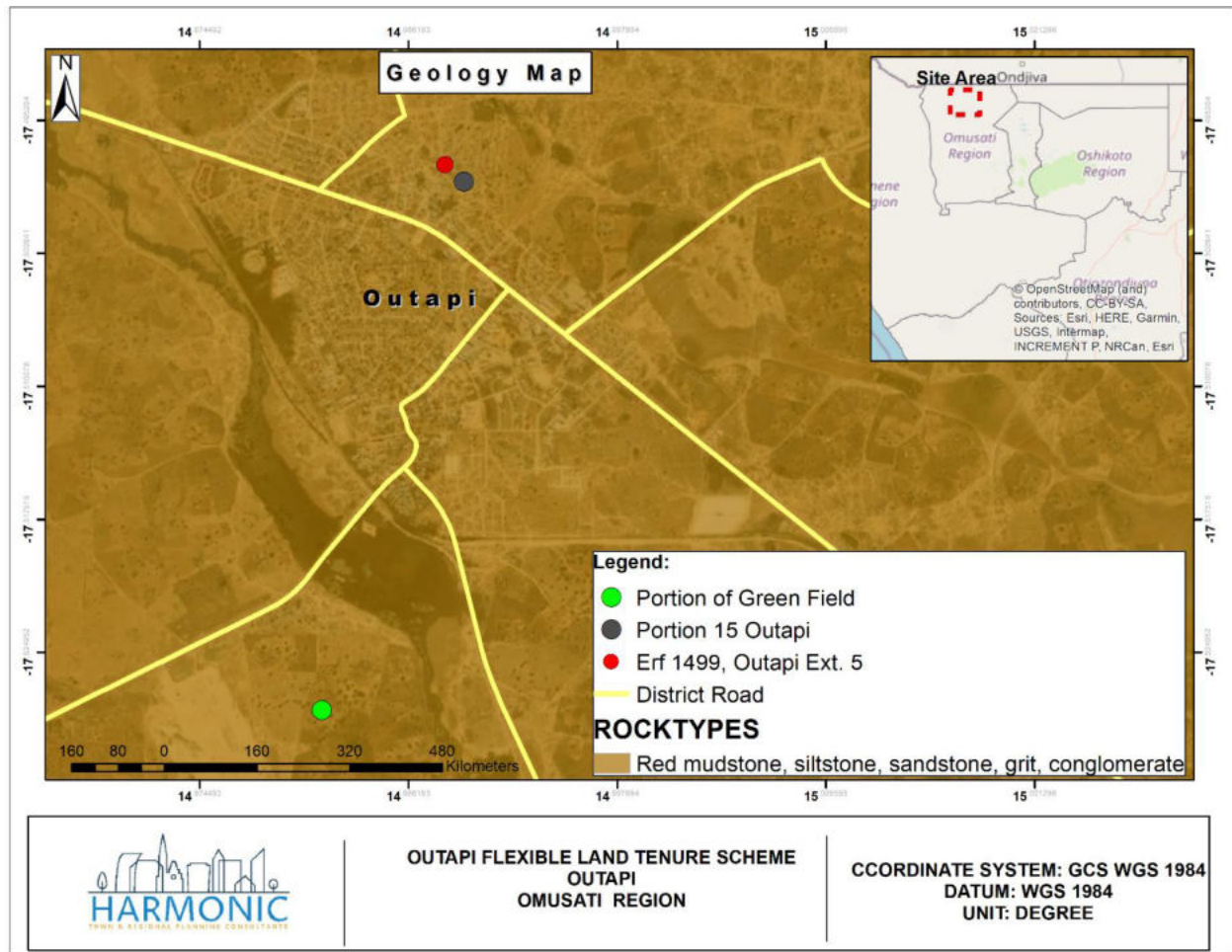


Figure 12: The geology map of the project site in Outapi

The dominant soil types in the Omusati Region are Cambic Arenosols and some areas Eutric Cambisols as per Dominant Soil Map by Mendelson *et al.*, (2002). The soil types in the Omusati region vary considerably, for the most part the soil consists of volatile sand mixed with a small percentage of silt and clay (Arenosols), in the north-east there are also soils deriving from oshana deposits and in the south the soils are mainly clayey (Luvisols), deposits (Cambisols) or rocky outcrops. The soils in this area are categorized as sands and loams, where wind and water has repeatedly reworked the soil to create a mixture of deposits, they are generally saline, hence the dominance of mopane vegetation which can grow on these soils. However, some areas of sands and loams that are not as saline and provide good soils for crop growth in the area (Environam Consultants, 2019).

The project site area and surroundings are covered by the Kalahari sand comprising sand, clayey and loamy soils. In most parts of the project Portions, the soils are highly influenced by the active land use.

3.1.4. HYDROLOGY

During the time of the site visit, it was rainy season and the Outapi Town and the project sites had wet marshes (*oshanas*) that dry up at the end of the rainy season, i.e., the oshanas do not hold water throughout the year or longer periods. There are no rivers observed within proximity of the project Portions or Outapi Town. However, the Town's surface water system is dominated by *oshanas* as shown on the map in Figure 13.

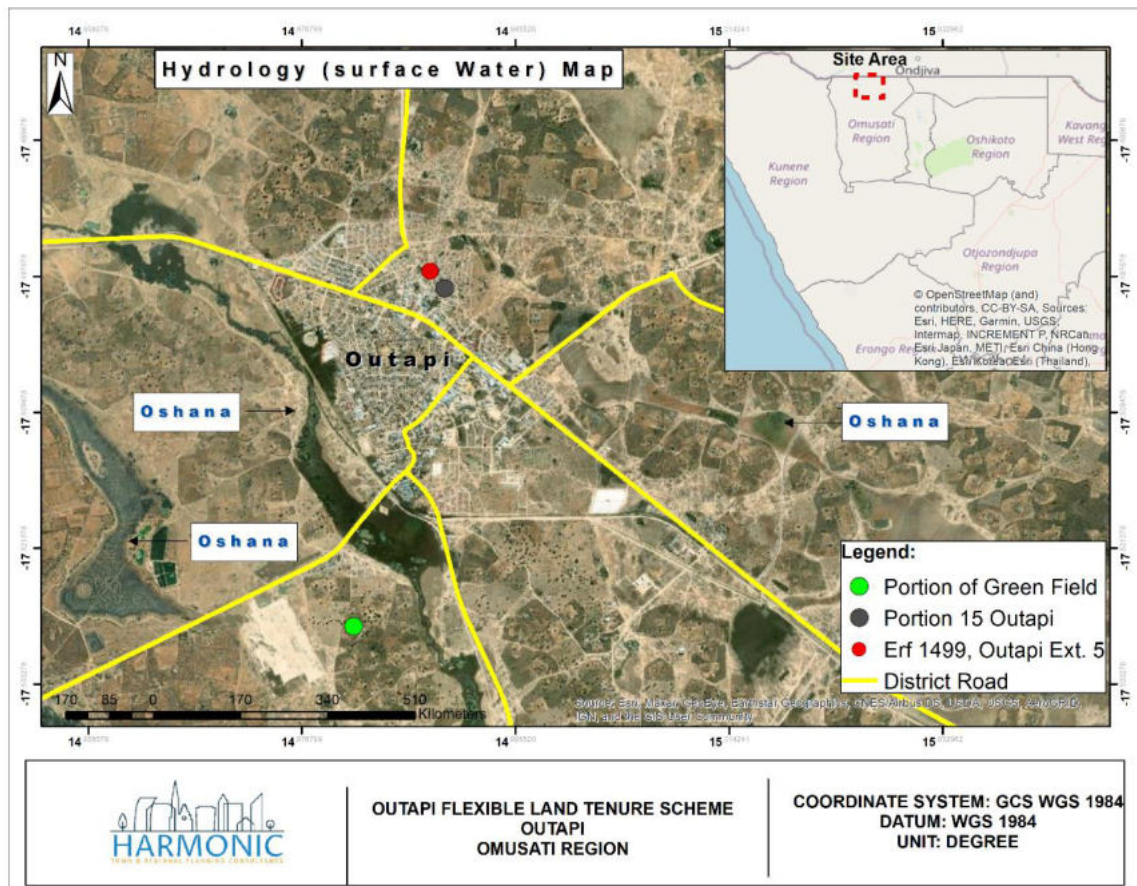


Figure 13: Hydrology map of the Outapi Town showing the project Portions in relation to *oshanas*

3.1.5. HYDROGEOLOGY (GROUNDWATER)

The project area (Outapi) and the Omusati Region at large falls under the Cuvelai -Etosha Basin (CEB), which is defined as the Namibian part of the Cuvelai river catchment. The hydrogeology of the CEB comprises in addition to Omusati, the Oshana, Ohangwena, Oshikoto Regions and parts of the Kunene Region (Lohe *et al.*, 2021). Groundwater flow is mostly through primary porosity in the Kalahari cover, but flow along secondary structures known as fractures, faults (Matrix Consulting Services, 2019). The flow can also be influenced by the presence of other geological structures underlying formations such as contact rock unit zones.

The CEB Unit 1 and 2, including Ohangwena Aquifer System (Unit 2) is a three-layered system dominated by unconsolidated sand with some sandstones, with an average aquifer thickness of 220 m. It has a high primary porosity and an average transmissivity value of 220 m²/day (Christelis *et al.*, 2018). The groundwater in and around the project site is hosted in the porous Kalahari sediments as shown in Figure 14. The sediments are in some areas of Basin underlain by bedrocks of limestone, sandstone, conglomerate, mudstone, and silt stone as the CEB aquifers and lithology characteristics presented in Lohe *et al* (2021).

Based on the information obtained from the National Groundwater Database (GROWAS II) and map created for this project, there are some boreholes sparsely distributed in Outapi. In and near Erf 1499, Outapi Extension 5 and Portion 12 Outapi there are five boreholes, whereas towards the eastern side of Portion of Greenfield there are also five boreholes as shown in Figure 14.

The groundwater flow in the project area can be expected to flow in a south-eastern direction towards the Etosha Pan. According to Christelis and Struckmeier (2011), the groundwater flow towards Etosha Pan is due to the structure of the Basin and its deepest point, i.e., the base level of the groundwater flow system. However, in terms of local drainage patterns, these may vary due to local groundwater abstraction in the area.

According to Christelis *et al.* (2018), the average piezometric level of the Cuvelai Basin is 30 m below ground level, and the aquifer is mostly confined, but in some parts is unconfined. The

typical borehole depth is 100 to 250 m, and the mean annual recharge is 35 million cubic meters (Mm³)

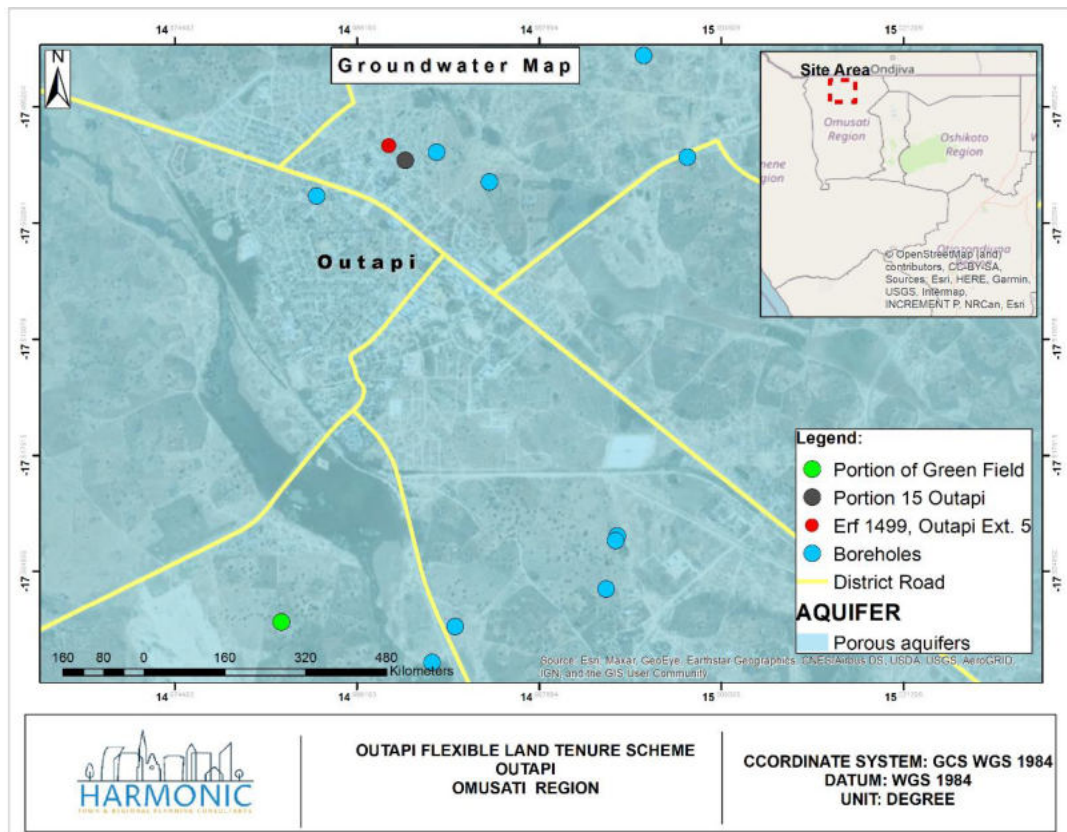


Figure 14: Groundwater conditions and boreholes on or near the project Portions in Outapi

Due to the poor quality of the groundwater in most areas of the CEB, Outapi like other areas in the Basin is supplied with potable water by NamWater from the Ruacana-Oshakati Canal.

3.1.1. TERRESTRIAL ECOLOGY: FAUNA AND FLORA

According to Stubenrauch Planning Consultants (2021), the good rainfalls in the Omusati Region result in a rich biodiversity, especially regarding the flora and about more than 500 different plant species are found within the Region. The common trees and shrubs include the *Hyphaena petersiana*, *Sclerocarya birrea*, *Ficus sycamores* and a variety of other trees are characteristic of this zone. The dominant vegetation map is shown in Figure 15.

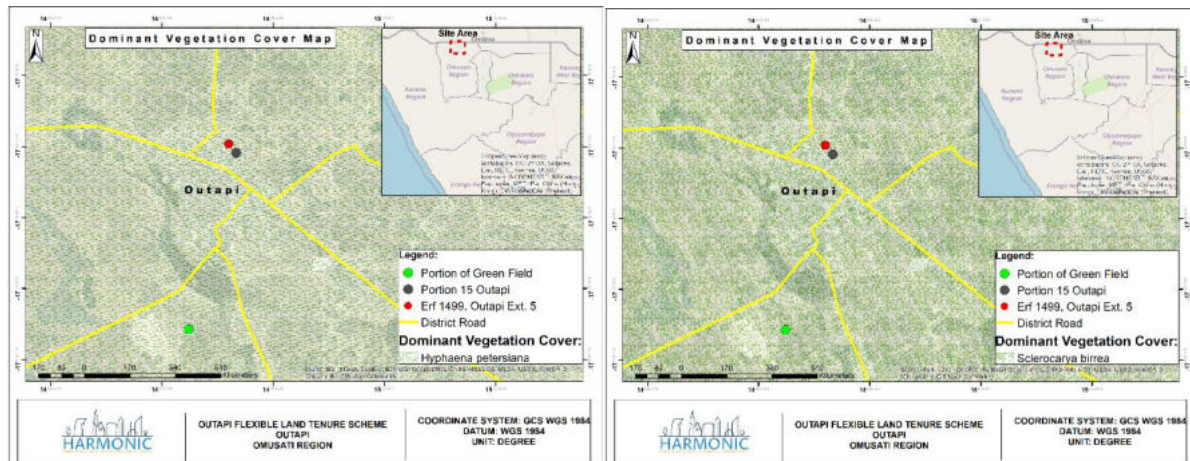


Figure 15: The dominant vegetation (*Hyphaena petersiana* and *Sclerocarya birrea*) in Outapi

The Erf 1499, Outapi Extension 5 and Portion 15 of the Farm Outapi Townlands are brownfields, i.e. they are already developed (not pristine), hence disturbed to some extent that only few trees could be seen standing.

The Greenfield Portion, although pristine, it also just have few scattered trees, and among these are the Baobab (*Adansonia digitata*) and Bird Plum (*Berchemia discolorand*) trees that were also observed during the site visit in March 2022 as shown in Figure 16.



Figure 16: A - Scattered Bird Plum and B - some Baobab trees on Portion Greenfield south of the Town

The local occurring fauna that are expected or known to occur at the project locations (particularly at the less human interference site, Greenfield) include domestic animals such as cattle, goats, donkeys and sheep. Small animals such as ground burrowing animals, reptiles, and local bird's species are also expected within proximity of the project locations with little human movements and interferences. Figure 17 below shows some cattles (A) and donkeys (B) found grazing on the Greenfield Portion on 28 February 2022 and 03 March 2022, respectively.



Figure 17: Some domestic animals found on Portion Greenfield in February and March 2022

There are no known, recorded nor observed wildlife in or around the Outapi Town, as this could be attributed to the human presence and intensive development of the Town over the years.

3.2. SOCIO-ECONOMIC CONDITIONS

3.2.1. SOCIAL DEMOGRAPHY

The Outapi Town is found within the Omusati Region, which according to the 2011 National Housing and Population Census had a population of 243,166 (133,621 females and 109,545 males). The population of Outapi Constituency for both rural and urban was recorded at 14,857, with the urban area (Outapi Town) amounting to 6,437 (Namibia Statistics Agency (NSA), 2014). The population density was recorded at 9.2 people per square kilometres (km²).

3.2.2. ECONOMIC ACTIVITIES

Outapi is the capital town of the Omusati Region and most of the region's economic activities are taking place in the Town. According to Matrix Consulting Services (2020), the livelihoods of Outapi Town and surrounding areas rely on subsistence farming, comprising cattle farming as

well as crop production (mahangu, maize, beans, sorghum, etc).. Subsistence farming, wages & salaries as well as pension are the main sources of income with 22%, 25% and 31% of households in the Region, respectively.

The Omusati Region has some tourist destinations such as the Omugulugombashe Monument about 20km southwest of Tsandi Village (about 30km southwest of Outapi), and the Ruacana Water Falls in Ruacana Town. On a local level, Outapi area is home to the Ombalantu Baobab Tree Heritage Centre.

3.2.3. HOUSING

According to the NSA (2014), the housing conditions in Omusati Region was 52% of households with safe water, 78% households without toilet facilities, 10% with electricity for lighting., and about 88% of the households used wood or charcoal for cooking.

4. CHAPTER FOUR: PUBLIC CONSULTATION

Public Consultation forms an important component of the Environmental Assessment process. It is agitated for in the EIA Regulations (2012), Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding the EIA process.

Formal public involvement has taken place via newspaper adverts, site notice and registering I&APs. 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.

4.1. PUBLIC CONSULTATION ACTIVITIES

The following tasks have been undertaken during public consultation process which started on the 18th of March 2022.

Identification of Interested and Affected Parties (I&APs)

After the scoping process, the EIA team identified I&APs and key stakeholders of the proposed project. The public participation activities to be undertaken for this EIA process were incorporated into the overall approach of the EIA background information. Among key stakeholders identified were the MAWLR, Omusati Regional Council and Outapi Town Council (the Proponent). Other I&APs could register to the EIA team and a special database created capturing all their names and correspondence details.

Distribution of BID

A Background Information Document (BID) was distributed on request by I&A Parties and it was distributed to key stakeholders identified during the scoping process. The BID provided a description summary of the proposed project, and the project Proponent and the whole procedure of the EIA to be followed.

Public Announcement.

A public announcement was done to make sure the public is aware of proposed FLTS. The EIA study was announced publicly through the following means presented in Table 2.

Table 2: Details on the modes employed for public notifications of the EIA study

Method / Mode	Area of Distribution	Language	Placement Date
New Era	Country Wide	English	18 & 25 March 2022
Confidante	Country Wide	English	18 & 25 March 2022
Site notices	Outapi Town Council Notice Board	English	18 March 2022
	At two of the project localities (Portion 15 & Extension 5) - Figure 18	English	

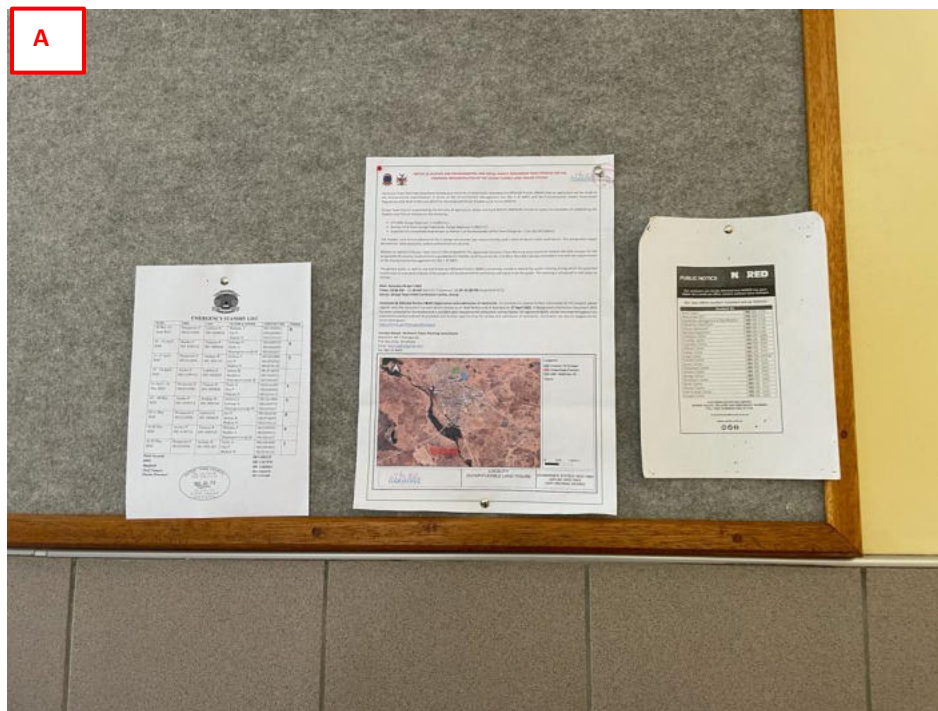




Figure 18: A - Site Notices placed at; Outapi Town Council, B - Portion 15 and C - Extension 5

4.2. KEY STAKEHOLDER AND PUBLIC ENGAGEMENT (CONSULTATION) MEETING

A Stakeholders and Public Consultation meeting was scheduled and held on the 9th of April 2022 at the Outapi Town Hotel Conference Hall. There were two meeting slots (sessions), i.e., from 09h00 to 12h00 in the morning and 14h00 – 16h00 in the afternoon. The meetings were well attended and the local I&AP group were represented. The information shared was well received and some inputs (comments and or issues) were made thereto. Figure 19 shows some of the photos taken from the meeting in Outapi. The meeting minutes (with the attendance register) are attached hereto as Appendix A together with other Public Consultation files.



Figure 19: Public and Stakeholders Consultation Meeting proceedings at Outapi Town Hotel Conference Hall

4.2.1. IDENTIFICATION OF INTERESTED AND AFFECTED PARTIES (I&APs)

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

- Community members,
- Omusati Shackdwellers Federation, and
- Outapi Town Council.

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.

4.2.2. KEY FINDINGS AND CONSULTATION MEETING COMMENTS

The EIA Team (Consultant) informed all affected parties about the proposed project and a public meeting was conducted on 09 April 2022. All attendees were given project information and an opportunity to comment on the project. No objections were raised by I&AP in relation to the project, however, some inputs and comments were recorded as summarized in Table 3 below.

Table 3: Key findings and comments made from the public consultation process:

Theme	Issue
Relocation	-The current informal occupant near the Portion (particularly the Greenfield Portion) will be given alternative land to pave way for the FLTS implementation.
Bush encroachment	-The encroachment into existing plots on some of the project Portions.
Financing of plots	-The community members (residents) were concerned on how to pay for the plots when the land some of the are residing was donated.
Compensation	-The compensation of pre-existing private land affected by the FLTS scheme. The national compensation policy will be applied or re-alignment will be considered.
Stormwater management	-The FLTS scheme establishment should prioritize the implementation of stormwater management technology or systems (rainwater diversion plan) or modify some of the areas to fit for housing development as they are currently flooded during rainy seasons.
Local employment preference	-Emphasis on prioritizing the locals for jobs during the upgrades or construction of new FLTS scheme structures.
Provision for community services	-The FLTS scheme should consider setting up public/government kindergartens in the project sites because private kindergartens are costly. -There is also a request to build a school and children's playground is needed on the Greenfield Portion
Open space and local business/markets	-The FLTS scheme establishment should consider creating public open spaces such as recreational parks for the residents. There is also the need to include some local business/market centres.

Theme	Issue
Accessibility by physically challenged residents	-The streets should be modified to enable the physically challenged people on wheelchairs to access the areas on the Portions.

5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. OVERVIEW

The project Proponent is committed to sustainability and environmental compliance through coming up with a corrective action plan for all the anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on township establishment and associated activities.

The Proponent shall implement the hereto attached Environmental Management Plan (EMP) in order to prevent, minimise and mitigate negative impacts. The EMP developed by Harmonic Consultants 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. KEY POTENTIAL POSITIVE AND ADVERSE (NEGATIVE) IMPACTS AND ISSUES

The township establishment and associated activities are associated with certain potential (positive and negative) biophysical and social impacts. The key ones and that are relevant to and identified for the FLTS establishment in Outapi are as follows:

Positive impacts

The project is set to improve the socio-economic environment of the Outapi Town through the:

- Much needed affordable accommodation and improved services such as housing, and
- Temporary employment creation during the FLTS establishment (construction and upgrading).

Negative (adverse) impacts

- Vegetation removal (Deforestation), i.e., loss of Biodiversity (impact on protected floral species such as the Baobab trees, if removed),
- Faunal habitat/grazing disturbance (for livestock grazing on the edge of the Town (Greenfield Portion),

- Pollution (Solid waste, hazardous and wastewater),
- Flooding due to stormwater stagnation on land during rainy seasons,
- Water Resources pollution,
- Soil Erosion and Disturbance,
- Health and Safety Risks, and
- Social Grievance due to property relocation/realignment of structures into surveyed ervens.

5.3. IMPACT ASSESSMENT METHODOLOGY

An impact assessment matrix was used to assess all possible impacts of the project on the environment. In line with NEMA No. 7 of 2007 and the Environmental Impacts Regulations (GN 30 in GG 4878 of 6 February 2012) with the direction on impacts analysis the following impact assessment criteria was identified by the team and deemed suitable.

Table 4: Impact Screening Criteria

Aspect	Description
Nature	Focuses on the type of effect that the proposed project will have on environmental components. Addresses questions related to “what will be affected and how?”
Extent	Spatial extend of the project and anticipated spatial extend of impacts indicating whether the impact will be within a limited area (on site where construction is to take place); local (limited to within 15km of the area); regional (limited to ~100km radius); national (extending beyond Namibia’s borders).
Duration	This looks at the temporal issues pertaining to time frames e.g. whether the impact will be temporary (during construction only), short term (1-5 years), medium term (5-10 years), long term (longer than 10 years, but will cease after operation) or permanent.
Intensity	Establishes whether the magnitude of the impact is destructive or innocuous and whether it exceeds set standards, and is described as none (no impact); low (where natural/ social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).

Aspect	Description
Probability	Considers the likelihood of the impact occurring and is described as uncertain, improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).
Significance	Significance is given before and after mitigation. Low if the impact will not have an influence on the decision or require to be significantly accommodated in the project design, Medium if the impact could have an influence on the environment which will require modification of the project design or alternative mitigation (the route can be used, but with deviations or mitigation) High where it could have a “no-go” implication regardless of any possible mitigation (an alternative route should be used).

The application of the above criteria will be used to determine the significance of potential impacts using a combination of duration, extent, and intensity/magnitude, augmented by probability, cumulative effects, and confidence. Significance is described as follows:

Table 5: Impact Rating Criteria

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/ magnitude, if at a local scale/ extent and of temporary duration/time.
Medium	Where the impact could have an influence on the environment, which will require modification of the development design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.

High	Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(ies) causing it, should not be permitted (i.e. there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.
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5.4. IMPACT ASSESSMENT

By subjecting each of the potential impacts to the matrix above, the EIA team established the significance of each impact prior to implementing mitigation measures and then after mitigation measures have been implemented. Some of the mitigation measures are mentioned but detailed descriptions of management actions are contained in the accompanying EMP.

Table 6: Environmental impact Assessment Matrix

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance			
						Before Mitigation	Mitigation applied	Post Mitigation	
Servicing and Construction Phase									
-Soil physical disturbance during servicing of the land and construction activities	-Erosion of tracks -Proliferation of -Negative excavation methods such as blasting.	Local	Short	Medium	Definite	High	-Restrict construction activities on defined areas. -Proper management of stockpiles. Excavated material must be covered in stockpiles until reuse and backfilling. -Restrict movement to defined areas. Use existing roads until access require limited new roads. -Use surface anchored foundations with very limited rock breaking.	Low	
Urbanization/ urban growth	Physical expansion of the Town	Regional	Long	Medium	Definite	Low	-All built structures should be constructed according to the local Authority bylaws to guarantee strength and longevity of structures built.	Low	

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
Noise from land servicing activities and construction vehicles and equipment	-Nuisance and disturbance. -Noise and vibrations will also have an impact on animals such as birds and reptiles. -Birds are known to abandon their nests if subjected to continuous noise. Noise to the nearby locals and to construction workers.	Local	Short	Medium	Definite	High	-All workers on site must be equipped with ear plugs to be used when the noise becomes unbearable. -Switch off machines that are not used. -All locals must be notified about the noise construction activities on time during excavations and ground preparation, servicing of the land and any constructions beyond. - All noisy construction activities must not be carried during night time, early morning and evenings, they must be done during daytime to ensure minimum disturbance of the nearby residents.	Low
Physical destruction of vegetation through land servicing, construction activities and the upgrading and opening of new roads	-These activities may result in the removal and destruction of few trees species on site.	Local	Long Term	High	Definite	High	-Limit activity footprint and limit movement to designated areas only. -Implement and monitor the Vegetation Management Plan if there is a significant destruction of the on-site and surrounding areas. -Protected trees must be marked (e.g. with hazard tape) and planning and pegging personnel must know that marked trees are out of bounds (to be	Medium/ Low

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
							left untouched for continued preservation). -No destruction or disturbance to the protected species such as Baobab trees found within the project sites.	
Stormwater management	-The Outapi Town is always flooded during heavy rainy seasons, and this water could be a problem to infrastructure.	Local	Temporary	Medium	Probable	High	-Stormwater management plans (discharge points) should be designed and incorporated into the FLTS scheme designs this is to ensure that the well-known and experienced rainwater that flood the town areas during heavy rainy seasons are collected and diverted to specific rainwater collection area (point) in the town and not idle on site.	Medium / Low
Disturbance and killing of both reptiles, and small animals' activities	-reptiles and small animals in the locality are bound and likely to be affected.	Local	Temporary term	Low	probable	Medium	-The indiscriminate killing of animals and reptiles is prohibited.	Low
Disturbance, killing and snaring of domestic animals	The project site, especially Greenfield is currently a grazing area to some livestock during the rainy season. Therefore, the development of the	Local	Permanent	Medium	Highly probable	High	-The Proponent should inform the communities through the constituency office of the intention to close off the open land. -The livestock should not be killed but instead inform the locals / owner to look after the animals and keep them away from the town.	Medium / Low

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
	land will push the animals away.						-No beating or snaring of people’s animals.	
Disturbance through noise, movement and temporary occupation of an otherwise less disturbed habitat	-Negatively affect local animals and birds if any	Regional	Temporary	Medium	Highly probable	High	-Minimum disturbance of local environment by ensuring operations does not produce extreme noise that negatively affect nearby animals and birds. -Switch off machines that are not used.	Medium
Archaeological Landscape	-The Outapi Town is home to some of the cultural and heritage sites, such as the Ombalantu Baobab Tree Heritage Centre, therefore, this area should not be disturbed.	Local	Long term	Medium	Improbable	Medium	-Demarcate, protect and avoid development near heritage sites. If removal is inevitable, a Consent Letter should be applied for from the Heritage Council via an Archaeologist. -All heritage and cultural resources should be avoided and not to be disturbed.	Low
Social Grievance	-The re-alignment and relocation of existing properties into surveyed erven may lead to loss of properties and possible conflicts between the	Local	Long-term	Medium	Probable	High	-The Proponent should in time notify the potentially affected landowners of the intention to establish and or upgrade the township. -Thorough consultation and engagement with landowners should be conducted and amicable solutions found and agreed on.	

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
	Proponent and the landowner(s).						-Where compensation is the case, the Proponent should amicably compensate the affected landowner according to the National Compensation Policy.	
Change in topography/ landscape character	-Use of caterpillars for servicing (roads construction and paving of the site)	Local	Long term	Medium	Probable	High	-Refill all the excavated pits and trenches to ensure that there are no pits left open on site and creating a new paved landscape (use of cement interlocks)	Low
Environmental contamination by hydrocarbons release into the environment (grease, oils, fuel spills and leakages from machinery and fugitive wastes.)	There will be no storage of oils and fuel on site according to the engaged contractors, however there is risk of spillage of hydrocarbons from vehicles and machinery operations, maintenance through leakages and spillages which may result in: -Washing away of contaminated soils by rains into nearby rivers	local	Short Term	Medium	Probable	Medium	-Implement a maintenance programme to ensure all vehicles, machinery and equipment are and remain in proper working order -Vehicle maintenance should be Conducted in designated areas only, preferably off-site. If maintenance is to be conducted on site, these areas should be designed to contain spillages i.e. maintenance site must be bundled and paved and the use of chemicals must be controlled. -Waste oil, fuels and other chemicals from drip trays on stationary vehicles and machinery will be disposed of as hazardous waste at a licensed facility	-Low

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
	-Pollution of soil and affecting small living organisms habituating the soil -Result in possible groundwater pollution. -Possible fire risk on and around the site						by a specialist hazardous waste handler. -Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site -Spill kits will be easily accessible and workers will be trained in the use thereof. -Staff and contractors will be trained in the handling and storage of oils, fuels, chemicals and other hazardous substances -No bins containing organic solvents such as paint and thinners shall be cleaned on site, unless containers for liquid waste disposal are provided on site.	
Land Pollution	-Negative effect on the ecosystem when waste emanating from construction activities is not managed properly.	Local	Temporary	Medium	Probable	Medium	-Ensure that all waste (stockpiles) from construction activities must be stored and contained in designated containers and transported to Outapi Waste Disposal Site for proper disposal.	Low

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
							- Adequate mobile toilets must be provided at the construction camps for the use of the workers.	
Dust from the general servicing of the land and construction activities	-Respiratory sicknesses can result from prolonged exposure to dust -Dust can negative affect the ecosystem in general and the nearby residents -it also causes general pollution of the air	Local	Temporary	High	Probable	Medium	-Equip all the workers exposed to dust with dust masks -Water spray all the areas that are sources of dust to minimize dust. - Minimize activities that can generate dust during windy days. - Limit the speed within the whole construction area to a maximum of 10 km/h to avoid excessive generation of dust - Dust will significantly be reduced if excavation and land clearing is carried out after it has rained and the soil is wet or dust suppression can be done	Low
Employment opportunities during the servicing and construction phases of the development	-The general servicing and all construction activities create job opportunities both to the locals, regional and national, this will have a positive economic impact on surrounding	Regional	Temporary	Low	Highly probable	High	-The Project Manager should make it mandatory to contractors that all unskilled and semi-skilled work should be given to the locals.	high

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
	Communities and technical companies involved							
The spread of HIV/AIDS and others STDs throughout the construction phase of the project.	-The huge inflow of employees and other people into the Town can result in the spread of HIV/AIDS, other STDs	Local	Long term	Medium	Highly probable	Low	-Awareness should be raised at workplace and provision of condoms -Massive education of the employees and the general public on the importance of having protected sex	Low
Operational Phase								
Pollution from solid waste and sewerage	-Failure to manage waste properly result in general pollution of the environment and this might have a detrimental impact on the people's well-being and the quality of the environment	Local	Long term	Low	Highly probable	Medium	-The Portions must be serviced and connected to the Outapi Town Council Sewer reticulation system. -Regular collection of solid waste by the municipal (rither directly or through the appointed contractor) -Provisions of domestic solid waste collection bins to the residents	Low
Population influx	-Results in social tensions and an increase infections of sexually transmitted diseases particularly HIV and AIDS, and other STDs.	-Local	-long term	Medium	Definite	High	-Educate employees on social integration and sexual behaviour.	Medium

Impact	Status/nature	Extent	Duration	Intensity	Probability	Significance		
						Before Mitigation	Mitigation applied	Post Mitigation
Social integration	Potential for conflict between people of different backgrounds and cultural beliefs.	Local	Short Term	Medium	Probable	Medium	-Public relations should adequately address the integrated societal values and morals	Low
Community development	Employment creation	Regional	Long term	High	Definite	High	-Promote local businesses and employ locals	High

5.5. RISK ANALYSIS

Based on the impacts identified by this study during site visit, process analysis, desk study and stakeholder consultations conducted, an integrated environmental risk analysis was carried out using the DEFRA Guidelines for Environmental Risk Assessment and Management 'Green Leaves III' (latest edition) as well as the international Procedures for best practices. The risk analysis shows that the FLTS establishment and related project activities will have some negative impacts on the biophysical and socio-economic environment. However, based on the impacts' description and assessment, the impacts' significance are rated moderate and can therefore, be reduced by the effective implementation of the provided management and mitigation measures. It has also been noted that the project will bring about some positive impacts on the social and economic aspects. However, it is imperative to note that the project is being undertaken within an already disturbed locale (for two of the three selected localities in Outapi). To prevent or mitigate negative impacts and to increase positive impacts, a coordinated project management strategy according to an Environmental Management Plan developed for the FLTS scheme establishment in Outapi.

Public & Stakeholders' Consultation and Engagement and Feedback

The public and stakeholders (I&APs) were consulted through the used means, i.e. newspaper adverts, public notices, and face-to-face meetings held in Outapi. The I&APs have raised few but significant comments and these have been incorporated into the EIA documents for consideration and inform the planning & design phase of the FLTS establishment in Outapi.

To ensure that the significant components of the environment as well as issues raised by I&APs (on stormwater) are considered and addressed, a Hydrogeological Assessment Study was done and a Report compiled for this EIA/ESA Study. The aim was to assess the proposed FLTS establishment and related activities on the water resources and provide measures to mitigate the potential impact thereto.

No further specialist studies were necessary for the Detailed ESA, as the potential risks and impacts will be managed and mitigated by the effective implementation of measures contained in the EMP. To ensure that the EMP implementation is effective and yields the desired management results/indicators, monitoring of such implementation should be done by an Environmental Control Officer and Competent Authority during project implementation (specifically construction or upgrading stage). Therefore, the Environmental Clearance Certificate (ECC) may be issued by the

Environmental Commissioner for the establishment of the FLTS scheme in Outapi on the three Portions and conditions adhered to by the Proponent and their associated contractors on both sites (selected localities).

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