APP-000497

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

FOR

NAMIBIA WATER SECTOR SUPPORT PROGRAM (NWSSP)
THE IXTAPA-OKEEHOLONGO RURAL WATER SUPPLY SCHEME–PHASE 2

PREPARED FOR:

Namibia Water Sector Support Program (NWSSP)

Ministry of Agriculture, Water and Land Reform

Luther St, Windhoek, Namibia

P/Bag: 13184, Windhoek.

Tel: +264-61-208 7111.

Windhoek, NAMIBIA

PREPARED BY:

KPM Environmental Consulting

P.O. Box 26328

Windhoek

Namibia

Email: kpm.consulting@iway.na

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ANNEXURES

1) Minutes of the Community Public Consultation Meeting, Wednesday, 13 April 2022 Venue: Akutsima, Uutsathima and Amarika
2) Attendance Register for the IORWSS Phase 2 – Uutsathima, Aakutsima, Amarika and nearby communities - Wednesday, 13 April 2022; Venue: Akutsima, Uutsathima and Amarika
3) Newspaper Advert Notices for the proposed development
4) Attendance Register for the IORWSS Phase PCM
5) List of identified Interested and Affected Parties
6) Project Background Information Document (BID)
7) Google Earth Project Locality Map

ABBREVIATIONS

AfDB	African Development Bank
AIDS	Acquired Immunodeficiency Syndrome
BEE	Black Economic Empowerment
BMCs	Basin Management Committees
BOT	Built Operate and Transfer
CBM	Community-Based Management
CLTS	Community-Led Total Sanitation
CoW	City of Windhoek
CSP	Country Strategy Papers
DEA	Directorate of Environmental Affairs
DPR	Direct Potable Reclamation
DWAF	Department of Water Affairs and Forestry
DWAF	Directorate of Water and Forestry
DWSSC	Directorate of Water Supply and Sanitation Coordination
EA	Environmental Assessment
ECC	Environmental Clearance Certificates
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
ES	Environmental Scoping
ESA	Environmental Social Assessment
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
GHG	Greenhouse Gas
GDP	Gross Domestic Product
WSSS	Water Supply Scheme
WASH	Water, Sanitation and Hygiene
MAWLR	Ministry of Agriculture, Water and Land Reform

ToR	Terms of References
NWSSP	Namibia Water Sector Support Program
NamWater	Namibia Water Corporation Ltd
IWRM	Integrated Water Resources Management
ISS	Integrated Safeguards System
HRDC	Human Resources Development Centre
MEFT	Ministry of Environment, Forestry and Tourism
ESMP	Environmental and Social Management Plan
SEA	Strategic Environmental Assessment
SESA	Strategic Environmental and Social Assessment
TCE	Technical Committee of Experts
NDP	National Development Plan
HPP	Harambee Prosperity Plan
CBNRM	
IORWSS	Iitapa-Okeeholongo Rural Water Supply Scheme
OS	Operational Safeguard
RAP	Resettlement Action Plan
CSPs	Country Strategy Papers
RISPs	Regional Integration Strategy Papers
IFC	International Finance Corporation
EPFIs	Equator Principles Financial Institutions
CBD	Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
IUCN	International Union for Conservation of Nature
UNFCCC	United Nations Framework Convention on Climate Change
SADC	Southern African Development Community
UNWC	UN Watercourses Convention
DWSSC	Ministry's Directorate of Water Supply and Sanitation Coordination

DEFINITION OF TERMS

The **'Bank'** –refers to the African Development Bank (AfDB) that is providing both technical and financial assistance for the implementation of the Extension of The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project (under the NWSSP).

The **'Consultant'** –refers to the team that is conducting the ESIA and the preparation of the ESMP.

The **'Government of Namibia'** –refers to the host government that will oversee the implementation of the NWSSP through Ministry of Agriculture, Water and Land Reform (MAWLR).

The **'Implementing Agencies'** –refers to the institutions/departments that are directly involved in the implementation of the Extension of The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project.

The **'Stakeholders'** –refers to the people, organisations, NGOs and hat are directly or indirectly affected and interested by the project.

The **'Environment'** –refers to the ecology, economy, society, and politics.

EXECUTIVE SUMMARY

Namibia is currently facing water scarcity as well as water supply and sanitation challenges, and to address these challenges, the Government of the Republic of Namibia (GRN) through the Ministry of Agriculture, Water and Land Reform (MAWLR) has embarked on implementing the Namibia Water Sector Support Program (NWSSP) which is co-funded by the African Development Bank (AfDB) and GRN. The overall objective of the development sector is to promote the sustainable production and utilization of water resources, but also the promotion of good sanitation practices. The proposed project aims to accomplish this through investing in water and sanitation infrastructure, which will boost access, quality, security, and sustainability of water supply and sanitation services.

Due to budget constraints the project scope was divided into phases (Phase 1 & Phase 2) in the year 2015. The construction of Phase-1 (Iitapa-Okeeholongo) was completed in 2018 with the 3000 m^3 Otshukwa Ground Level Reservoir, Booster Pump Station, 4 Elevated 180m^3 Steel Tanks and 42km Bulk Water Pipeline with ± 40km Feeder Lines to villages ending at water points and community manifolds.

This project (Phase 2) entails extension of the Iitapa-Okeeholongo Rural Water Supply Scheme (IORWS) (Phase 1) in the Omusati region to Uutsathima, Amarika, Akutsima and Aamega from the existing water infrastructure in Iitapa and Okeeholongo areas. The proposed Phase 2 project activities involves the construction of the Elevated Water Tanks, Main Bulk Pipelines, Feeder Pipelines and Manifold Connections. It is envisaged to include the following main project components:

- Construction of WS infrastructure in Subarea (Onambandje – Okulomono - Akutsima)
- Construction of WS infrastructure in Subarea (Okeeholongo – Olumpelengwa – Uutsathima).
- Construction of WS infrastructure in Subarea (Okeeholoongo – Aamega - Amarika)

The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project falls within the activities that are listed in the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007). Therefore, the proposed activity cannot be undertaken without an Environmental Clearance Certificate (ECC).

This Environmental and Social Impact Assessment (ESIA) and Environmental Management Plan (EMP) report are prepared by KPM Environmental Consulting CC (**Environmental Assessment Practitioner**) on behalf of Om'kumho Consulting which has been appointed by the MAWLR (**Proponent**) to provide the technical services related to the design and the construction of Iitapa-Okeeholongo Rural Water Supply Scheme (IORWS) (Phase 2).

This sub-consultancy service's main goal is to create an ESIA/ESMP for the Iitapa-Okeeholongo Rural Water Scheme (Phase 2), ensuring that the project's many components are taken care of in terms of socio-environmental sustainability, and minimize potential the potential downstream social and environmental impacts.

Alternatives to the proposed project development have been considered for pipeline routing options, the route selection process. Route selection for the second phase of the Iitapa-Okeeholongo Rural Water Supply Scheme will consider the local ecology, settlement tendencies, financial considerations, and current servitude availability. The alternatives were selected through professional experience and consultation with project stakeholders, the public and local communities The preferred route for the second phase of the Iitapa-Okeeholongo Rural Water Supply Scheme will incorporate linear infrastructure such as pipelines.

The alternatives assessment considers two categories of alternatives:

- Alternatives to the Project are methods that, while practically different, can be used to fulfil the Project's objectives.
- The several practical and cost-effective solutions to completing the Project are referred to as alternative means.

The option not to go ahead with the project (no-go option) (see, Chapter six) was ruled out due to the crucial necessity to address water security in the Omusati Region and Namibia as a whole. Alternative sites for sub-projects such as earth dams and reservoirs are critical for the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2.
The proposed Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities will identify optimal locations and routes through a site selection process. These are based on a screening criterion aimed at minimizing the potential negative impacts of proposed project activities.

The proposed project will not damage unique vertebrate fauna and flora, according to the conclusions of this ESIA and EMP report and will only have controllable localised negative impacts on the receiving environment. This is especially true if the suggested recommendations (mitigation measures) are adopted. The risks that are there will influence the planning, building, and operation phase in both a negative and positive way. This is because the construction of the water infrastructure may require some trenching, drilling, clearing and manual labour. During the operating phase, impacts will include water abstraction from aquifers and dams, invasion of tribal land, interference with social and cultural links, and others.

Furthermore, more settlements and people will move to the area during the project's operational phase because of the water that will be made available. This will hinder the conservation efforts of community conservancies like Sheya Shuushona and could lead to an increase in conflict between people and wildlife because of the increased population. In addition, impacts on the project region throughout the operational period include deforestation, increasing human settlement, and the effect of animal migration, such as elephant migration. The program will have accrued positive impacts among improved community livelihood, healthy, economic growth, and employment of people.

The project area does not host a large bio-diversity composition and therefore also limits fauna diversity. Overall, the project area has a high terrestrial species diversity. (Table 12). From the Critically Endangered and Endangered bird species list, it must be noted that the birds in Table

11 should require special attention in the region. The project will avail water for birds to drink while the negative impacts on these birds are negligible. Acacia trees and shrub Savanna dominates the project area but none of the recorded species is protected or requires special attention to conservation efforts. No other species that is protected under any law was noted during the site visit.

As part of the environmental assessment process the following mitigation measures and monitoring have been provided in this report as detailed in Section 9 and 10:

- Regulatory mitigation measures concerning the implementation of the proposed project activities.
- Mitigation measures to enhance positive socioeconomic impacts include the following actions to be implemented by the proponent.
- Monitoring measures of vegetation and habitat loss
- Monitoring measures for water resources pollution and general water usage.
- Monitoring measures to minimise negative socioeconomic impacts.
- Monitoring measures to minimise health and safety impacts.
- Monitoring measures to minimise visual impacts, and.
- Monitoring measures to minimise noise and dust impacts.

It is hereby recommended that the proposed Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 in the Omusati region be issued with an Environmental Clearance Certificate (ECC).

CHAPTER ONE

1. PROJECT BACKGROUND

The water crisis has put pressure on existing and potential water resources resulting in water insecurity, devastating climate change effects and scarcity challenges in Namibia. Namibia has been dealing with a national water crisis in recent years, with the country experiencing one of the worst droughts in 50 years. This has caused the problem to be a national concern facilitating the need for an immediate intervention by the Namibian Government to offer both short- and long-term sustainable solutions. Therefore, the Government of the Republic of Namibia (GRN) through the Ministry of Agriculture, Water and Land Reform (MAWLR) has embarked on implementing the Namibia Water Sector Support Program (NWSSP) which is co-funded by the African Development Bank (AfDB) and GRN. GRN through the MAWLR entered an agreement with the AfDB to address major infrastructure bottlenecks in the water sector. The program is to be implemented over 60 months beginning in January 2020 at a cost of N$ 3.3 billion.

The goal of GRN is to improve water supply and sanitation services in Namibia in terms of accessibility, quality, security, and sustainability. The proposed initiative aims to accomplish this by funding infrastructure for water and sewage systems. The intermediate goals of GRN are to enhance sanitation for 63.5% of the population and provide improved water supplies to 100% of the people. Thus, the Program will assist in developing and expanding sanitary facilities and water distribution systems, among other things (nationwide). Additionally, the project would support the creation of a national climate change adaptation programme as well as infrastructure enabling rural residents to collect rain and floodwater.

The proposed NWSSP sub-projects consist of rehabilitation work, construction of new water facilities and upgrading of existing infrastructure. That means the impacts of these sub-projects triggered both the environment and social aspects that need to be addressed prior and during the commencement of the project thus the need of this ESIA and ESMP. This ESIA and ESMP has been prepared for the Namibia Water Sector Support Program (NWSSP) funded by the African

Development Bank (AfDB), developed for the Government of the Republic of Namibia, Ministry of Agriculture, Water, and Land Reform (MAWLR). The NWSSP is covering three physical components (bulk water infrastructure development, sanitation infrastructure development, rural water supply and sanitation) implemented through 25 sub-projects to which the Iitapa - Okeeholongo Rural Water Supply Scheme applies.

Consequently, in August 2013 - Om'kumoh Consulting Engineers cc appointed by MAWRL to carry out the planning, design, and contract supervision. The project entails the extension of existing water infrastructure toward Iitapa, Okeehelongo and Uutsathima areas. But due to budget constraints, the project scope was divided into phases (Phase 1 & Phase 2).

The Iitapa-Okeeholongo Rural Water Supply Scheme (IORWSS) Phase 1 is not part of NWSSP and was completed in 2018. IORWSS Phase 1 entails connecting the communities of Iitapa and Okeeholongo to existing water infrastructure. IORWS Phase included the following infrastructure: 3000 m^3 Reinforced Concrete Ground Level Reservoir at Otshukwa, Booster Pump Station with a control room and ablution facility at Otshukwa, 4 x Elevated 180m^3 Steel Panel Tanks at (Oshuukwa, Oshilulu, Iitapa and Okeeholongo) and 42km Bulk water pipeline with ± 40km feeder lines to villages ending at water points.

Through the NWSSP, the MAWLR has secured funding for the construction of Phase 2 project component and contract has been signed with the consultant on 17th December 2021. The Phase-2 project component entails the extension of the IORWSS Phase 1 that was completed in 2018 to the communities of Olumpelengwa and Uutsathima areas covering all the villages within the 10Km buffer zone (see, Figure 1) (detailed descriptions in chapter three). The proposed project activities involve the construction of the elevated water tanks, main bulk pipelines, feeder pipelines and manifold connections for the Water Supply Scheme to Iitapa and Okeeholongo – Phase 2 in the Omusati Region.

1.1 Project Motivation

According to the project phase 2 term of reference document, the inhabitants in the target project area are currently affected by the severe water shortages in terms of quantity and the

unhealthy ground water quality. These vulnerable people including minors and the sick or elderly are forced to consume Class D water which results in a serious health threat to the community and affects their economic growth.

According to the 2022 demographic research report for iitapa okeeholongo rural water supply scheme phase 2, the project is anticipated to benefit villages like Okulomono, Akutsima, Olumpelengwa , Uutsathima, Onakatili, Amega, Amarika, Okakewa and Okambata and others in close vicinity to the project. The Development Goal is to provide sustainable water resources, resulting in improved access, quality, and security to safe drinking water for human consumption and industrial use. This will be accomplished by investing in water and sanitation infrastructure, which will result in improved health and livelihoods for people of living within the proximity of Iitapa – Okeeholongo rural water supply scheme area.

1.2 The purpose of this report

The proposed activity is listed under the EMA No. 7 of 2007, and its 2012 Environmental Impact Assessment (EIA) Regulations as one of the listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC). The proposed activity falls under the following sections of the EIA Regulations:

- Section 8.1 The abstraction of ground or surface water for industrial or commercial purposes.
- Section 8.2 The abstraction of groundwater at a volume exceeding the threshold authorized in terms of a law relating to water resources.
- Section 8.11 Alteration of natural wetland systems.
- Section 8.8 Construction and other activities in watercourses within flood lines.
- Section 8.9 Construction and other activities within a catchment area.

In the light of this requirement and to ensure that sustainable development is promoted the MAWLR in partnership with the AfDB is inviting competent and experienced Environmental and Social Consultant to assist with the development of an ESIA/ESMP for this project. The general objective of the consultancy is to support the program with developing an ESIA/ESMP, for Iitapa-

Okeeholongo Rural Water Scheme Phase 2. To ensure the socio-environmental sustainability of its different components are addressed and avoid/minimize the anticipated downstream environmental and social impacts.

The main goal of this ESIA and ESMP is to make sure that the Iitapa-Okeeholongo Rural Water Supply Scheme is implemented in a way that is both environmentally and socially sustainable. The Iitapa-Okeeholongo Rural Water Supply Scheme can be evaluated using the ESIA/ESMP, which also considers institutional measures to address the project's negative environmental and social impacts. The ESMP includes actions to address the AfDB Operational Safeguard (OS) on Environmental and Social Assessment (The Bank's OS 1), remedial measures, preventative and control strategies for potential negative environmental and social impacts due to proposed program activities, and actions to enhance positive program impacts.

The IORWSS activities are categorized as Category 2 projects under the Operational Safeguards Environmental and Social Assessment ("The Bank's S1") of the AfDB. These means such projects are likely to have negative site-specific environmental and/or social impacts, but these effects can be reduced by using appropriate management and mitigation measures, incorporating internationally recognized design criteria and standards, and environmental performance can be improved. It is expected that most of the subprojects in the Namibian Environmental Impact Assessment (EIA) Regulations will at least complete the environmental screening stage. The environmental scoping stage will only include those with potential negative impacts and an environmental project management plan.

The ESMP is presented in the following two categories. The first section is the IORWSS activities and project impacts; and the second section is the Monitoring and Capacity building of the same project. This report should be read in conjunction with the Strategic Environmental and Social Assessment (SESA) report. The ESMP identifies project potential impacts, mitigation, and monitoring. The ESMP is summaries institutional arrangements for the implementation of mitigation measures, the section monitoring the implementation of mitigation measures, and

capacity building needs as well as cost estimates and time horizons for such activities and monitoring indicators. Identified potential socio-economic impacts that need resettlement and compensation will be solved through the Resettlement Action Plan (RAP). A separate RAP will be prepared if the need arises.

The specific objectives of this ESIA / ESMP include:

- To minimize or avoid adverse environmental and social effects before they occur.
- To integrate environmental and social concerns into decision-making. Therefore, this ESIA will be evaluated by whether it manages to meet these goals.
- To establish clear procedures and methodologies for the environmental and social assessment, review, approval, and implementation of subprojects to be financed under the program.
- To Specify appropriate roles and responsibilities and outline the necessary reporting procedures for managing and monitoring environmental and social risks related to subprojects.
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMP.
- To Establish project funding required implementing the ESMP requirements.
- To Provide lessons learned for application to future programs.

CHAPTER TWO

2. ESIA AND ESMP METHODOLOGY

2.1 Environmental and social impact assessment process

The ESIA process constitutes a systematic approach to the evaluation of a project and its associated activities throughout the project lifecycle. The process includes:

- Screening and Scoping.
- Project Alternatives and Base Case Design.
- Existing Environmental and Socio-Economic Conditions.
- Impact Assessment.
- Residual Impact Identification.
- Disclosure and Stakeholder Consultation; and
- Monitoring and Mitigation.

Therefore, this ESIA / ESMP Report has been prepared with a view of complying with Namibia's Environmental Assessment Policy of 1995, the Environmental Management Act No 7 of 2007 (Section 27(2)(a), Government Notice No 29 of 2012 for Listed Activities and EIA Regulations.

This ESIA / ESMP also made use of the following existing literatures but not limited to:

- The Constitution of Namibia, National Policies and their supporting laws and regulations: Water, Environment, Climate Change, Decentralisation, Land and Land Use, Poverty, Gender and
- The AfDB's Safeguard Policies

The process was supported by extensive consultations with the implementing agency MAWLR who will handover to NamWater to manage and maintain. This project employed further consultation with other diverse stakeholders including the funding agency (The AfDB), and the

key national stakeholders like the Government institutions, ministries, NGOs, civil societies, traditional authorities, and municipalities/Town councils.

2.1.1 Overview of the African Development Bank's Operational Safeguard Policies

OS1 Environmental and Social Assessment - Out of the five AfDB's Operational Safeguard policies designed to ensure that projects finances are environmentally and socially sustainable, the main OS 1 trigger is:

- **Environmental and Social Assessment OS1**

OS1 sets out the Bank's overarching requirements for borrowers or clients to identify, assess, and manage the potential environmental and social risks and impacts of a project, including climate change issues. The assessment covers all stages of the project, from Initiation, Planning, Execution, Monitor and Control through to decommissioning stage.

- **Objectives of Operational Safeguard**

The objective of this overarching Operational Safeguard (OS), along with the OSs that support it, is to mainstream environmental and social considerations, including those related to climate change vulnerability into Bank operations and thereby contribute to sustainable development in the region.

The specific objectives are as follow:

- Mainstream environmental, climate change, and social considerations into Country Strategy Papers (CSPs) and Regional Integration Strategy Papers (RISPs).
- Identify and assess the environmental and social impacts and risks, including those related to gender, climate change and vulnerability of Bank lending and grant-financed operations in their areas of influence.
- Avoid or, if avoidance is not possible, minimise, mitigate, and compensate for adverse impacts on the environment and affected communities.

- Provide for stakeholders' participation during the consultation process so that affected communities and stakeholders have timely access to information in suitable forms about the Bank operations, and are consulted meaningfully about issues that may affect them; and
- Ensure the effective management of environmental and social risks in projects during and after implementation.

- **Trigger**

This OS is triggered by the mandatory Environmental and Social Screening Process through which the project is assigned a Category based upon its potential environmental and social risks and impacts in its area of influence. These potential risks and impacts include physical, biological, socio-economic, health, safety, cultural property, transboundary impacts, and global impacts including Greenhouse Gas (GHG) emissions and vulnerability to climate change effects.

2.2 Environmental and Social Assessment

Rehabilitation work, new water facility construction, and infrastructure upgrades are all part of the NWSSP sub-projects, including the Iitapa-Okeeholongo Rural Water Supply Scheme, and all of them require prior environmental permission from a competent agency and the Ministry of Environment, Forestry and Tourism (MEFT) under Namibian law.

The proposed project requires an Environmental and Social Impact Assessment (ESIA) and the implementation of an Environmental and Social Management Plan (ESMP) during the construction and operational phases as per the Environmental Management Act (Act No.7 of 2007) and the related Environmental Impact Assessment Regulations (No. 30 of 2012)[1].

[1] https://www.lac.org.na/laws/annoSTAT/Environmental%20Management%20Act%207%20of%202007.pdf

The ESIA must also be carried out in accordance with the African Development Bank's (AfDB) Environmental and Social Assessment Procedures[2] and the Integrated Safeguard System (ISS)[3] for all Category 2 projects.

The ESMP is required so that management strategies for water facilities can be implemented during the construction and operation stages, minimizing potential negative consequences while maximizing positive benefits from the planned Iitapa-Okeeholongo Rural Water Supply Scheme-Phase 2.

The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme calls for an Environmental and Social Assessment study. Section 54 of the Namibia Environmental Management Act No. 7 of 2007 mandates that an Environmental and Social impact Assessment (ESIA) be completed before the implementation of any policy, program, or plan. When lending to governments, the AfDB's Integrated Safeguard policy, and Operational Safeguards state that all projects or plans with possible environmental and social implications, whether good or negative, must undergo a Strategic Environmental and Social assessment (SESA). As a result, this report provides the Government of Namibia's Environmental and Social Impact Assessment for the execution of the Iitapa-Okeeholongo Rural Water Supply Scheme-Phase 2.

Social Impact Assessment refers to the processes of analysing, monitoring, and managing the intended and unintended negative and positive social consequences of planned interventions (policies, programs, plans, and projects), as well as any social change processes triggered by those interventions. Its overarching goal is to create a more sustainable and equitable biophysical and human environment.

The following are the key aspects of this definition:

[2] https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/SSS_%E2%80%93vol1_%E2%80%93_Issue4_-_EN_-_Environmental_and_Social_Assessment_Procedures__ESAP_.pdf
[3] https://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/December_2013_-_AfDB%E2%80%99S_Integrated_Safeguards_System__-_Policy_Statement_and_Operational_Safeguards.pdf

- The purpose of impact assessment is to achieve a more environmental, sociocultural, economical sustainable, and equitable environment. As a result, impact assessment fosters community development and empowerment, capacity building, and the creation of social capital (social networks and trust).
- The primary concern of ESIA is a proactive approach to development and improved development outcomes, rather than the detection or amelioration of negative or unexpected consequences. Assisting communities and other stakeholders in identifying development goals and maximizing positive outcomes may be more essential than minimizing negative impacts.
- ESIA's methodology can be applied to a wide range of planned interventions and implemented on behalf of a diverse range of parties.
- ESIA contributes to the adaptive management of policies, programs, plans, and projects, it must inform the design and operation of the planned intervention
- ESIA relies on local knowledge and participatory processes to assess the concerns of interested and impacted parties. It involves stakeholders in the social effect assessment, alternative analysis, and monitoring of the planned intervention.
- Good ESIA practice recognizes that social, economic, and biophysical impacts are naturally and inexorably linked. Any change in one of these domains will cause changes in the others. As a result, ESIA must acquire an awareness of the impact pathways that are produced when a change in one area has effects in other domains, as well as the iterative or flow-on implications within each domain. In other words, second and higher order consequences, as well as cumulative repercussions, must be considered.
- For ESIA to learn and evolve, there must be an examination of the impacts that happened because of previous operations. ESIA must be reflective and evaluative of its theoretical foundations as well as its practice.
- While ESIA is often used for planned initiatives, ESIA methodologies can also be used to assess the social repercussions of other sorts of events such as disasters, demographic change, and epidemics (Corsi et al, 2015; Government of The Republic of Namibia: Ministry of Agriculture, Water and Land Reform (MAWLR), 2019).

ESIA is best described as an umbrella or overarching framework that examines all human impacts as well as the different ways in which individuals and communities interact with their sociocultural, economic, and biophysical environments (Corsi et al, 2015).

ESIA thus has strong ties to a wide range of specialist sub-fields involved in the assessment of areas such as aesthetic impacts (landscape analysis); archaeological and cultural heritage impacts (both tangible and intangible); community impacts; cultural impacts; demographic impacts; development impacts; economic and fiscal impacts; gender impacts; health and mental health impacts; impacts on indigenous rights; infrastructural impacts; institutional impacts; and so on (ibid.).

2.3 Methodology and Approach to the Environmental and Social Impact Assessment

The primary goal of this ESIA is to identify potential environmental and social impacts for the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2's planned future activities, as well as to develop a comprehensive management framework (Environmental and Social Management Framework – ESMF)[4] to address management options for potential negative impacts and assign responsibilities for impact management and monitoring purposes.

The assessment incorporated comprehensive, unrestricted stakeholder input through a core stakeholder engagement methodology. The purpose of the wide consultations was to collect feedback from a varied set of individuals, at the very least at the local, constituency, regional, and national levels of government.

[4] Environmental and Social Management Framework or "ESMF" means the framework included in the EA setting out modalities to be followed in assessing the potential adverse environmental and social impact associated with activities to be implemented under the Project, and the measures to be taken to offset, reduce, or mitigate such adverse impact (Law Insider, 2022)

2.3.1 Baseline data collection required for ESIA

The EAP made use of Baseline data collection methods, which refer to collection of baseline information on biophysical, social, and economic aspects of a project area - Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2.

The project area is defined as the area where the environmental consequences and impacts of a project are felt during the construction or operational stages.

The collection of baseline information serves the following **two** purposes:

- It provides a description of the status and trends of environmental factors (e.g., air pollutant concentrations) against which predicted changes can be compared and evaluated in terms of importance.
- It provides a means of detecting actual change by monitoring once a project has been initiated.

Major environmental parameters to be considered in the field are:

- **Physical:** topography, geology, soil types, surface and groundwater condition, watershed condition, pollution levels etc.
- **Biological:** terrestrial and aquatic ecosystems, types of flora and fauna, environmentally sensitive wetlands, prime agricultural land etc
- **Socio-economic:** demography, development needs and potential, infrastructure facilities, economic activities etc.
- **Cultural:** location and state of archaeological, historical, and religious sites

2.3.2 Data Sources and Methods of Collection

The following data were collected :

- **Primary Sources:** Result of the field and laboratory data collected and analysed directly
- **Secondary sources:** Data collected indirectly from published records or documents such as project documents, village profiles, maps, photos, internet sources, etc.

The following data collection methods were employed:

- **General methods:** Literature review, map interpretation, checklists (e.g., scaling and questionnaire checklists, matrices etc)
- **Resource-based methods**: Scientific instruments and techniques (inventory, species-area curve, sampling techniques, PRA, RRA)

2.3.3 Data Processing

Raw data is converted into knowledge and information that is more easily comprehensible. Tools such as tables, graphs, and maps can be used for data presentation.

- **For physical data:** graphs, tables, enumeration
- **For biological data:** species numbers, volume, density, and biomass can be calculated. Species diversity (No. of species/Area sampled) can also be used for processing biological data calculated through the species richness of an area.
- **Socioeconomic data:** Data such as male/female male/female, skilled/semi-skilled labour force for construction and operational activities - presented through, graphs, tables, population pyramids etc. which can be collected through sampling (random, stratified, or mixed).

The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 ESIA study allowed the incorporation of environmental and social considerations into the implementation of projects at two levels as shown in Table 1.

Table 1 Environmental and Social Considerations into Project Implementation.

Level	Description
Strategic	Aassessment of legal, policy, regulatory, institutional, and capacity context for addressing key environmental and social sustainability issues associated with the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 implementation at all phases.

Environmental and Social Management Framework (ESMF):	Assessment of the environmental and social hazards of improvements suggested under Phase 2 of the Iitapa-Okeeholongo Rural Water Supply Scheme to address Namibia's water supply and sanitation concerns. Improve normative frameworks and institutional capacities for Phase 2 implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme, guiding the program's implementation and allocating duties and responsibilities to the institutions engaged in the program's implementation.

2.4 An Environmental and Social Management Framework (ESMP)

The strategic component was linked to the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 initiative to address water supply and sanitation issues, whereas the ESMP component was linked to the project implementing partners' responsibilities to manage the identified impacts. It should be noted that the ESMP components are inextricably linked.

2.5 The Environmental Assessment Practitioner - KPM Environmental Consulting

KPM Environmental Consulting offers environmental consulting services. We specialize in environmental consulting, which includes the creation of environmental impact assessments, natural resource management plans, and the development and execution of health and safety plans, as well as project evaluations. KPM Environmental is a dynamic consultant that provides long-term solutions to the commercial sector, non-governmental organizations, governments, and donors. KPM has extensive expertise in environmental evaluations and employs certified and experienced environmental specialists.

KPM Environmental Consulting was appointed to conduct the environmental and social assessments, including the consultation process, to ensure that the proposed Iitapa-

Okeeholongo Rural Water Supply Scheme – Phase 2 activities comply with Namibian laws and international best practices on environmental and social standards.

KPM Environmental Consulting, as the appointed Sub-consultant for the extension of the Iitapa-Okeeholongo Rural Water Supply Phase 2, will be responsible for implementing the ESMP, while MAWLR, through the NWSSP, will be responsible for monitoring compliance to the ESMP, in close collaboration with the Omusati Regional and local authorities.

2.5.1 Project Team Members Roles and Responsibilities

The ESIA / ESMP consulting team comprised of four (4) key environmental and social experts who will conduct the ESIA process and compile the reports. The key experts for this project and their roles are as follows:

Table 2 Consulting team and roles

TEAM MEMBERS	ROLES/ EXPERTISE
Mr. Immanuel Hamadziripi	Team Leader.
Mr Johannes Andreas	Landscape Ecologist
Ms Lea Ngashikuao	Environmental Assessment Practitioner.
Ms Nicole Goagoses	Environmental Assessment Practitioner Intern

KPM Environmental Consulting has a pool of specialists who can be brought in to provide any required specialist inputs when the need arises.

2.5.2 Further information - KPM Environmental Consulting:

Mr. Immanuel Hamadziripi

Senior Environmental Assessment Practitioner

KPM Environmental Consulting

Tel: +264 85 747 2222

info@kpmenvironmtal.com

2.5.3 Project Deliverables

The following are the project deliverables, as agreed in the Terms of References:

- Project Inception Report.
- Project Background Information Document.
- Public Consultation Meeting Notes and Proof of Project Advertisement.
- Draft ESIA/ESMP Reports, including the Stakeholder Engagement Plan.
- Updated ESIA and ESMP Reports.
- Resettlement Action Report (scoped out)
- Certificate of Environmental Clearance and approved ESIA / ESMP (including SEP) Reports

CHAPTER THREE

3. PUBLIC PARTICIPATION PROCESS

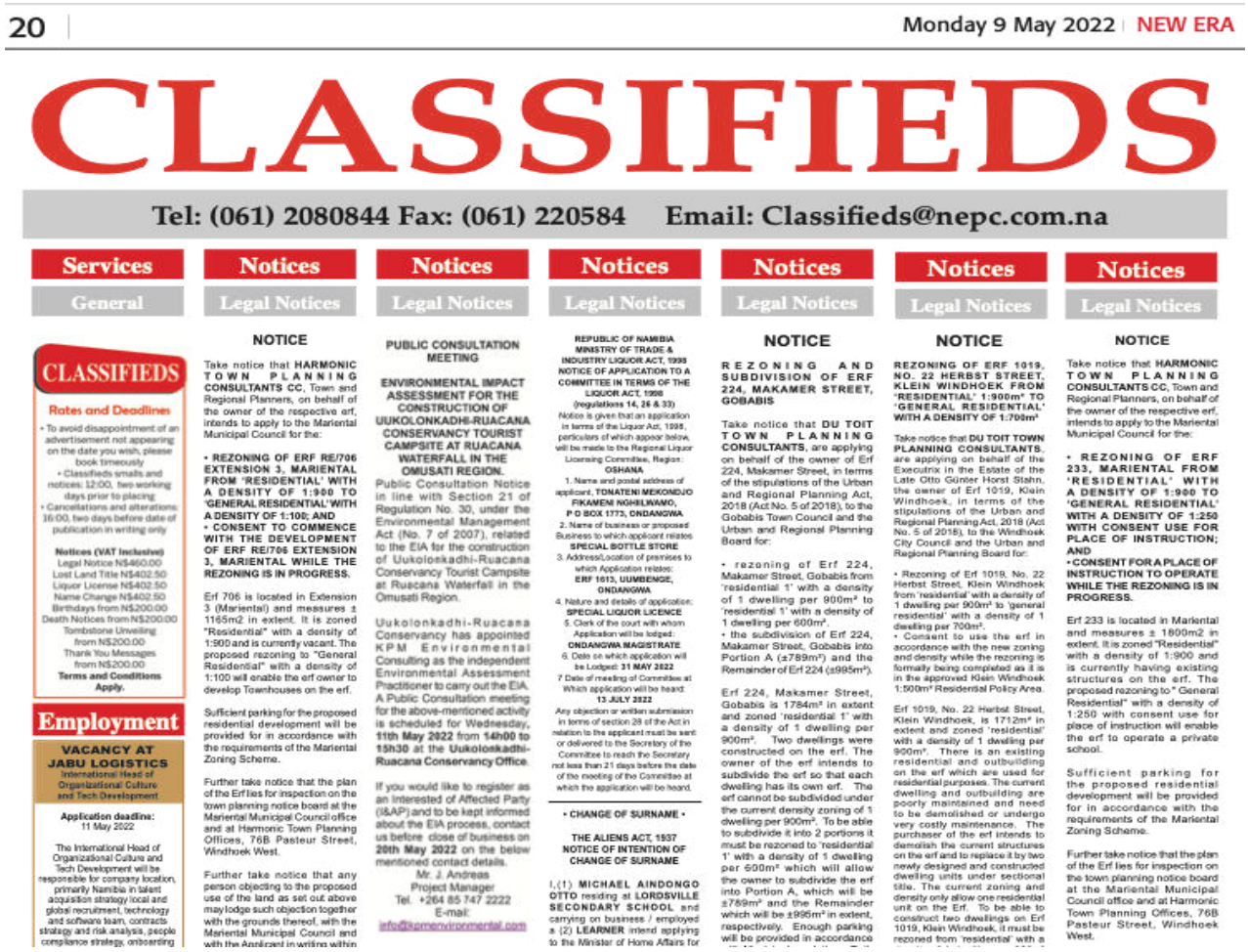
Public participation process was undertaken in accordance with the principles and requirements of the Namibian Environmental Management Act, No 7 of 2007 and associated Regulations.
The approach to the public participation process was open and participatory with the full involvement of Interested and Affected Parties (IAPs). This approach ensured that reasonable measures were taken to identify stakeholder issues and concerns.

The Methodology for Public Participation was as follows:

I&APs were identified through invitations such as newspaper advertisements and local radio announcements. A public notice was sent via local radios by community councillors and by headmen/women to inform the general public and other interested and affected stakeholders. The list of registered I&APs is provided in Appendix A.

The public participation process commenced with a total of 4 newspaper advertisements in two widely distributed newspapers to comply with the Environmental Management Act No.7 of 2007 and its Environmental Regulations. The proposed project was advertised twice in two newspapers; New Era and the Namibian (on the 28 of March and 04 April 2022) as shown in Figure 1 and 2. Known interested and affected parties were given official letters of invitation.

Figure 1 Newspaper advertisement for the public meeting dated 9 May 2022.



20 | Monday 9 May 2022 | NEW ERA

CLASSIFIEDS

Tel: (061) 2080844 Fax: (061) 220584 Email: Classifieds@nepc.com.na

Services / General

CLASSIFIEDS

Rates and Deadlines

- To avoid disappointment of an advertisement not appearing on the date you wish, please book timeously
- Classifieds smalls and notices: 12:00, two working days prior to placing
- Cancellations and alterations: 16:00, two days before date of publication in writing only

Notices (VAT Inclusive)
Legal Notice N$460.00
Lost Land Title N$402.50
Liquor License N$402.50
Name Change N$402.50
Birthdays from N$200.00
Death Notices from N$200.00
Tombstone Unveiling from N$200.00
Thank You Messages from N$200.00
Terms and Conditions Apply.

Employment

VACANCY AT JABU LOGISTICS
International Head of Organizational Culture and Tech Development

Application deadline: 11 May 2022

The International Head of Organizational Culture and Tech Development will be responsible for company location, primarily Namibia in talent acquisition strategy local and global recruitment, technology and software team, contracts strategy and risk analysis, people compliance strategy, onboarding

Notices / Legal Notices

NOTICE

Take notice that **HARMONIC TOWN PLANNING CONSULTANTS CC**, Town and Regional Planners, on behalf of the owner of the respective erf, intends to apply to the Mariental Municipal Council for the:

• REZONING OF ERF RE/706 EXTENSION 3, MARIENTAL FROM 'RESIDENTIAL' WITH A DENSITY OF 1:900 TO 'GENERAL RESIDENTIAL' WITH A DENSITY OF 1:100; AND
• CONSENT TO COMMENCE WITH THE DEVELOPMENT OF ERF RE/706 EXTENSION 3, MARIENTAL WHILE THE REZONING IS IN PROGRESS.

Erf 706 is located in Extension 3 (Mariental) and measures ± 1165m2 in extent. It is zoned "Residential" with a density of 1:900 and is currently vacant. The proposed rezoning to "General Residential" with a density of 1:100 will enable the erf owner to develop Townhouses on the erf.

Sufficient parking for the proposed residential development will be provided for in accordance with the requirements of the Mariental Zoning Scheme.

Further take notice that the plan of the Erf lies for inspection on the town planning notice board at the Mariental Municipal Council office and at Harmonic Town Planning Offices, 76B Pasteur Street, Windhoek West.

Further take notice that any person objecting to the proposed use of the land as set out above may lodge such objection together with the grounds thereof, with the Mariental Municipal Council and with the Applicant in writing within

Notices / Legal Notices

PUBLIC CONSULTATION MEETING

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE CONSTRUCTION OF UUKOLONKADHI-RUACANA CONSERVANCY TOURIST CAMPSITE AT RUACANA WATERFALL IN THE OMUSATI REGION.

Public Consultation Notice in line with Section 21 of Regulation No. 30, under the Environmental Management Act (No. 7 of 2007), related to the EIA for the construction of Uukolonkadhi-Ruacana Conservancy Tourist Campsite at Ruacana Waterfall in the Omusati Region.

Uukolonkadhi-Ruacana Conservancy has appointed KPM Environmental Consulting as the independent Environmental Assessment Practitioner to carry out the EIA. A Public Consultation meeting for the above-mentioned activity is scheduled for Wednesday, **11th May 2022** from **14h00 to 15h30** at the **Uukolonkadhi-Ruacana Conservancy Office**.

If you would like to register as an Interested of Affected Party (I&AP) and to be kept informed about the EIA process, contact us before close of business on **20th May 2022** on the below mentioned contact details.

Mr. J. Andreas
Project Manager
Tel. +264 85 747 2222
E-mail:
info@kpmenvironmental.com

Notices / Legal Notices

REPUBLIC OF NAMIBIA
MINISTRY OF TRADE & INDUSTRY LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998
(regulations 14, 26 & 33)

Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Regional Liquor Licensing Committee, Region:
OSHANA

1. Name and postal address of applicant, **TONATENI MEKONDJO FIKAMENI NGHILIWAMO, P O BOX 1773, ONDANGWA**
2. Name of business or proposed Business to which applicant relates **SPECIAL BOTTLE STORE**
3. Address/Location of premises to which Application relates: **ERF 1013, UUMBENGE, ONDANGWA**
4. Nature and details of application: **SPECIAL LIQUOR LICENCE**
5. Clerk of the court with whom Application will be lodged: **ONDANGWA MAGISTRATE**
6. Date on which application will be Lodged: **31 MAY 2022**
7. Date of meeting of Committee at Which application will be heard: **13 JULY 2022**

Any objection or written submission in terms of section 28 of the Act in relation to the applicant must be sent or delivered to the Secretary of the Committee to reach the Secretary not less than 21 days before the date of the meeting of the Committee at which the application will be heard.

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
NOTICE OF INTENTION OF CHANGE OF SURNAME

I,(1) **MICHAEL AINDONGO OTTO** residing at **LORDSVILLE SECONDARY SCHOOL** and carrying on business / employed a (2) **LEARNER** intend applying to the Minister of Home Affairs for

Notices / Legal Notices

NOTICE

REZONING AND SUBDIVISION OF ERF 224, MAKAMER STREET, GOBABIS

Take notice that **DU TOIT TOWN PLANNING CONSULTANTS**, are applying on behalf of the owner of Erf 224, Makamer Street, in terms of the stipulations of the Urban and Regional Planning Act, 2018 (Act No. 5 of 2018), to the Gobabis Town Council and the Urban and Regional Planning Board for:

• rezoning of Erf 224, Makamer Street, Gobabis from 'residential 1' with a density of 1 dwelling per 900m² to 'residential 1' with a density of 1 dwelling per 600m².
• the subdivision of Erf 224, Makamer Street, Gobabis into Portion A (±789m²) and the Remainder of Erf 224 (±995m²).

Erf 224, Makamer Street, Gobabis is 1784m² in extent and zoned 'residential 1' with a density of 1 dwelling per 900m². Two dwellings were constructed on the erf. The owner of the erf intends to subdivide the erf so that each dwelling has its own erf. The erf cannot be subdivided under the current density zoning of 1 dwelling per 900m². To be able to subdivide it into 2 portions it must be rezoned to 'residential 1' with a density of 1 dwelling per 600m² which will allow the owner to subdivide the erf into Portion A, which will be ±789m² and the Remainder which will be ±995m² in extent, respectively. Enough parking will be provided in accordance

Notices / Legal Notices

NOTICE

REZONING OF ERF 1019, NO. 22 HERBST STREET, KLEIN WINDHOEK FROM 'RESIDENTIAL' 1:900m² TO 'GENERAL RESIDENTIAL' WITH A DENSITY OF 1:700m²

Take notice that **DU TOIT TOWN PLANNING CONSULTANTS**, are applying on behalf of the Executrix in the Estate of the Late Otto Günter Horst Stehn, the owner of Erf 1019, Klein Windhoek, in terms of the stipulations of the Urban and Regional Planning Act, 2018 (Act No. 5 of 2018), to the Windhoek City Council and the Urban and Regional Planning Board for:

• Rezoning of Erf 1019, No. 22 Herbst Street, Klein Windhoek from 'residential' with a density of 1 dwelling per 900m² to 'general residential' with a density of 1 dwelling per 700m².
• Consent to use the erf in accordance with the new zoning and density while the rezoning is formally being completed as it is in the approved Klein Windhoek 1:500m² Residential Policy Area.

Erf 1019, No. 22 Herbst Street, Klein Windhoek, is 1712m² in extent and zoned 'residential' with a density of 1 dwelling per 900m². There is an existing residential and outbuilding on the erf which are used for residential purposes. The current dwelling and outbuilding are poorly maintained and need to be demolished or undergo very costly maintenance. The purchaser of the erf intends to demolish the current structures on the erf and to replace it by two newly designed and constructed dwelling units under sectional title. The current zoning and density only allow one residential unit on the Erf. To be able to construct two dwellings on Erf 1019, Klein Windhoek, it must be rezoned from 'residential' with a

Notices / Legal Notices

NOTICE

Take notice that **HARMONIC TOWN PLANNING CONSULTANTS CC**, Town and Regional Planners, on behalf of the owner of the respective erf, intends to apply to the Mariental Municipal Council for the:

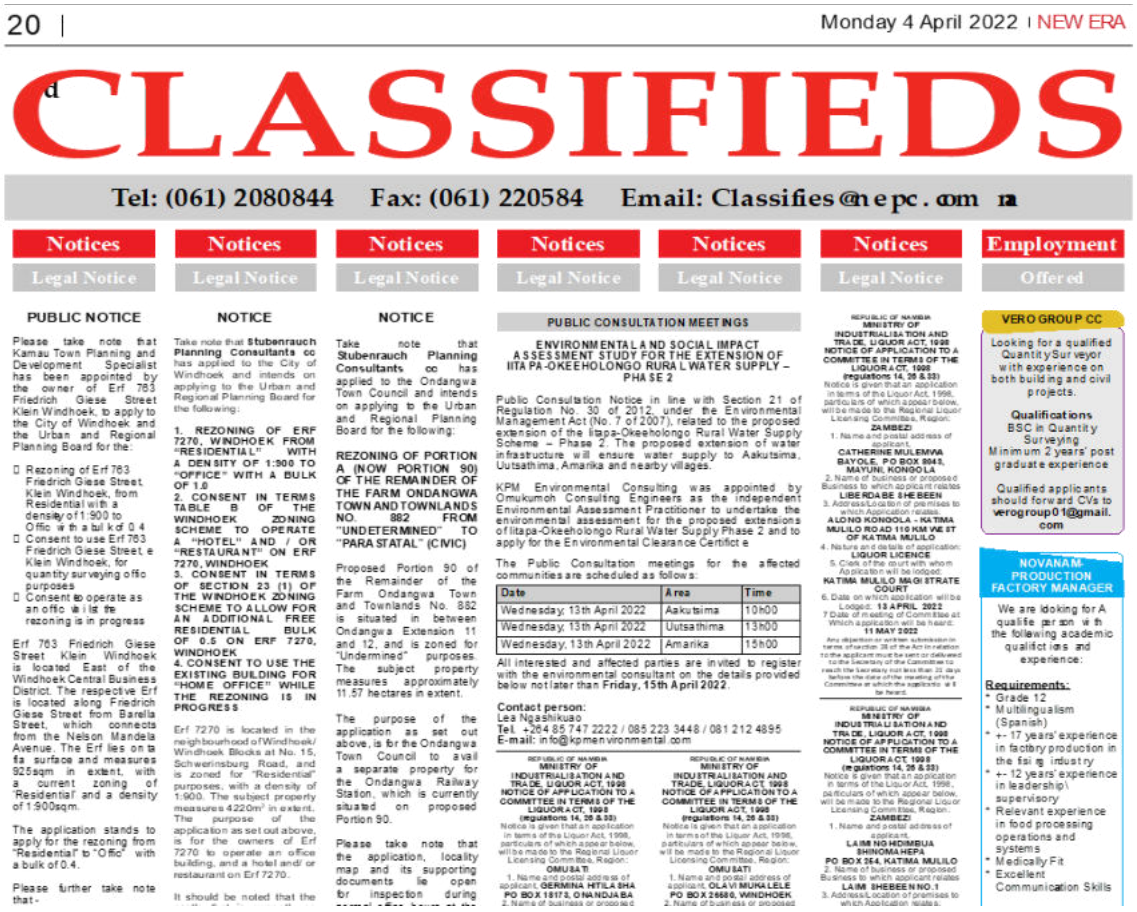
• REZONING OF ERF 233, MARIENTAL FROM 'RESIDENTIAL' WITH A DENSITY OF 1:900 TO 'GENERAL RESIDENTIAL' WITH A DENSITY OF 1:250 WITH CONSENT USE FOR PLACE OF INSTRUCTION; AND
• CONSENT FOR A PLACE OF INSTRUCTION TO OPERATE WHILE THE REZONING IS IN PROGRESS.

Erf 233 is located in Mariental and measures ± 1800m2 in extent. It is zoned "Residential" with a density of 1:900 and is currently having existing structures on the erf. The proposed rezoning to " General Residential" with a density of 1:250 with consent use for place of instruction will enable the erf to operate a private school.

Sufficient parking for the proposed residential development will be provided for in accordance with the requirements of the Mariental Zoning Scheme.

Further take notice that the plan of the Erf lies for inspection on the town planning notice board at the Mariental Municipal Council office and at Harmonic Town Planning Offices, 76B Pasteur Street, Windhoek West.

Figure 2 Newspaper advertisement for the public meeting dated 4 April 2022.



20 | Monday 4 April 2022 | NEW ERA

CLASSIFIEDS

Tel: (061) 2080844 Fax: (061) 220584 Email: Classifies@nepc.com.na

Notices — Legal Notice

PUBLIC NOTICE

Please take note that Kamau Town Planning and Development Specialist has been appointed by the owner of Erf 763 Friedrich Giese Street Klein Windhoek, to apply to the City of Windhoek and the Urban and Regional Planning Board for the:

- Rezoning of Erf 763 Friedrich Giese Street, Klein Windhoek, from Residential with a density of 1:900 to Office with a bulk of 0.4
- Consent to use Erf 763 Friedrich Giese Street, Klein Windhoek, for quantity surveying office purposes
- Consent to operate as an office whilst the rezoning is in progress

Erf 763 Friedrich Giese Street Klein Windhoek is located East of the Windhoek Central Business District. The respective Erf is located along Friedrich Giese Street from Barella Street, which connects from the Nelson Mandela Avenue. The Erf lies on a flat surface and measures 925sqm in extent, with a current zoning of 'Residential' and a density of 1:900sqm.

The application stands to apply for the rezoning from "Residential" to "Office" with a bulk of 0.4.

Please further take note that -

NOTICE

Take note that **Stubenrauch Planning Consultants cc** has applied to the City of Windhoek and intends on applying to the Urban and Regional Planning Board for the following:

1. REZONING OF ERF 7270, WINDHOEK FROM "RESIDENTIAL" WITH A DENSITY OF 1:900 TO "OFFICE" WITH A BULK OF 1.0
2. CONSENT IN TERMS TABLE B OF THE WINDHOEK ZONING SCHEME TO OPERATE A "HOTEL" AND / OR "RESTAURANT" ON ERF 7270, WINDHOEK
3. CONSENT IN TERMS OF SECTION 23 (1) OF THE WINDHOEK ZONING SCHEME TO ALLOW FOR AN ADDITIONAL FREE RESIDENTIAL BULK OF 0.6 ON ERF 7270, WINDHOEK
4. CONSENT TO USE THE EXISTING BUILDING FOR "HOME OFFICE" WHILE THE REZONING IS IN PROGRESS

Erf 7270 is located in the neighbourhood of Windhoek/ Windhoek Blocks at No. 15, Schwerinsburg Road, and is zoned for "Residential" purposes, with a density of 1:900. The subject property measures 4220m² in extent. The purpose of the application as set out above, is for the owners of Erf 7270 to operate an office building, and a hotel and/ or restaurant on Erf 7270.

It should be noted that the

NOTICE

Take note that **Stubenrauch Planning Consultants cc** has applied to the Ondangwa Town Council and intends on applying to the Urban and Regional Planning Board for the following:

REZONING OF PORTION A (NOW PORTION 90) OF THE REMAINDER OF THE FARM ONDANGWA TOWN AND TOWNLANDS NO. 882 FROM "UNDETERMINED" TO "PARASTATAL" (CIVIC)

Proposed Portion 90 of the Remainder of the Farm Ondangwa Town and Townlands No. 882 is situated in between Ondangwa Extension 11 and 12, and is zoned for "Undermined" purposes. The subject property measures approximately 11.57 hectares in extent.

The purpose of the application as set out above, is for the Ondangwa Town Council to avail a separate property for the Ondangwa Railway Station, which is currently situated on proposed Portion 90.

Please take note that the application, locality map and its supporting documents lie open for inspection during

PUBLIC CONSULTATION MEETINGS

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY FOR THE EXTENSION OF IITA PA-OKEEHOLONGO RURAL WATER SUPPLY – PHASE 2

Public Consultation Notice in line with Section 21 of Regulation No. 30 of 2012, under the Environmental Management Act (No. 7 of 2007), related to the proposed extension of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2. The proposed extension of water infrastructure will ensure water supply to Aakutsima, Uutsathima, Amarika and nearby villages.

KPM Environmental Consulting was appointed by Omukumoh Consulting Engineers as the independent Environmental Assessment Practitioner to undertake the environmental assessment for the proposed extensions of Iitapa-Okeeholongo Rural Water Supply Phase 2 and to apply for the Environmental Clearance Certificate

The Public Consultation meetings for the affected communities are scheduled as follows:

Date	Area	Time
Wednesday, 13th April 2022	Aakutsima	10h00
Wednesday, 13th April 2022	Uutsathima	13h00
Wednesday, 13th April 2022	Amarika	15h00

All interested and affected parties are invited to register with the environmental consultant on the details provided below not later than **Friday, 15th April 2022**.

Contact person:
Lea Ngashikuao
Tel: +264 85 747 2222 / 085 223 3448 / 081 212 4895
E-mail: info@kpmenvironmental.com

REPUBLIC OF NAMIBIA
MINISTRY OF INDUSTRIALISATION AND TRADE. LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998
(regulations 14, 26 & 33)
Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Regional Liquor Licensing Committee, Region:
OMUSATI
1. Name and postal address of applicant, **GERMINA HITILA SHA PO BOX 18173, ONANDJABA**
2. Name of business or proposed

REPUBLIC OF NAMIBIA
MINISTRY OF INDUSTRIALISATION AND TRADE. LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998
(regulations 14, 26 & 33)
Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Regional Liquor Licensing Committee, Region:
OMUSATI
1. Name and postal address of applicant, **OLAVI MUHALELE PO BOX 26660, WINDHOEK**
2. Name of business or proposed

REPUBLIC OF NAMIBIA
MINISTRY OF INDUSTRIALISATION AND TRADE. LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998
(regulations 14, 26 & 33)
Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Regional Liquor Licensing Committee, Region:
ZAMBEZI
1. Name and postal address of applicant, **CATHERINE MULEMWA BAYOLE, PO BOX 8045, MAYUNI, KONGOLA**
2. Name of business or proposed Business to which applicant relates **LIBERDABE SHEBEEN**
3. Address/Location of premises to which Application relates **ALONG KONOOLA - KATIMA MULILO ROAD 110 KM WE ST OF KATIMA MULILO**
4. Nature and details of application: **LIQUOR LICENCE**
5. Clerk of the court with whom Application will be lodged: **KATIMA MULILO MAGISTRATE COURT**
6. Date on which application will be Lodged: **13 APRIL 2022**
7. Date of meeting of Committee at Which application will be heard: **11 MAY 2022**

Any objection or written submission in terms of section 38 of the Act in relation to the applicant must be sent or delivered to the Secretary of the Committee to reach the Secretary not less than 21 days before the date of the meeting of the Committee at which the applicants are to be heard.

REPUBLIC OF NAMIBIA
MINISTRY OF INDUSTRIALISATION AND TRADE. LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998
(regulations 14, 26 & 33)
Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Regional Liquor Licensing Committee, Region:
ZAMBEZI
1. Name and postal address of applicant, **LAIMI NGHIMBUA SHINOMA HEPA PO BOX 264, KATIMA MULILO**
2. Name of business or proposed Business to which applicant relates **LAIMI SHEBEEN NO.1**
3. Address/Location of premises to which Application relates

Employment — Offered

VERO GROUP CC

Looking for a qualified Quantity Surveyor with experience on both building and civil projects.

Qualifications
BSC in Quantity Surveying
Minimum 2 years' post graduate experience

Qualified applicants should forward CVs to **verogroup01@gmail.com**

NOVANAM PRODUCTION FACTORY MANAGER

We are looking for A qualified person with the following academic qualifications and experience:

Requirements:
- Grade 12
- Multilingualism (Spanish)
- +- 17 years' experience in factory production in the fishing industry
- +- 12 years' experience in leadership\ supervisory
- Relevant experience in food processing operations and systems
- Medically Fit
- Excellent Communication Skills

Stakeholder consultation for the IORWSS Phase 2 ESIA study was primarily with key regional stakeholders from government institutions, constituency leadership, and traditional leadership of the directly impacted communities. The stakeholders were chosen based on the following criteria:

- The type of project that will be carried out
- The various types of non-state actors and quasi-government organizations operating in the Omusati Region and at national levels

The anticipated effects of proposed actions, including the social impact of the initiatives

The first phase began shortly after the EAP and the Proponent signed the contract. It began in February 2022 and concluded in May 2022. The implementing agencies, MAWF (Head Office), NamWater (Head Office), and Engineering Consultants, Om'kumoh, were all contacted. Throughout the ESIA study, the stakeholder consultation was ongoing.

At the regional level, stakeholders were consulted on a wide range of national issues. Between February and May 2022, discussions were held in Windhoek and the Omusati Region. Gender mainstreaming and representation were observed during the meetings and consultations, including the participation of youth and other specific demographics that will be affected by the execution of the Iitapa-Okeeholongo Rural Water Supply.

Consultation meetings were held in all villages to be provided with water access and villages and communities that might be affected by the water infrastructures. Consultation meetings were held together with the Okahao Constituency office which provided guidance in terms of which village meetings should be held.

The public meetings were held as follows.
Date: 12 April 2022
Meeting Venue (a): Akutsima Village, Community Cuca Shops
Time: 10h45 a.m.

Date: 12 April 2022
Meeting venue (b): Uutsathima village, Community Cuca Shops
Time: 13h45 p.m.

Date: 12 April 2022
Meeting venue (b): Amarika village, Community Cuca Shops
Time: 17h15 p.m.

A Background Information Document (hard copy) was compiled explaining the proposed project and was shared with the meeting attendees. The locality map showing the intended and proposed project (in hard copy A1 colour) was shared with the I&APs during the public meetings.

No negative concerns were received at this stage. Should any interested and affected parties raise any concerns during the ongoing project phase, the Ministry of Environment, Forestry and Tourism (MEFT) will be immediately notified. The comments raised by the I&APs during the meeting are indicated in the Table 17.

The meeting at Akutsima started at 10h45. The Honourable Councillor of Okahao constituency, Honourable Leonard Shikulo welcomed all attendees and emphasised for harmony and cooperation amongst the community members. He introduced the team of visitors that consisted of officials from the Okahao Constituency Office, Tsandi Constituency Office, Health officials from the local Clinic and the Project Environmental Consulting team.

The meeting at Uutsathima village started at 13h45 and an opening prayer was done by Mrs. Hilma (community member). Among the participants, was a school principal, headmen of the nearest villages such as Olumelengwa and others as well as members of the general community of Uutsathima area.

At Amarika village, the public consultation meeting started at 17h15 and in attendance were the officials from Otamanzi Constituency Office, Principal of a local school situated in Amarika village, Headwoman of Amarika and the general members of the community from the surrounding villages. The meeting was opened with a prayer by Mrs. Otillie (headwomen) whilst, the Control Administrative Officer from Otamanzi Constituency Office welcomed the consulting team.

Table 3 Stakeholder scoping summary: major points raised at the public meeting .

Registered I&APs	Comments	Actions
At Uutsathima village, the village Headmen raised a concern on behalf of the village.	How will the company deal with the presence of elephants in the area which often visits the area searching for water and often causes Human-Wildlife Conflict?	Addressed in the impacts and mitigation chapter of this document. Promote human-wildlife coexistence through nature conservation education.
At Amarika village, the school principal	How will the construction company deal with the possibility of livestock falling into the canal or ditch during the digging and construction?	Addressed in the mitigation chapter of this document.
Akutsima Village Headman	The headman raised a concern about the recruitment process for the project.	The project should prioritise recruiting locals, especially for unskilled labour. Addressed in the EMP on this document and the contractor to put it into consideration.

The List of registered interested and affected parties (I&AP) is attached as an annexe on this document.

CHAPTER FOUR

4. DESCRIPTION OF THE IITAPA-OKEEHOLONGO RURAL WATER SUPPLY SCHEME – PHASE 2'S ACTIVITIES

4.1 Overview

The Iitapa-Okeeholongo Rural Water Supply Scheme - Phase 2's goal is provide a reliable and sustainable water supply in acceptable quality and quantity for the communities and livestock living within the project area. The program's main objective is to improve Namibia's water supply and sanitation services in terms of accessibility, quality, security, and sustainability.
To achieve the aforementioned purpose, the intervention focuses on four components, which are outlined in Table 4.

Table 4 NWSSP components

NO.	COMPONENT NAME	DETAILS
a)	**Infrastructure Development for Climate-Resilient of Bulk Water**	Rehabilitating and expanding vital and urgent, significant bulk water infrastructures such as water treatment plants, conveyance systems, canals, and pipelines.
b)	**Development of Climate-Resilient Sanitation Infrastructure - Wastewater Treatment and Reclamation**	Rehabilitating, improving, and expanding vital sewage networks, as well as wastewater treatment and reclamation systems in Windhoek.
c)	**Water Supply and Sanitation in Rural Areas**	- Construction of water supply schemes, including purifying plant upgrades, tank construction, distribution lines with manifolds, and water points. WASH "Water, Sanitation, and Hygiene" service delivery

		are being strengthened through advocacy, sensitization, and the development of decentralized sanitation and hygiene education. - Create gender-responsive training and advertising materials. - Build climate-resilient inclusive sanitation facilities for vulnerable people who cannot access or afford a sewerage connection; implement a WASH Friendly school campaign (hand washing and sanitation facilities responsive to gender and disability); integrate the "Leave No One Behind" (LNOB) program, and rural areas; and promote sanitation marketing.
d)	**Institutional Development and Capacity Building, as well as Program Management**	- Strengthen the sector institutions' capacity (MAWLR, DWALR, and NamWater). - Inter-sector cooperation, particularly among line sectors (environment, health, water supply and sanitation, nutrition, education, local economy, and local government agencies). - Assistance with Monitoring and Evaluation (M&E), information systems, and accountability frameworks to track progress; - Study preparation for Phase 2 projects. - Decentralization and improving management at the local level. - Community sensitization and mobilization, including the formation and training of water committees, reviewing, and updating the CBM, updating the IWRM plan, and mainstreaming Gender, Environment, Climate Change, Cross-Cutting Issues. - Assistance to the Environmental Department in strengthening its capacity to monitor environmental and social issues during and after project implementation and operationalizing the Water Resources Monitoring Net.

The implementation program is split into two stages as follow :

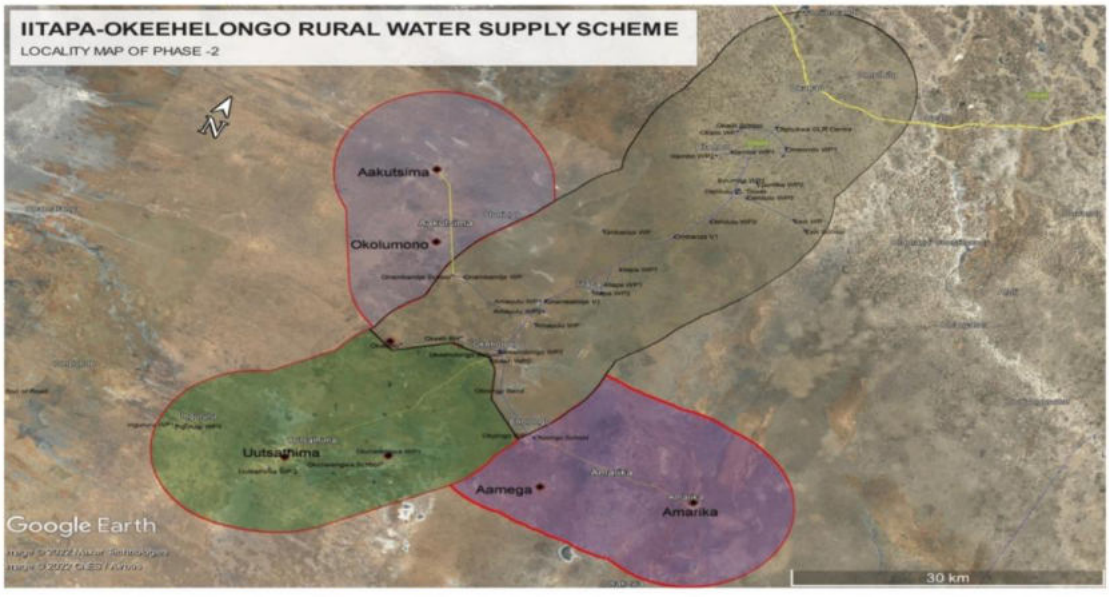
- Stage 1 which will be implemented in the next 5 years and
- Stage 2 after the completion of phase 1.

Phase 1 is addressing short-term, immediate water solutions while Stage 2 will focus on long term solutions to the water sector.

4.2 Project location

The Phase 2 project extends the IORWSS Phase 1 completed in 2018, to the settlements of Olumpelengwa and Uutsathima, encompassing all villages within a 10-kilometre buffer zone (Figure 1). The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 component is proposed to cover the area in Okahao and Otamanzi Constituency in the Omusati region. The Project entails the communities that falls within the project boundary; Okulomono , Akutsima, Olumpelengwa, Uutsathima, Onakatili, Amega, Amarika, Okakewa, Okambata and Okagongo in the Omusati Region.

Figure 3 Phase 2 locality map



4.3 Description of project scope and activity

The proposed project activities involve the construction of the elevated water tanks, main bulk pipelines, feeder pipelines and manifold connections for the Water Supply Scheme to Iitapa and Okeeholongo – Phase 2 in the Omusati Region. The overall project envisaged to run in phases:

- Construction of WS infrastructure in Sub Area (Onambandje – Okulomono - Akutsima).
- Construction of WS infrastructure in Sub – Area (Okeeholongo – Olumpelengwa – Uutsathima).
- Construction of WS infrastructure in Sub – Area (Okeeholoongo – Aamega - Amarika).

The project scope and description are summarized in Table 5.

Table 5. Project scope and technical description.

Project area	Okahao and Otamanzi Constituency in the Omusati region.
Primary Water Source	Okahao Earth Embankment Reservoir -Namwater which is fed from the Ogongo Purification Plant. The upgrades at the Outapi Reservoir will assist in providing more inflow into Okahao Reservoir which will ultimately increase flow into the IORWS scheme depending on the Namwater Operations within the Ogongo Scheme management. But it is possible once the outflow to Tsandi from Okahao is reduced or stopped completely.
Water Storage	Buffering Steel Reservoirs at Okeeholongo Note: The option of PV power source to be reviewed due to capacity changes
Pumps & Conveyance	PV Solar Powered Booster Pump Station
Bulk Pipeline Length	26 kilometres to Uutsathima, 25km to Amarika and 18km to Akutsima, all exclusive of branch lines.

Pipeline Alignment	Along the newly constructed DR 3635 to Uutsathima through Olumpelengwa, and along firebreaks to Akutsima and Amarika respectively.
Key Design Features	Manifold Design System, Community Manifolds, All GRN Institutions, and Cattle Post Areas.

4.4 Description of Project design, route selection , equipment, and Infrastructure

Om'kumoh Consulting Engineers cc was appointed by MAWLR to carry out the planning, design, and contract supervision for the IORWS.

4.4.1 Project design parameters

The project planning and design considered the following parameters

- **Basic design parameters**
  - **Design Horizon:** Increased from 20 to 30-50 years design horizon as requested by MAWLR and considering the impact of rapid population growth in the area.
  - **Population Project Area:** Number of households & number people per household and Number of Livestock (Large and Small Stocks)
  - **Growth rate :** 1, 6% (World Bank (2007), National Planning Commission (2011)

- **Demand criteria**
  - Daily Per Capita Demand: 25 litres/ person / day
  - Large Livestock demand : 45 litres / head / day
  - Small Livestock demand: 12 litres/ head / day
  - School (Day only) : 30 litres/ person / day
  - Clinic (outpatient only) : 15 litres / person / day
  - Police Station: 15 litres / person / day
  - Maximum Number of People per Water Point: 200 persons

- **<u>Location parameters:</u>**
    - ❖ Maximum walking distance for people = 0,5km for manifold system
    - ❖ Maximum walking distance for livestock = 7,5km
    - ❖ Allowable flow velocities – 0.5 to 1.5m/s

4.4.2 Pipeline Route Determination

The IORWSS Phase 2's project routes and pathways were systematically evaluated based on the geological, geotechnical, ecological, and socio-cultural factors. The mentioned factors determined pipeline route suitability and assessed the risks of pipeline route selection.

The procedures to determine the pipeline route and other infrastructure were based upon the important concept using a Geocost map (Geocost Pipeline routing maps), which was established on a project basis to reflect the quantified geo risks corresponding to geometric and geologic hazards. The favourite route was determined by selecting a path which caused the least accumulated Geocost. Consideration of such geohazards and constraints will help reduce, control, or avoid potential engineering, construction, and operational problems.

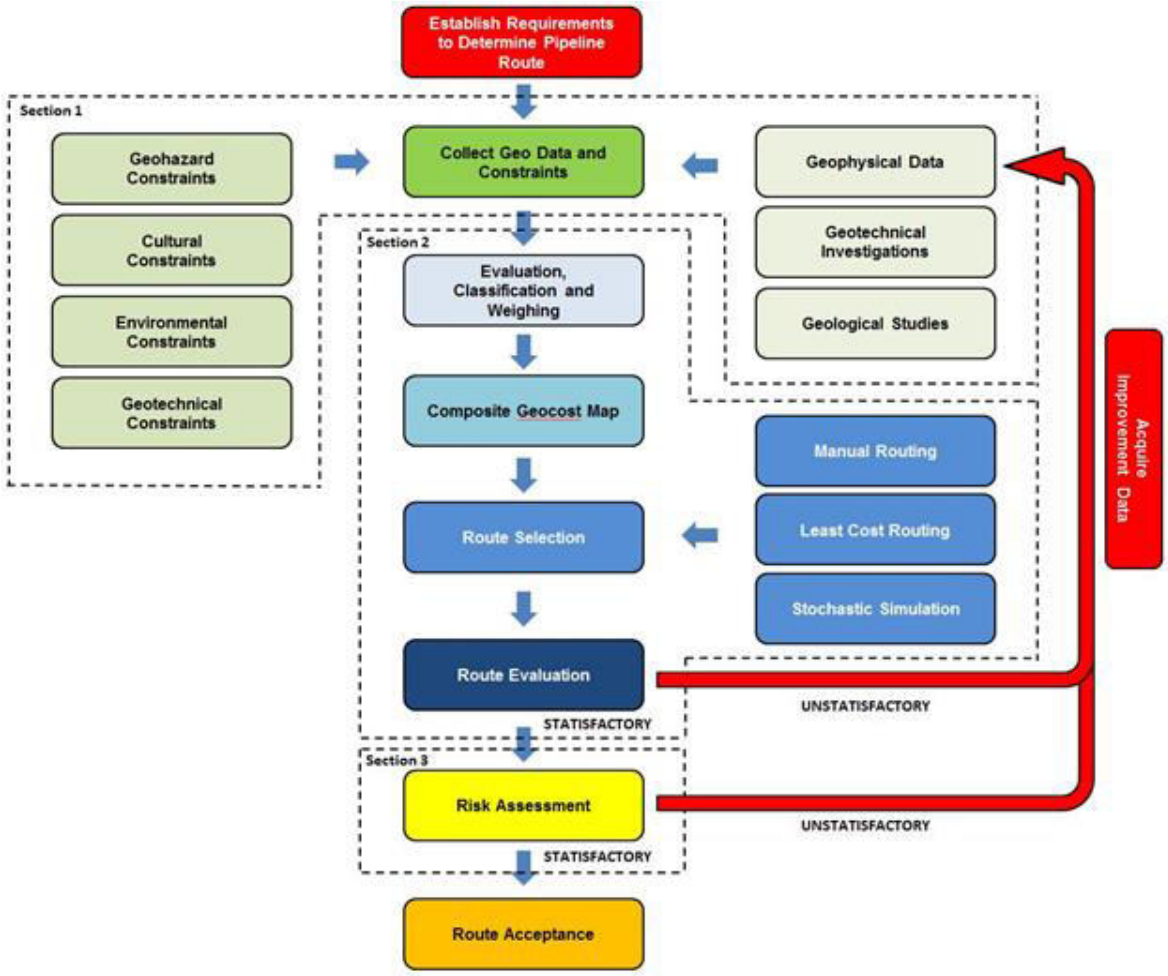
The proposed pipelines can be trenched, buried, laid, or even anchored, and as such there was a need to:

- Specify appropriate data to be collected and interpreted as part of a phased approach for the selection of potential pipeline corridors or routes.
- Provide a representative but not an exhaustive list of potential geohazards, ecological, cultural, and economic constraints, and possible effects on pipeline development and related infrastructure.
- Describe options for pipeline route selection and evaluation of route alternatives.
- Establish a general risk assessment procedure that can be used as a guide for specific projects along the pipeline.

4.4.3 Pipeline Route Selection Criteria and Determination Flowchart

The favourable pipeline route is the shortest path that minimizes the summation score of Geocost between two boundaries. But the design working space for the route determination is bounded by applicable constraints that restrict the pipeline from passing through.

Figure 4 Pipeline route determination flowchart illustrating a systematic approach to selecting pipeline.



This systematic approach consists of a series of steps (See, Figure 2). In the beginning, geo data collection and route constraint recognition are performed to collect information within the project working area. Finally, risk assessment and route acceptance are performed in accordance with environmental requirements (Environmental Management Act of

CHAPTER FOUR

5. RELEVANT REGULATORY FRAMEWORK AND INSTITUTIONAL ANALYSIS

The chapter covers all relevant Namibian legal and policy frameworks that influence or are influenced by the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 implementation, as well as the AfDB, safeguard policies and operational safeguards. The SADC water regional regulations are another important worldwide standard and framework for Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2. Identifying and assessing the administrative, policy, and legal circumstances relating to the planned activity is an important aspect of the EIA, as it informs the proponent about the requirements to be met in carrying out the construction and land servicing operations. This section examines the legal framework that will be used to service and run the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project.

The emphasis is on legislative compliance during the planning, construction, and operational phases. All relevant legislations, policies, and international statutes applicable to the project are highlighted below, as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment set out in the Schedule of Government Notice No. 30 (2012), as well as other relevant legislations.

5.1 Namibia's Legal and Administrative Framework

The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 implementation activates the following Namibia legislation, policies, and legal framework:

1) The Atmospheric Pollution Prevention Ordinance 11 of 1976
2) The Constitution of Namibia (1990)
3) The Environmental Assessment Policy of Namibia 1994
4) The Environmental Assessment Regulations of 2012
5) The Environmental Management Act No. 7 of 2007
6) The Forest Act 12 of 2001
7) The Health and Safety Regulations GN 156/1997 (GG 1617)
8) The Integrated Water Resources Management (IWRM) Plan (2010)

9) The Labour Act 11 of 2007

The Namibia's Second National Biodiversity Strategy and Action Plan 2013 - 2022

10) The National Climate Change Strategy & Action Plan 2013 - 2020
11) The National Gender Policy 2010 – 2020
12) The National Health Act 2 of 2015
13) The National Heritage Act 27 of 2004
14) The National Policy on Climate Change for Namibia (2011)
15) The National Resettlement Policy
16) The National Solid Waste Management Strategy
17) The Nature Conservation Ordinance (1996)
18) The Pollution Control and Waste Management Bill
19) The Procedures and Guidelines for Strategic Environmental Assessment of 2008
20) The Public Health Act 36 of 1919
21) The Soil Conservation Act 76 of 1969
22) The Water Act 54 of 1956
23) The Water Policy for Namibia (2000)
24) The Water Resources Management Act No.11 of 2013
25) The Water Supply and Sanitation Policy of 2008

Table 7 illustrates the assessment how various Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities at various project development phases during implementation trigger each of the pieces of legislation, policy, or legal framework in a two-way objective:

i. The role of Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities in achieving or addressing policy or law objectives, goals, and aims
ii. The effects of Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities on a policy or law, as well as the requirement to comply with specific sections of a policy or law.

The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activates the following Namibia legislations, policies, and legal framework (See, Table 6).

Table 6 Namibia legislations, policies, and legal framework

LEGISLATION/POLICY	PROVISION	PROJECT APPLICABILITY
The Constitution of the Republic of Namibia (1990)	The supreme law of Namibia, the Constitution, states that everyone has the right to life.	According to that viewpoint, without access to safe water or adequate sanitization, the right to life is jeopardized, thus MAWF's implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2.

	Slavery and Forced Labour, Article 9 (1) No one shall be subjected to slavery or servitude. (2) No one shall be forced to perform forced labour.	Article 9 of the constitution is triggered by all earthworks for the construction of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 bulk water supply infrastructure and sanitation facilities. Contractors and subcontractors for civil works on bulk water infrastructure projects must avoid using forced labour by paying wages below the minimum wage set by the government or exploiting labour from marginalized communities where the projects are being implemented.
	Articles 91(c) and 95(i) commit the state to actively promote and sustain the nation's environmental welfare by formulating and institutionalizing policies to achieve the Sustainable objectives, which include: Protecting biological natural resources from overuse, Limiting non-renewable resource overexploitation, Ensuring ecosystem functionality, and	The extraction and abstraction of groundwater and surface water during the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project activities may result in an overutilization of natural resources (water). To avoid overexploitation, the state of water resources should be monitored.

	Maintaining biological diversity.	
	Article 95 of the Namibian Constitution states, "The State shall actively promote and maintain the welfare of the people by adopting, among other things, policies aimed at the following: (a) enactment of legislation to ensure equal opportunity for women, allowing them to participate fully in all spheres of Namibian society; in particular, the Government shall ensure the implementation of the principle of non-discrimination in remuneration of men and women; and the Government shall seek, through	The provision of access, reliable, safe water, and basic sanitation to citizens' doorsteps through the implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 ensures the promotion and maintenance of people's welfare, particularly that of rural marginalised populations, women, and youth. The provision of domestic/potable water through the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project will alleviate the pain

	appropriate legislation, to provide maternity and related benefits for women.	experienced by pregnant women while searching for water.
	(b) enactment of legislation to ensure that workers' health and strength, as well as children's tender age, are not abused, and that citizens are not forced by economic necessity to enter vocations unsuited to their age and strength.	The provision of domestic potable water in rural areas would ensure that children, particularly the less privileged and orphans, are not forced to work long distances to fetch water.

Namibia Vision 2030, Namibia National Development Plan (NDP), Sustainable Development Goal (SDG) 6, Fifth National Development Plan (NDP 5), and the Harambee Prosperity Plan (HPP)	It pertains to existence of a condition of sustained high economic growth that places Namibia in the 'high income' category of nations, eliminates duality in the economy and ensures equity in the pattern of economic growth. For the disadvantaged, the social security support guarantees a decent quality of life. All Namibians, who are able and willing, have access to productive resources.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project is aligned and aimed to contribute to attaining Vision 2030, Sustainable Development Goal (SDG) 6, Fifth National Development Plan (NDP 5) and the Harambee Prosperity Plan (HPP). The SDG6 requires Namibia to ensure access to water and sanitation for all by 2030. The NDP5 and the HPP also identify the water sector as one of the focus areas under the economic progression pillar. One of the desired outcomes is that "By 2022, Namibia has a sustainable production and consumption of water resources, resulting in improved access to safe drinking water for human consumption, agriculture and for industrial use".

Environmental Assessment Policy of Namibia 1994	Schedule 1 of Namibia's Environmental Assessment Policy states that environmental assessments must accompany policies, plans, programs, and projects that are subject to the environment. On that list is the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project highlights the need for environmental assessments prior to the start of civil waterworks projects, particularly bulk water infrastructure and sanitation, wastewater, and water purification plant projects, as they alter the environment and may cause environmental damage.
	The policy establishes a broad definition of "environment," which includes biophysical, social, economic, cultural, historical, and political elements, as well as a reference to the inclusion of alternatives in all projects, policies, programs, and plans.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project require an evaluation of all possible strategic options for avoiding, minimizing, or compensating environmental damage caused by the activities.

Environmental Management Act No. 07 of 2007	Requires that activities with a significant environmental impact undergo an environmental review (Section 27). Section 2(b-c) requires adequate public participation during the environmental assessment process for stakeholders to express their views on a project. A person may not dispose of waste as defined in Section 5(1)(b) in any way other than at a disposal site, according to Section 5(4). "Community involvement in natural resource management and the sharing of benefits arising from the use of the resources must be promoted and facilitated," according to Section 3 (2) (b).	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities have the potential to have negative environmental consequences. Pipeline installation, conveyance trenching, borehole drilling, and the construction of wastewater treatment and water purification plants all have the potential to have significant environmental impacts, with some of these impacts being reversible and avoidable. As a result, before implementation, proper assessments should guide and advise the program. This ESIA considered all stakeholders. At the regional level, stakeholders were consulted for the entire country.

	Section 3 (2) (e) requires "assessments for activities that may have a significant impact on the environment or the use of natural resources."	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project involve the use of natural resources (water and land) in a variety of communities. As a result, all the benefits of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 's implementation must be shared among communities. Construction of bulk water infrastructure, excavations, pipe trenching, and borehole drilling are all program components that have significant environmental impacts.
EIA Regulations GN 57/2007 (GG 3812)	Specifications for public consultation within a specific environmental assessment process (GN No 30 S21). Details of what should be included in a Scoping Report (GN No 30 S8) and an EIA report (GN No 30 S15).	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project is implemented in various communities across the Omusati Region of Namibia, where many people live, necessitating stakeholder consultation throughout all project development phases, from planning to facility operation.

SEA Guidelines and Procedures of 2008	According to the guidelines, when implementing a policy, plan, or program that may have an environmental impact, (Ministries, parastatals, agencies, and regional or local governments) must follow the SEA procedures.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 is a program that has the potential to have both positive and negative environmental and social consequences, necessitating the exploration of various strategic environmental and social management options before implementation.
The Water Act 54 of 1956	The Act was drafted to consolidate and amend the laws governing the control, conservation, and use of water for domestic, agricultural, urban, and industrial purposes; to make provisions for the control, in some respects, of the use of seawater for certain purposes; and to regulate certain activities on or in water in specific areas.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 is a water program that involves activities such as domestic, agricultural, and urban water provision. The activities have a direct impact on Namibia's water conservation, management, and use.

	The definition of "Government water work" in the Act is "a water work constructed or maintained or proposed to be constructed or maintained by, or under the control of, the Government, including water impounded and stored in such work," but it does not include a water work constructed by the Minister under section fifty-seven.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 is a program run by the Namibian government through the MAWF. As a result, the project is classified as a government water-related project. All processes should adhere to the procedures and be subjected to the requirements of the government's waterworks.
The Water Policy for Namibia (2000)	Water sector reform, according to the policy, should be a continuous process. Policy development is a dynamic process that must consider societal and technological changes. According to the policy, the development and management of water services in Namibia have centred on the construction and operation of supply delivery systems to meet the needs of various users. Large dams, canals, major pipelines, pumping stations, and water treatment works are among the more sophisticated structures and systems.	Recognizing the importance of continuous improvement of water supply, management, conservation, and sanitation issues in Namibia, the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 was developed and will be implemented under the NWSSP. The adoption of some of the best technology in water and wastewater management would be facilitated by the implementation of WSSP. The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2's main task is to build efficient bulk water supply systems in the Omusati Region.

The Integrated Water Resource Management Plan (2010)	To achieve social, environmental, and economic growth in Namibia, the Plan promotes coordinated management and use of water, land, and related services. In Namibia, the overall long-term goal of IWRM is to establish a sustainable water resources management regime that promotes social equity, economic efficiency, and environmental sustainability.	The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 is consistent with the goals of Namibia's IWRM Plan, as the program ensures social equity and economic efficiency in water management.
The Water Resources Management Act No. 11 f 2013	The Act's purpose is to provide for the management, protection, development, use, and conservation of water resources; to regulate and monitor water services, and to address incidental issues.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities establish a foundation for effective and sustainable water resource management, protection, development, and conservation through the development and advancement of water supply systems that avoid water losses, such as through rehabilitation projects that increase capacity while also reducing leaks.

The Water Supply and Sanitation Policy (WSASP) of 2008	The policy places a strong emphasis on water demand management (WDM). The policy was designed with four long-term components in mind: - All Namibians should have access to water and sanitation services.	The overarching goal of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 is to improve access, quality, security, and sustainability of the Iitapa-Okeeholongo water supply and sanitation services. This entails managing water demand to achieve long-term water supply sustainability.
Pollution Control and Waste Management Bill	The bill's goal is to "prevent and regulate pollutant discharge to the air, water, and land." Section 21 " is particularly relevant to the Project" (1). Subject to subsection (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse."	The bill's goal is to "prevent and regulate pollutant discharge to the air, water, and land." Section 21 " is particularly relevant to the Project" (1). Except as provided in subsection (4) and section 22, no one shall cause or permit the discharge of pollutants or waste into any water or watercourse."

Atmospheric Pollution Prevention Ordinance 11 of 1976	The law acts to prevent pollution of the atmosphere and to provide for matters incidental thereto. The law regulates and prohibits pollution from industries, specifically smoke and dust generated by various activities.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities are unlikely to generate significant amounts of smoke, but dust will be generated during activities such as excavation and backfilling of trenches for pipelines for bulk water infrastructure. However, during civil works for some projects, contractors' equipment can emit smoke. Dust suppression efforts should be implemented in accordance with the impact management program. Environmental impacts of pipelines will consist of two aspects: construction and operation, however, the construction period has a greater impact on the ecology of the affected area. Unavoidably, the installation of a pipeline leads to ecological disturbance, since there is clearing of vegetation, excavation, soil compaction and others. Moreover, due to the linear arrangement of the pipelines,

		various natural and climatic zones with various geological, and hydrological conditions are affected by the technogenic impact. Thus, the project is aimed at improvement of the environmental safety the pipeline construction using a complex approach to the optimization of the existing and developed solutions.
National Solid Waste Management Strategy	This Strategy ensures that future directions, regulations, funding, and action plans for improving solid waste management are properly coordinated and consistent with national policy, as well as facilitating stakeholder collaboration. The problem of waste disposal and a lack of overall awareness about solid waste were listed as priorities for the strategy to address effective solid waste management.	Construction/civil works for bulk water supply infrastructure, wastewater treatment plants, and water purification plants can generate significant amounts of solid waste, which contractors must manage properly to avoid pollution. Before the start of any civil work, waste management plans should be developed and implemented. The proposed Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 pipelines are engineering enterprises of the “linear” type i.e., one of its

		dimensions is meaningfully bigger than the others. The Iitapa-Okeeholongo area is defined as a great territorial expanse, the pipelines will cross-communities for 60km, with great hydro-geological and morphological diversities that demand heterodox engineering projects, the implementation of an enterprise like this will go across various biomes thus adding to a greater degree of difficulty referring to the demands of adjustment of the current environmental preservation legal aspects. For Caldas (2006) at the assembling stage (installation phase) of a pipeline occurs the the greatest and more meaningful number of environmental impacts. The main mitigate measures identified on the Environmental Impact Studies, refer to the generation of solid and liquid waste aspect, being emphasized on this way the necessity of their management, to reduce the environmental impact of the pipe's implementation activities The tool to be utilized for this function is

		the implantation of a Waste Management Plan – WMP, that can comprehend all the mitigate measures associated to the identified environmental impacts.
Soil Conservation Act 76 of 1969	The Act was enacted to consolidate and amend the law in the Republic of Namibia relating to the combating and prevention of soil erosion, the conservation, improvement, and use of soil and vegetation, and the protection of water sources.	Construction of other bulk water infrastructures such as storage tanks and treatment plants, as well as trenching of bulk water infrastructure such as long pipelines, would have an impact on the soils, disrupting their natural formation, structure, and texture. The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 construction phase will result in disturbance to the physical-chemical properties of soil caused by pipeline installation.

		The topography may change the intensity of disturbance in different areas due to the movement patterns of heavy machinery and traffic routes. There are local variations in the SQI within the pipeline zones, with flat areas suffering greater disturbance than hilly areas, indicating that topography has been considered in a pipeline's environmental impact assessment.
Forest Act 12 of 2001	The purpose for which forest resources are managed and developed in Namibia, including the planting of trees where necessary, is to conserve soil and water resources, maintain biological diversity, and use forest produce in a way that is compatible with the forest's primary role as a protector and enhancer of the natural environment, according to Section 10 (1).	Waterworks infrastructure (bulk water supply) and sanitation facilities such as overnight reservoirs, canals, pipelines and conveyance systems, and wastewater treatment plants may result in the removal of forests/vegetation. The most visible environmental impact of the proposed Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 pipeline is the massive clearance of vegetation needed for construction, with the forest being cleared along the route. The pipeline

		calls for clearance, and this affects the habitat of wildlife and has displaced many animals, affected bird nesting, and resulted in the death of many animals during construction. The clearance of forests also results in a loss of carbon stock, which is the carbon that is released from the stores of the trees when they are cut down, further contributing to greenhouse gas emissions.
National Policy on Climate Change for Namibia (2011)	The National Policy on Climate Change pursues the Government of the Republic of Namibia's constitutional obligations, which include "the state to promote the welfare of its people and the protection of Namibia's environment for both present and future generations."	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project enhances and improves the welfare of Iitapa-Okeeholongo Rural residents, particularly those living in remote and marginalized communities, by providing safe, dependable access to water and sanitation services.

National Climate Change Strategy & Action Plan 2013- 2020	Namibia's response to climate change is outlined in the Strategy. The strategy aims to address and plan for climate change action, both through mitigation and adaptation measures. The Strategy recognizes the importance of a sustainable water resource base in its adaptation strategy. The Plan seeks to help to clarify national goals and objectives regarding climate change and lay out a plan for implementing, reporting, and monitoring a series of priority activities in pursuit of this aim. Finally, it enables Namibia to be a more active participant to global effort to combat climate change.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 implementation should include measures to strengthen the country's sustainable water resource base development. The implementation should be done with extreme caution so as not to harm the available water resources while improving management through various conservation techniques. The proposed Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities are expected to reduce climate change impacts on Namibia's key sectors and vulnerable communities. The project is as well expected to integrate climate change issues (adaptation and mitigation) into sectoral policies, and national development planning at all levels, as well as to develop and enhance capacities at all levels and strengthen institutions to ensure the successful implementation of climate change response activities.

Nature Conservation Ordinance (1996)	This ordinance pertains to nature conservation, the establishment of games, parks, and nature reserves, the control of problem animals, and matters incidental thereto.	To ensure that the proposed infrastructure does not interfere with facilities listed in the Nature Conservation Ordinance, proper design and planning are required. Ruptures and spills from water pipelines, which are common and often severe, are another downstream process that can affect farmlands, parks, games, and reserves.
National Biodiversity Strategy and Action Plan (NBSAP2) 2013 – 2022	The action plan was implemented to raise awareness of the critical importance of biodiversity conservation in Namibia, bringing together the management of ecosystem protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	The proposed Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities, particularly construction and civil works, have the potential to endanger the ecosystem.

Labour Act 11 of 2007	Allows the minister in charge of labour to issue regulations concerning worker health and safety (S135). Minimum wage and working conditions requirements are detailed (S39 - 47). 135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery in connection with the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event a of fire, of persons in such building;" (Ministry of Labour and Employment Creation)	The construction of bulk water infrastructure to the rehabilitation and construction of new wastewater and water purification plants will require a significant amount of labour. There is a need to ensure that the workers are protected, as they are locals, particularly unskilled labour. Contractors, and Sub-contractor shall be guided by this Act when recruiting or handling employment related issues.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements for the health and safety of labourers involved in various construction during the implementation of the project.	All contractors involved in the installation and construction of bulk water infrastructure, wastewater treatment plants, and water purification plants, as well as material transportation, must comply with this Act and its regulations.

Public Health Act 36 of 1919	Section 119 states that "no person shall cause a nuisance or suffer any nuisance or other condition liable to be injurious or dangerous to health to exist on any land or premises owned or occupied by him or of which he is in charge."	Community labour is typically provided by local communities in the form of labour for the excavation, backfill, and compaction of pipeline trenches. The safety of these people is critical, especially for women who are unfamiliar with handling dangerous, risky, and strenuous jobs.
National Heritage Act 27 of 2004	"A person may apply to the (Heritage) Council for a permit to carry out works or activities in relation to a protected place or protected object," Section 48(1) states. Protects and conserves cultural heritage and cultural resources, with a focus on places and sources of national heritage, such as graves, artefacts, and objects older than 50 years.	Long pipelines have the potential to pass through historic sites and graveyards. Any heritage resources discovered during excavations (e.g., human remains) would require a relocation permit from Namibia's National Heritage Council. When possible, detailed design of pipe routes and locations of the pump and tank installation should avoid heritage sites; if this is not possible, necessary arrangements with appropriate stakeholders should lead the process.

National Gender Policy 2010–2020	The National Gender Policy was created to effectively contribute to the achievement of Vision 2030 objectives, to create a society in which women and men have equal rights and access to basic services. It also provides opportunities for men and women to participate in and contribute to Namibia's political, social, economic, and cultural development.	The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 should ensure that both men and women are included in equal proportions, including their water needs and priorities. Women play an important role in water collection in Namibia, and their contribution should not be underestimated.
National Resettlement Policy	The Policy's primary goal is to focus on the resettlement of eligible people in ways that are institutionally, sociologically, economically, and environmentally sustainable, allowing beneficiaries to become self-sufficient.	There are Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities that may result in community resettlement, but this will only be apparent after detailed and specific designs of infrastructure such as pipeline routes and exact locations of proposed wastewater and water purification plants are completed.

Communal Land Reform Act 5 of 2002	The law specifies who owns communal land and how it is distributed to people and by whom. The Act governs the registration of customary land rights and the issuance of certificates of registration of customary land rights. There is the possibility of interfering with communal land anywhere. The proper procedures must be followed. Section 22 of the Act empowers Chiefs or Traditional Authorities to allocate a customary land right.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2's bulk water supply projects interfere with communal landowners, which can lead to disputes, particularly when pipelines pass through areas where communities are not beneficiaries. Wherever there is a risk of interfering with communal land or disputes, contractors should always approach chiefs or traditional authorities.

5.2 African Development Bank (AfDB) Legal and Policy Framework

5.2.1 AfDB Operation Safeguards

The AfDB, as a lending organization, has specific conditions that borrowers must follow in terms of environmental protection, as well as protecting local people and communities from exclusion and marginalization because of certain economic development initiatives. The Operation Safeguards (OS) are a set of five safeguards that Bank clients must adhere to when dealing with projects that may have significant social and environmental implications[5]. The applicability of the AfDB Operations Safeguards needs to be compared to the national policies and regulations.

The following are the five AfDB OS that the borrower must meet:

i. Environmental and social evaluation
ii. Land acquisition, population displacement, and compensation for involuntary resettlement
iii. Ecosystem services and biodiversity
iv. Pollution prevention and control, hazardous materials, and resource conservation
v. Working conditions, health, and safety

[5] https://bankinformationcenter.org/en-us/update/how-can-the-afdb-promote-transparency-and-inclusion/

Table 7 AfDB Operational Safeguard

AFDB OPERATIONAL SAFEGUARD	EXPLANATION	APPLICABILITY TO IITAPA-OKEEHOLONGO RURAL WATER SUPPLY SCHEME – PHASE 2
Environmental and social assessment	This overarching safeguard governs the process of determining the environmental and social category of a project, as well as the resulting environmental and social assessment requirements.	The nature of Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities has both negative and positive environmental and social consequences. Construction of bulk water infrastructure (pipelines, installation of elevated water reservoirs, trenching, excavations, and contractor's construction vehicle movements) may have an environmental impact on the receiving communities and thus must be assessed before implementation. Negative environmental impacts should be avoided whenever possible, or, if avoidance is not possible, adverse environmental and community impacts should be minimized, mitigated, and compensated for. The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 initiative improves communities' social well-being and livelihoods by providing safe, dependable water and basic sanitation. This requires evaluation to maximize the

		social benefits. The project will also create jobs for society, thereby improving the socioeconomic status of the communities.
Involuntary resettlement Land acquisition, population displacement and compensation	This safeguard consolidates the Bank's policy commitments and requirements on involuntary resettlement and incorporates several refinements designed to improve the operational effectiveness of those requirements.	It is critical that the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities that result in involuntary resettlement, acquisition of land, population displacement, and compensation are properly addressed and assessed before implementation; if there are activities that are triggering all of these, proper planning and compensatory measures should be communicated with the affected communities or populations prior to implementation. Activities such as the installation of long pipelines and canals necessitate the acquisition of land where the canals will pass through.
Biodiversity and ecosystem services	This safeguard aims to preserve biological diversity while also encouraging the sustainable use of natural resources. It also translates the Bank's policy	The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 should ensure that all natural resources are conserved and used sustainably, allowing for future resource use and development. The

	commitments on integrated water resource management into operational requirements.	process should be guided by ideas of sustainable development.
Pollution prevention and control, hazardous materials, and resource efficiency	This safeguard addresses the range of key impacts of pollution, waste, and hazardous materials, for which there are agreed-upon international conventions, as well as comprehensive industry-specific and regional standards, including greenhouse gas accounting, that other multilateral development banks adhere to.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities such as bulk water infrastructure construction (pipelines, elevated water reservoir installation, trenching, excavations, and contractor's construction vehicle movements) have the potential to generate solid waste that can pollute the environment. Prior to civil works, proper waste planning through a waste management plan should be provided to/by contractors.
Labour conditions, health, and safety	This safeguard specifies the Bank's requirements for its borrowers or clients in terms of working conditions, rights, and protection from abuse or exploitation. It also ensures greater alignment with many other multilateral development banks.	This safeguard specifies the Bank's requirements for its borrowers or clients in terms of working conditions, rights, and protection from abuse or exploitation. It also ensures greater alignment with many other multilateral development banks.

5.2.2 AfDB Safeguard Policies

Aside from the OS, the bank has Safeguard Policies (SP), which are the foundation for the Integrated Safeguards System (ISS). The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities have generated these protective policies.

The following are the safeguard policies:

i. Involuntary resettlement (2003)
ii. Environment (2004)
iii. The Gender (2001)
iv. The Climate Risk Management and Adaptation Strategy (2009)
v. Health (1996)
vi. Integrated Water Resources Management (2000)
vii. Agriculture and Rural Development (2000, 2010)
viii. Poverty Reduction (2004)

Table 8 Applicable AfDB Safeguard Policies

AFDB SAFEGUARD POLICY	EXPLANATION	APPLICABILITY TO IITAPA-OKEEHOLONGO RURAL WATER SUPPLY SCHEME – PHASE 2
Gender (2001)	The policy reaffirms the Bank's commitment to advancing gender mainstreaming. Instead of focusing on women as a target group, the policy emphasizes gender equality as a development goal.	The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 activities should be gender-sensitive, with gender roles being mainstreamed. During consultation, implementation, construction, and operation, both men's and women's needs should be equally represented in program activities.
Climate Risk Management and Adaptation Strategy (2009)	The strategy's goal is to ensure that African countries continue to make progress toward eradicating absolute poverty and that people's living conditions improve steadily despite climate change.	The implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 aims to improve climate resilience by providing safe, reliable water and improving water security. Water for agriculture and livestock in some areas improves the country's food security, resulting in poverty eradication.
Health (1996)	The Bank's lending policy encourages borrowers to include environmental, occupational health and safety, community	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2's implementation aims to improve access to water

	health and safety, and construction and decommissioning guidance.	and sanitation. This will provide opportunities to improve human health and nutrition by providing services such as safe drinking water, food, and proper sanitation.
Integrated Water Resources Management (2000)	The Bank's lending policy encourages borrowers to adopt and implement an integrated approach to water resources management to ensure that Bank-supported activities in the water sector follow the principles of an integrated approach.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 should be implemented in a coordinated manner in the development and management of water resources to maximize economic and social welfare without jeopardizing the long-term viability of vital ecosystems.
Agriculture and Rural Development (2000, 2010)	The Bank's vision for the agriculture and rural development sector is to play a leading catalytic role in facilitating technological, institutional, and policy changes that will result in a long-term transformation of rural economies by empowering rural populations to improve their productivity and real incomes in an equitable and environmentally sustainable manner.	The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 aims to improve access to water supply in rural areas. Rural communities would increase their use of water for agricultural outputs, either at the subsistence level or through small-scale irrigation. All of this is intended to improve food security and contribute to economic development by providing water to rural areas.
Poverty Reduction (2004)	The policy reaffirms the Bank's commitment to its overarching goal of poverty reduction by emphasizing the importance of encouraging national ownership, participation, and outcome orientation in efforts to improve the lives of Africa's poor.	The provision of safe, dependable water to communities is one of the steps taken to alleviate poverty. Water for agriculture and livestock would be provided by the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2, which would improve crop cultivation in communal areas.

	The policy considers lessons learned from national poverty reduction efforts as well as international aid for social and economic development.	

5.3 Applicable International Legal Framework and guidelines

In addition to the Namibian legal requirements outlined above and the AfDB Standards, compliance with various international standards and guidelines would be required during the implementation and operation of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project. This, on the other hand, permits the program to be accepted everywhere. The following are the international laws and rules.

5.3.1 The Equator Principles

The Equator Principles (EPs) are a collection of voluntary principles accepted by financial institutions to ensure that large-scale development or construction projects consider the potential impacts on the natural environment and the communities involved[6].

This is a financial industry standard for determining, assessing, and managing environmental and social risk in projects (June 2013). The Equator Principles were developed in collaboration with the International Finance Corporation (IFC) to establish an international standard that businesses must adhere to apply for Equator Principles Financial Institutions approved funding (EPFIs). The principles apply to all new project financings in all sectors worldwide[7].

5.3.2 Stockholm Declaration on the Human Environment, Stockholm (1972)

The declaration's 26 principles universally recognize the human impact on the environment, indicating that environmental issues have been addressed publicly and on a global scale for the first time in history. The declaration emphasizes the importance of nations developing integrated development plans that combine science and technology to reduce air, land, and water pollution, as well as human impact on the environment. It encourages each country to develop regulations for protecting wildlife and conserving natural resources within its borders, as well as national population policies, because overpopulation exacerbates the strain on natural resources. The Stockholm Declaration laid the groundwork for many of the environmental policies implemented in the 113 participating countries, including Namibia[8].

[6] https://equator-principles.com/about-the-equator-principles/
[7] https://www.sgs.com/en/our-services/sustainability-solutions
[8] https://www.environmentandsociety.org/tools/keywords/stockholm-declaration-1972-broadly-recognizes-global-environmental-issues

Stockholm Declaration relevance or implication: The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 implementation should ensure the protection of natural resources and the prevention of all forms of pollution wherever possible.

5.3.3 UN Convention on Biological Diversity of 1992

The Convention on Biological Diversity (CBD) is an international legal instrument that has been ratified by 196 countries for "the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilization of genetic resources."[9]

Relevance for the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2: Excavations and civil works for bulk water infrastructure should conserve biodiversity, and the removal of vegetation cover and destruction of natural habitats should be avoided or minimized where possible.

5.3.4 International Union for Conservation of Nature

Through its member organizations, the IUCN supports and participates in environmental scientific research; promotes and helps implement national conservation legislation, policies, and practices; and operates or manages thousands of field projects worldwide (FAO, 2021).

The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 Implications or Relevance: Nature conservation should be prioritized in the operations of the Implementing Agencies.

5.3.5 United Nations Convention to Combat Desertification

UNCCD is actively supporting countries like Namibia to prepare for droughts by proposing action on three pillars:

Firstly, Early Warning Systems: Declaring a drought too late can have a devastating impact on lives and livelihoods. Yet when you declare a drought, it can often be very subjective and highly political.

[9] https://www.un.org/en/observances/biological-diversity-day/convention

Secondly, vulnerability and risk assessment: Of course, no amount of early warning will work without action to protect the most vulnerable.

Finally, drought risk mitigation measures: Namibia can identify measures to address these risks head-one. Things that can be done at a very practical level to reduce drought risk, started right away and that deliver real and tangible benefits to your communities.

Relevance or implication for the project: Namibia could consider developing sustainable irrigation schemes for crops and livestock, as well as water harvesting schemes, as well as increasing water recycling and reuse, researching drought-tolerant crop cultivation, expanding crop insurance schemes, and establishing alternative livelihoods that can provide income in drought-prone areas.

5.3.6 African Convention on Conservation of Nature and Natural Resources

The African Convention on the conservation of nature and natural resources was adopted in 1968 in Algiers. Considered the most forward-looking regional agreement of the time, it significantly influenced the development of environmental law in Africa. Two and a half decades of intense developments in international environmental law made it necessary to revise this treaty, update its provisions and enlarge its scope. This was undertaken under the auspices of the African Union (previously OAU), and the revision was adopted by its Heads of State and Government in July 2003 in Maputo. The introduction provides an overview of this new international treaty, as well as a commentary on each of its provisions[10].

The Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 relevance: The project's actions will have a direct influence on natural resources by clearing vegetation and loosening soils during trenching activities. As a result, the convention's specifications must be considered when executing the project.

[10] https://portals.iucn.org/library/sites/library/files/styles/publication/public/book_covers/BC-EPLP-056.jpg

5.3.7 United Nations Framework Convention on Climate Change in 1995

The United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty to combat "dangerous human interference with the climate system," which includes reducing greenhouse gas concentrations in the atmosphere. Namibia ratified the UN Framework Convention on Climate Change (UNFCCC), an international environmental treaty, in 1995.

Relevance for the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2: This is true for the project climate change component; the convention calls for action to reduce greenhouse gas emissions, and project activities should do so.

5.4 Regional Frameworks

5.4.1 Protocol on Shared Watercourses in the SADC

In 2003, the Revised Protocol on Shared Watercourses of the Southern African Development Community (SADC Revised Protocol) came into effect. Its declared goal is to "promote closer collaboration for sensible, sustainable, and coordinated management, protection, and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation," replacing the earlier Protocol of 1995. (Art 2).

It was changed expressly to bring some clauses in line with the UN Watercourses Convention (approved in 1997), and as a result, significant parts of the text in both accords are identical. This has significant implications for the UNWC and the SADC Revised Protocol's compatibility and integration in their implementation. Importantly, South Africa is the only country that has signed the SADC Revised Protocol thus far[11].

[11] https://www.unwatercoursesconvention.org/documents/UNWC-Fact-Sheet-13-Relationship-with-SADC-Revised-Protocol.pdf

5.5 Institutional Framework Analysis

Two institutions/organizations will carry out the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 program. These are critical roles in the program's successful implementation; thus, their capacity is critical. They are the Ministry of Agriculture, Water and Forestry and the Namibia Water Corporation

5.5.1 Ministry of Agriculture, Water and Forestry

This is the principal participant institution in the Phase 2 implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme. Under the NWSSP's rural water supply and sanitation component, the Ministry is for responsible of project implementation. Project implementation is overseen by the Ministry's Directorate of Water Supply and Sanitation Coordination (DWSSC). The DWSSC was established in September 1993 as a direct result of Cabinet approval of the Water and Sanitation Sector Policy, with the mission of implementing rural water delivery for rural populations on common land. The Directorate is critical to the success of the Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 execution. The technical and human competence of the department is vital to its success.

5.5.2 Namibia Water Corporation Ltd (NamWater)

NamWater is a commercialized water company that has not been privatized. The sole shareholder is the Government of the Republic of Namibia, which is represented by a Board of Directors. NamWater is responsible for the implementation of five (5) bulk water supply projects under the Climate Resilient Bulk Water Infrastructure Development component of this program. NamWater's contribution to this project involves technical experience and guidance on accessible water resources, as well as management and conservation solutions.

5.6 The Role of Environmental Compliance Assurance

The implementation of environmental policies requires a strict and concerted action guided by the principle "trust and check" to ensure effective and efficient protection of human health and the environment. To this end, compliance assurance systems, including elements of prevention and cure, are established to influence positively the behaviour of the regulated community – Iitapa – Okeeholongo and make all involved stakeholders comply with environmental requirements. Voluntary compliance and reversal of an offence can be

considered the main goal of inspection and enforcement. Punishment of the offender should be a secondary purpose.

An important goal of compliance assurance is to provide a basis for public confidence about e.g., the safety of hazardous installations and the preservation of natural values. Furthermore, in the framework of environmental
policy implementation, and compliance assurance systems support the fulfilment of objectives laid down in legal acts and planning documents by enforcing the rule of law and by providing proper feedback that helps improve environmental policy and law.

The principle of deterrence underlies the compliance assurance systems. Inspections and other forms of compliance monitoring and enforcement are undertaken not only to identify specific violators and return them to compliance but also to deter the violators and all other similarly situated regulated entities from non-compliance. Underlying this paradigm is the assumption that most regulations will comply with the law when the costs of non-compliance exceed the benefits. By recuperating the unlawful benefits gained by the violator, compliance assurance systems help maintain the level playfield eld and ensure that no company obtains a competitive advantage from its non-compliance.

Compliance Assurance Is Essential To:

- Achieve environmental results by ensuring compliance with regulatory requirements.
- Confirm socially desirable behaviour.
- Remove opportunities for non-compliance and create deterrence.
- Reverse an offence and/or punish the offender.
- Provide equitable treatment to the regulated community.
- Ensure credibility of laws and government institutions.
- Realise long-term economic advantages.

Table 9 The array of environmental policy instruments

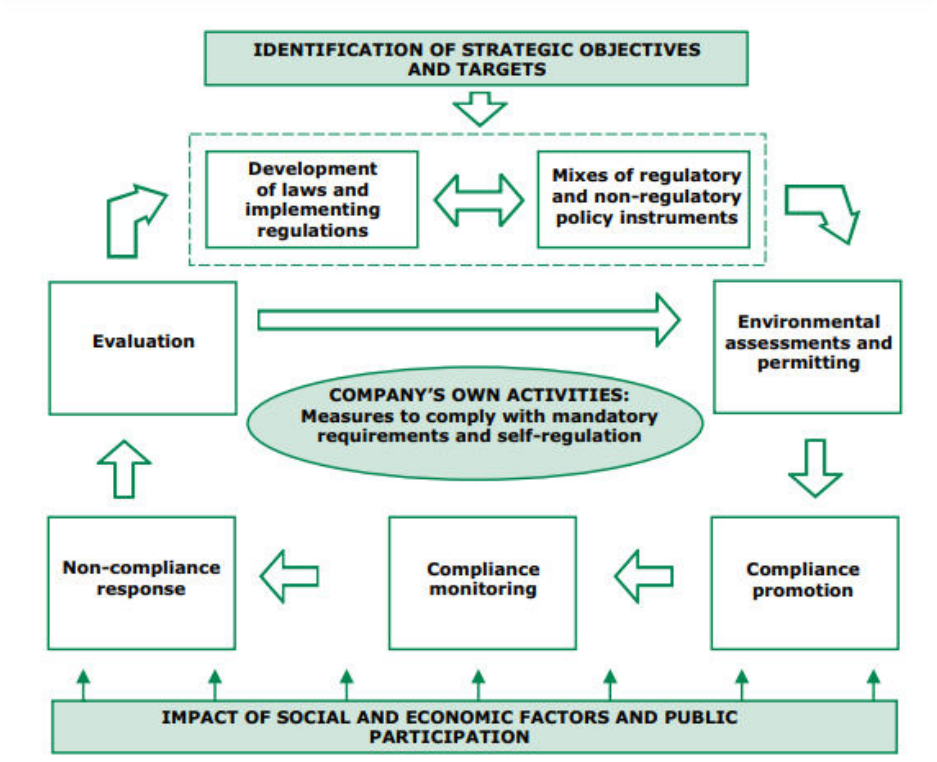
ENVIRONMENTAL POLICY INSTRUMENTS	DESCRIPTION
• Command and control	Licenses/permits; Ambient quality standards; Emissions standards; Process standards; Product standards; Prohibition bans.
• Economic instruments	Charges, taxes, tradable émission permit, tradable quotas, environmental subsidies ; deposit-refund systems ; non-compliance fees ; resource pricing.
• Liability, damage compensation	Strict liability rules; Compensation funds; Compulsory pollution insurance; Extended producer responsibility (EPR)
• Voluntary approaches	Unilateral commitments; Public voluntary programmes; Negotiated agreements.
• Education and information	Education campaigns for the general public; Diffusion of technical information; Publicity of sanctions for non-compliance; Eco-labelling.
• Management and planning	Environmental management systems; Zoning; Land use planning.

5.7 The role of compliance assurance in the regulatory cycle

The regulatory activity is an iterative (cyclical) process that links legislation, as an outcome of the policy process, to licensing/permitting (and other environmental approvals of economic activity), compliance assistance, compliance monitoring, enforcement, assessment, and feedback, closing the cycle with possible input for adjustments of the laws. Effective regulation needs continuous, pervasive feedback and self-correction; all its phases cannot function solitarily. Due to these particularities' regulation is often considered a dynamic regulatory cycle. The regulatory cycle starts with policy planning and the objectives following that.

Regulations are often introduced in response to political pressure to tackle urgent issues. All phases and links in the cycle are there to ensure the achievement of the policy objectives; in particular, there is no use in inspecting and enforcing if there is no specific policy objective. Setting policy objectives alone is insufficient, therefore they are translated into legislation. By nature, environmental legislation will, to a large extent, be framework legislation. The practical application of the legal provisions in particular situations is further given shape in secondary legislation, as well as in environmental licenses/permits and other types of environmental approvals required before an economic activity is started.

Figure 5 The array of environmental policy instruments



Source: OECD, based on materials of the Finnish Environment Institute (2004).

CHAPTER SIX

6. PROGRAM ALTERNATIVES

6.1 Alternatives Assessment

According to the EMA EIA Regulations and the AfDB SESA methodology, alternatives must be considered during the SESA process. According to the Regulations, “an alternative, in relation to a proposed activity, offers several methods of meeting the general purpose and requirements of the activity.” The no-go option is ruled out due to the crucial necessity to address water security in the Omusati Region and Namibia as a whole.

An assessment of project alternatives was carried out to fulfil the requirements of the ToR and ESIA Guidelines. The alternatives were selected through professional experience and consultation with project stakeholders, the public and local communities. The screening criteria considered potential environmental effects, social acceptability, engineering feasibility, and cost. This ESIA Report includes but is not limited to, the acceptable alternatives carried forward. Alternatives further identified during the development of the Project are also assessed.

6.2 Alternatives to Routing

Phase 2 of the Iitapa-Okeeholongo Rural Water Supply Scheme will incorporate linear infrastructure such as pipelines and, in some cases, power lines to power pump stations. As a result, route selection must include the local ecology, settlement tendencies, financial considerations, and current servitude availability.

To provide a comprehensive perspective of potential pipeline Right of Way, route planning for every site Environmental Impact Assessments will have to be done using GIS mapping (ROW) (ROW). For each project, different ROWs are studied and evaluated in terms of expected impacts, both positive and negative; a cost-benefit analysis model can also be utilized.

The alternatives assessment considers two categories of alternatives:

- The functionally different ways to meet the project's need and accomplish its goal as the alternative to the Project.
- Technically and financially viable options for implementing the project as an alternative method.

6.3 Alternatives to the Project

The need for the Project derives from Sustainable Development Goal 6: Clean Water and Sanitation, which seeks to ensure the availability and sustainable management of water and sanitation for all. Namibia suffers from a lack of sanitation, particularly in rural areas. Since 2006, the country has been working to improve sanitation levels through organisations that have provided increased access to facilities.

Goal 6 Targets:

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
- By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse globally
- By 2030, increase water-use efficiency across all sectors and ensures sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes
- By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling, and reuse technologies

- Support and strengthen the participation of local communities in improving water and sanitation management (Source: UN Sustainable Development)

The assessment of alternatives to the Project compares the benefits of proceeding with the Project with the “Do Nothing” or “No Go” alternative, where the decision would be made not to proceed with the Project.

The design of the Project and the assessment of alternatives are focused on ensuring that all significant adverse effects of the Project can be reduced or avoided entirely through good design, mitigation measures or compensation.

❖ **Advantages of the Project**

Positive impacts of the Project would be evident on individuals, including access to clean water, reduced walking distance to fetch water, job creation and increased household incomes. The Project would also lead to infrastructure enhancements beneficial to the community, including upgrades to the access road and construction of related infrastructure. CENORED (i.e., the electricity provider), during the Project's phases. Consequently, the proposed Project would encourage a level of general optimism and growth in communities facing significant development challenges. The Project would also help collect valuable environmental data on the Project Site and surrounding area through its monitoring programs. Monitoring before, during and after the Project development would contribute to a more focussed understanding of the environment and identify areas where protection or enhancement is needed.

❖ **Disadvantages of the Project**

A major purpose of the environmental assessment is to ensure that the Project can proceed without the creation of significant adverse effects. The preliminary screening of the potential Project effects identified some adverse effects on the biophysical environment. the loss of habitat and vegetation, nuisance effects such as increased noise and vibration from blasting, permanent landscape alteration, soil erosion and soil compacting in the Project footprint, and loss of vegetation, wetlands, and streams in the Project footprint. The consequences of these effects would be reduced once mitigation measures are applied.

Potential socio-economic effects would include increased risk of vehicular accidents on the access road, and challenge to existing community services and infrastructure due to increase in population (i.e., introduction of project workers from outside of the Iitapa – Okeeholongo communities). Like the biophysical environment, no significant adverse effects are likely from the Project with implementation of mitigation measures.

6.4 "Do Nothing" Alternative

The "Do Nothing" alternative means that the Project would not proceed. The decision of not proceeding with the Project is the benchmark against which the consequences of implementing the Project can be measured. Comparison of the advantages and disadvantages of proceeding with the Project with the "Do Nothing" alternative provides the basis for selecting the preferred alternative. This comparison ensures that a decision to proceed with the Project would not result in substantial negative effects that could negate the obvious positive effects of economic development.

6.5 Selection of Preferred Alternative

As noted, the selection of the preferred alternative involves the choice between "Proceeding "or "Not Proceeding" with the Project. A decision not to proceed with the Project is identified as the "Do Nothing" alternative. On one hand , in the "Do Nothing" alternative none of the potential effects - positive or negative - of the Project would occur. No increase in economic activity would occur. The existing conditions of the biophysical and socio-economic environment would remain unchanged. Any adverse effects of the Project on the existing environment would be avoided. However, the local community would not be developed and the resulting socio-economic benefits to the local community would not occur. These also implies that the NWSSP through the IORWSS Project would not have the opportunity to (i) increase and sustained access to improved water supply, (ii) increase access to improved sanitation in rural areas and (iii) improve institutional capacity, sustainable management, and utilization of water resources.

On the other hand, "Proceeding" with the Project is not expected to have significant negative effects on the biophysical and socio-economic environment due to the implementation of

appropriate mitigation measures. Based on the foregoing analysis, the preferred alternative is “Proceeding with the Project.”

6.6 Alternative Energy Sources

The Iitapa-Okeeholongo Rural Water Supply Scheme 2 requires electricity / energy, but it must be provided in a sustainable manner to maintain the projects' long-term viability. Alternatives to low-cost, long-term energy are critical for this project's success.

6.7 Siting of water infrastructure

The selection of a site for the development of water infrastructure for the Iitapa-Okeeholongo Rural Water Supply Scheme 2 should be based on economic, ecological, and socio-political considerations as follow:

- The availability of adequate local land and water resources to supply the necessary quality and quantity of raw materials while having an undesirable environmental impact (e.g., clearing of primary forests, wetlands, or critical wildlife habitat: and intensification of agriculture which will result in loss of soil fertility, increased erosion).
- Enough land for planned and expanded dam facilities.
- Minimal displacement of people and homes.
- Minimal conflicts with higher valued land use, such as crop agriculture, particularly in marginal land areas where prime agricultural land may be available.
- Ease of access to social and physical infrastructures such as a skilled labour pool, support industries, transportation networks, and potential market locations.
- Adequate distance from recreational areas, office buildings, and housing complexes to reduce odour, noise, and pollution impacts.
- Minimal impact of the facilities during construction and operation on uncommon, threatened, or endangered species, their habitats, or other sensitive ecosystems.

CHAPTER SEVEN

7. ENVIRONMENTAL AND SOCIAL BASELINE OF THE RECEIVING ENVIRONMENT

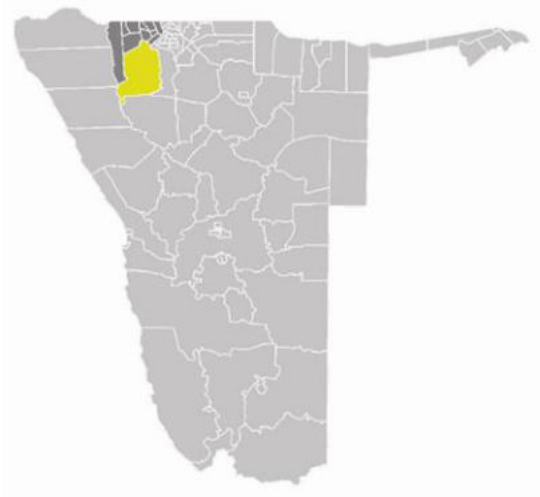
7.1 Background

The Omusati Region is abundant in natural resources, including forests and wildlife. The elements of the existing status of the environment and society serve as the foundation for this ESIA's assessments and studies of the receiving environment. The results of this study will be used as a standard by which to measure the project impacts.

7.2 Locality

The project area is located within the Okahao and Otamanzi constituencies and it includes ten villages which are as follows: Okulomono, Okambata, Akutsima, Olumpelengwa, Uutsathima, Onakatili, Amega, Amarika, Okakewa and Okagongo (The IOWRSS Phase 2 Demographic Research Report 2022). These villages are predominantly rural.

Figure 6 Map of Namibia depicting Okahao in the Omusati Region

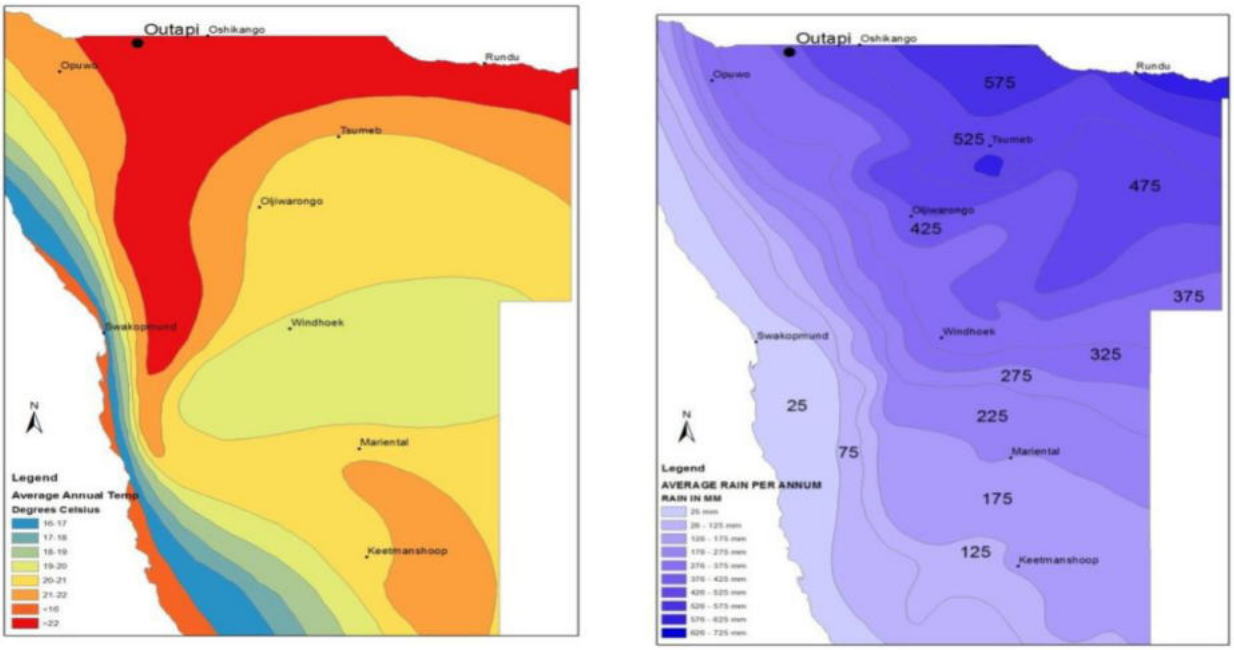


7.3 Climatic conditions

The climate of the project area is considered semi-arid. These villages in the project area are characterised by hot summers and cool to warm winters (The IOWRSS Phase 2 Demographic Research Report 2022). Temperatures are relatively high during the summer months ranging between 34-46℃ and average above 22℃ annually. The rainfall patterns are similar with the

whole Omusati region. The region typically has 94.39 wet days (or 25.86% of the time) annually and receives about 73.26 millimetres (2.88 inches) of precipitation on average with most of the precipitation occurring during the months of November to March.

Figure 7 Average Annual Temperature (Left) and Average Annual Rain (right)



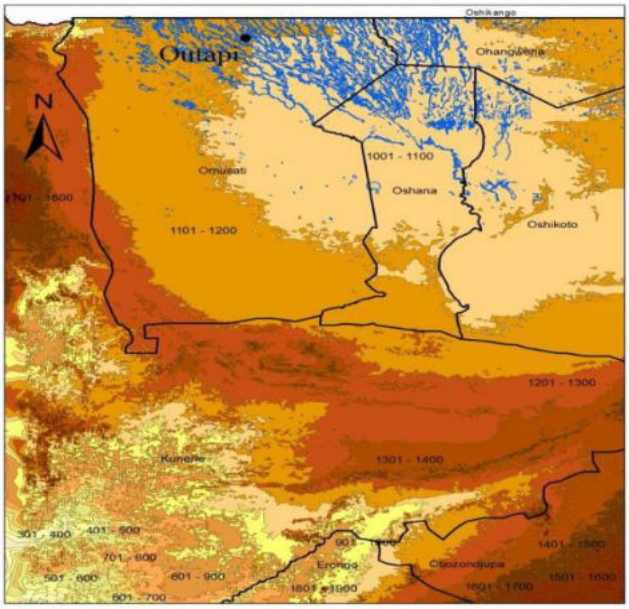
The annual evaporation rate of the area is 1820 – 1960 mm with a water deficit figure of 1500 – 1700 mm per annum. This makes the area very dependable on good annual rains as to avoid drought conditions (MEFT).

The dominant wind direction at the project area is from the East (15%) but the area has a 57% frequency of calm wind days which is extremely high (Mendelsohn, 2003). This indicates that winds are only generated during seasonal changes and during rainy season where local climatic conditions generate winds.

7.4 Topography

The project area lies in the Cuvelai drainage basin which is characterised by very flat plains and no dominant topographical high points (see Figure 7). The general height of the area is between 1101 and 1200 meters above sea level with a very gentle slope to the southeast (GPS readings).

Figure 8 Topographical Characteristics



The only topographical depressions noted during the site visit were the Oshanas that are found in this area with some drainage lines run in a south-eastern direction from the town as well as the old sludge dams to the north.

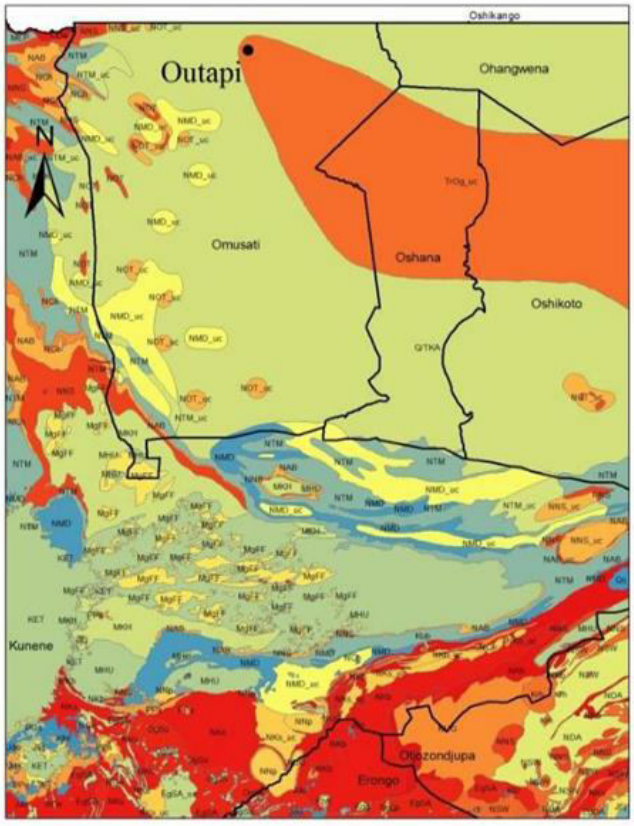
The topography influences various other aspects of the project area such as the general hydrology, vegetation types, aquifer water quality and even the socio-economic characteristics due to the fishing and crop production.

Figure 9 Topography at sites for Community Water Points.

7.5 Geology

The project area is situated in the Karoo Sequence that dominates the northern parts of Namibia. Red conglomerates, red mudstone, sandstone and grits up to 600m thick of the Triassic Omigonde Formation occur in the Outapi area and southeast towards the Waterberg direction to the Otjongundu plateau (Miller 1992). The age of the dominant geological structure is older than 280 million years which makes it a young formation within Namibia (Damara Sequence is between 900 and 1000 million years). No dominant mineral deposits are found in these geological structures, but some coal has been discovered in the lower Permian Prince Albert Formation at depths of 10m.

Figure 10 Geology of the Omusati Region, Namibia



7.6 Surface Hydrology

The most important drainage system in central northern Namibia is the Cuvelai. The Cuvelai originates in Angola, its catchment falling between those of the Kunene River in the west and the Okavango River in the east. The system is fed by several rivers some of which receives more than 800 mm of rain per year in their catchment areas. Perennial tributaries occur only in Angola while the Namibian part of the Cuvelai flows only in the rainy season. During the rainy season, the oshanas may fill and slowly flow in a south-easterly direction towards the Etosha Pan.

These oshanas are shallow, often vegetated, and poorly defined but are interconnected flood channels and pans through which surface water flows slowly or form pools depending on the intensity of the floods. These seasonal flows provide fishing grounds, renew pastures and recharge aquifer water supply. Cattle and other animals depend highly on the surface water for drinking purposes during and after the rainy seasons.

7.7 Geohydrology

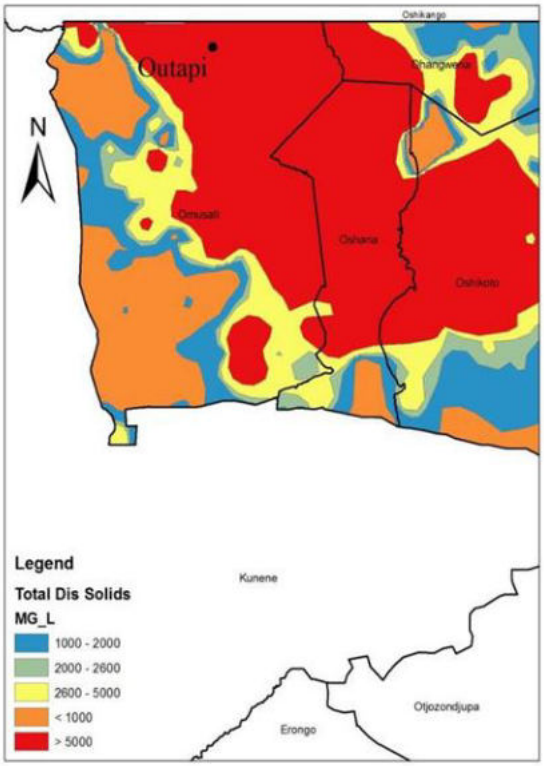
All groundwater within the Cuvelai basin flows south towards the Etosha Pan due to the structure of the basin and because the pan, as the lowest point, forms the base level of the groundwater flow system (Christelis 2001). Geo-hydrology in the project area is characteristic of shallow aquifer levels (between 10-30 m below surface) of water which is sustained during the year. However, this might be the case, the quality of the water varies considerably due to the saline soils and high salt content. The surface water percolates through the topsoil and is then isolated by the clay layer underneath.

The water quality over much of the region is extremely poor and severely limits its usefulness. The TDS is a good measure to determine the quality of the water and for classification: a TDS of over 1500mg/l is not suitable for humans and 5000 mg per litre is not even suitable for livestock.

The Omusati, Ohangwena and Oshana Regions all have readings above the 5000 mg/litre threshold. Even though the water quality is very poor in the project area the borehole yields are also low. Mendelsohn (2000) indicates that the yield of boreholes is less than 2 cubic

meters of water per hour which emphasises the dependence on surface water for commercial and subsistence stock farming to produce crops.

Figure 11 TDS TDS Aquifer Water, Omusati Region, Namibia

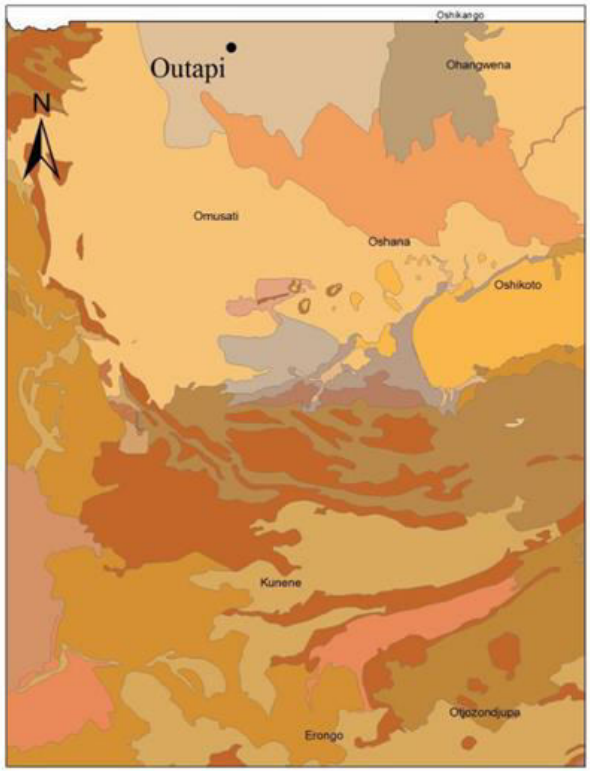


7.8 Soils

Namibian soils vary greatly, and different forces impact the development of the various soils. The project area lies in the dominant Eutric Cambisols (fertile soils with high base saturation) soil group (Christelis 2001). This soil type is best described as soils that were formed quite recently in geological time, mainly from medium and fine-textured parent material deposited during sporadic flooding. Since the parent material is only slightly weathered, Cambisols are characterised by the absence of appreciable quantities of accumulated clay, organic material, aluminium, and iron.

Nevertheless, their fertility is usually moderate to high and in the project area even higher due to the good water-holding capacity and internal drainage of the dominating soils found at the site (Mendelsohn 2003).

Figure 12 Dominant soil types in the Omusati Region, Namibia



7.9 Air Quality

Due to the soil types, dust storms are not a concern and the access roads to the proposed infrastructure will not contribute significantly to the deterioration of the air quality.

7.10 Fauna and Flora Diversity

7.10.1 Fauna

During the site visit, limited fauna was observed. Looking at current secondary data, it is also evident that the diversity of various fauna species is low around the project area. The reason is that animals and birds are directly dependent on their habitat. The project area does not host a large bio-diversity composition and therefore also limits fauna diversity.

From the Critically Endangered and Endangered bird species list, it must be noted that the birds in Table 13 should require special attention in the region.

Table 10 List of Endangered bird species

COMMON NAME	SCIENTIFIC NAME
Saddle-billed stork	*Ephippiorhynchus senegalensis*
Egyptian vulture	*Neophron percnopterus*
Bateleur	*Terathopius ecaudatus*
Southern Ground -Hornbill	*Bucorvus leadbeateri*
Greater Flamingo	*Phoenicopterus roseus*
Blue crane	*Anthropoides paradiseus*

No other critically endangered species would be found around the project area. Even though this is the case, the Northern part of Namibia is known to be on the route of various birds migrating to Europe (Sinclair 2009). The project will make water available for birds. This might increase the conflict between birds and humans at specific water points resulting in dead of birds. However, this impact is insignificant and likely not to occur. The community will be educated on the importance of bird conservation.

According to Mendelsohn (2003), the whole Cuvelai area has a low bio-diversity level due to topographical characteristics, climatic conditions, vegetation types and soils. Another impacting factor is the fact that the project area and surrounding areas are among the more densely populated areas in Namibia. This tendency also impacts negatively on fauna diversity and numbers.

Mendelsohn 2003 indicates levels of diversity in various groups (See Table 14). These groups indicate the diversity found in fauna, but even more, indicates the variation of habitat on which these different species and genera live. The higher the index of species (high classification), the

more complex he habitat . There will also be a strong correlation between the index of specie with regards to the diversity and the vulnerability of the habitat.

Table 11 Index of species diversity

Type of Diversity	**Number of species/genera**	**Index rate**
Overall terrestrial diversity		High
		Low
Plant diversity		
	50-99	Low
Bird diversity		
	111-140	Medium
Frog diversity		
	12-15	Medium
Mammal diversity		
	46-60	Medium
Reptile diversity		
	41-50	Medium
Scorpion diversity		
	6-9	Low

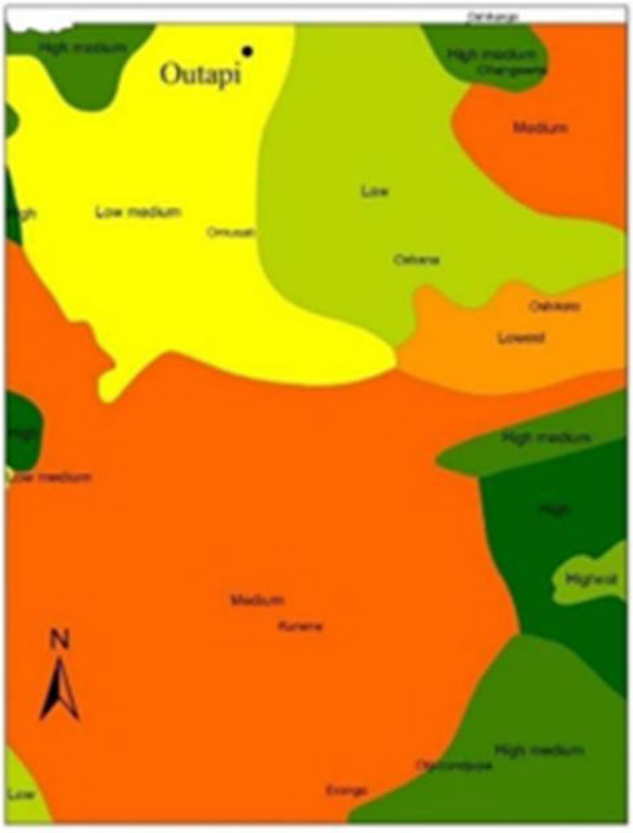
However, the main villages of Aakutsima, Uutsathima and Amarika, are located within the Sheya Shuushona Conservancy a CBNRM conservation area close to Etosha National Park. Consequently, settlements and people will move to the area during the project's operational phase because of the water that will be made available. This will hinder the conservation efforts of community conservancies like Sheya Shuushona and could lead to an increase in conflict between people and wildlife because of the increased population. In addition, impacts on the project region throughout the operational period include deforestation, increasing human settlement, and the effect of animal migration, such as elephant migration. Thus, it is crucial to

monitor and educate the community on the importance nature conservation while living in harmony with wildlife.

7.10.2 Flora

The project area is situated in the Cuvelai drainage system, which greatly influences vegetation diversity and characteristics. The occasional flooding results in low, or medium plant diversity in the Outapi area (Mendelsohn, 2000). Grasses and shrubs dominate in areas which have more flooding where these soils are relatively shallow, clayey, and salty (Mendelsohn 2003).

Figure 13 Plant diversity



During the site visit, it became evident that the site lies in the Acacia tree and shrub Savanna (Mannheimer 2009) . Species that were identified, but also limited to, were the following:

- Sand thorn Acacia arenaria
- Weeping candle-pod Acacia hebeclada subsp. Tristis

- Scented-pod acacia
- Acacia nilotica

None of the recorded species is protected require special attention with regards to conservation efforts. No other species that is protected under any law was noted during the site visit.

Figure 14 The vegetation cover on the project proposed site.

However, the main villages of Aakutsima, Uutsathima and Amarika, are located within the Sheya Shuushona Conservancy a CBNRM conservation area close to Etosha National Park. The vegetation of the area is characterised as a combination of Mopane Shrub land and Western Kalahari Woodlands. Thus , during construction phase of the project, the removal and destruction of habitant will occur. The impacts on vegetation will be minimal or reduced when the mitigation measures such as route selection are applied.

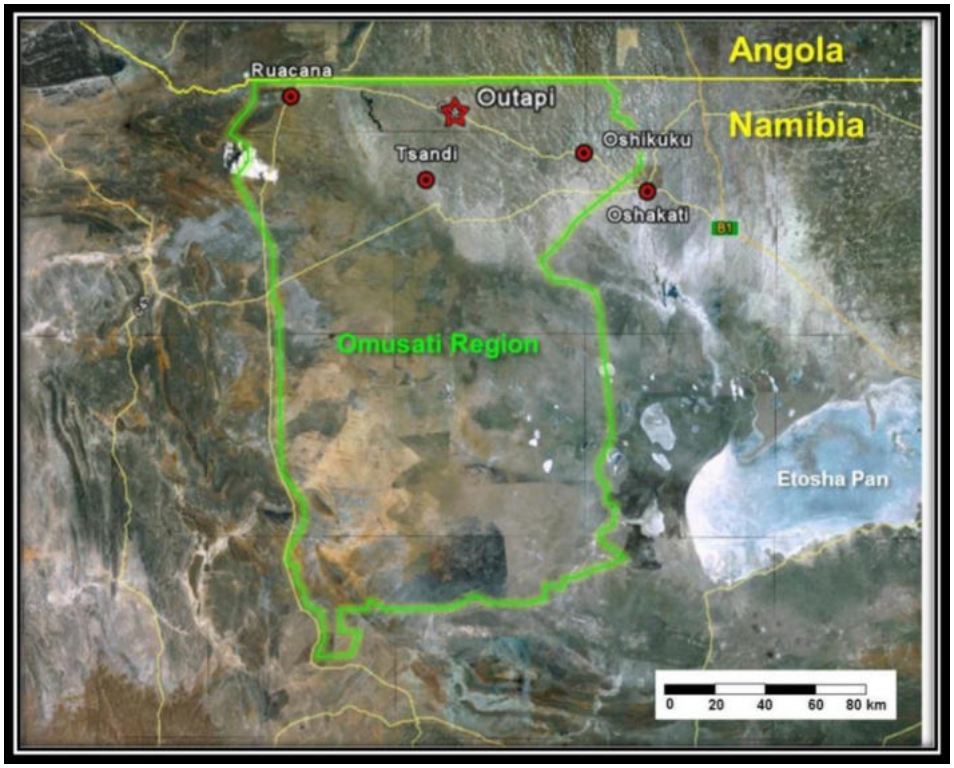
7.11 Socio-economic Setting

7.11.1 Overview

Omusati region is one of the 14 regions of Namibia. In the north, Omusati borders the Cunene Province of Angola (Figure 13). Domestically, it borders the Ohangwena region to the northeast, Oshana to the east, and Kunene to the south and west. The region comprises nine constituencies: Onesi, Tsandi, Outapi, Okalongo, Oshikuku, Elim, Okahao, Anamulenge, and Ogongo.

The region has a surface area of 14 000 km² (Figure 12), a population of 243 166 (in 2011) and a population density of 16.7 persons per square kilometre. Its capital is Outapi. The main road in the Omusati is the B1 road that stretches from Windhoek and other roads such as C40, C41, ,C35, M38 and M123.

Figure 15 Omusati Region, Namibia



- **Socio-economic demographics**

Omusati region accounts for 11% of the population of Namibia (NIDS, 2011). The region is characterised by a traditional lifestyle with 84.5% of households living in traditional dwellings (vs. the national average of 41% of households).The average household size in the region is 5.2, versus the national average household size of 4.7. Of all the households in the region, 59% are headed by females; for the country, female-headed households account for only 43% of households.

The residents of communities in the project area are predominantly Oshiwambo speakers whose livelihood depends on agricultural activities such as keeping livestock and land cultivation. Besides the Oshiwambo speaking people other tribes such as the San speaking people could be found within the project areas especially in the area of Amarika. These villages started off as cattle posts where people could come and set up temporary structures (as places of dwelling) as they graze their animals especially when the inland grazing areas become exhausted. As the years goes on, some people converted their temporary structures into permanent houses and started to cultivate land. The scarcity of water hindered many people to settle in this area and this has contributed to the pace of population growth which is not so fast. The average number of people per household is two which is too low compared to other villages with basis services.

Agriculture is the dominant source of livelihood in the region according to the IOWRSS Phase 2 Demographic Research Report 2022. Subsistence farming (land cultivation and livestock farming) is the dominant source of income in the proposed project area followed by government grants or pension (see, Table 15). It was noted by the IOWRSS Phase 2 Demographic Research Report 2022 that there are a few households that have no income. Thus, recommended that if it is possible, a community water tap be installed to provide households with access to clean water if it is unaffordable.

Table 12 Sources of Income in the proposed project area in the Omusati region.

Village name	Subsistence Farming	Business activities	Salaries/wages	Gov Grants, pension/social grants	Retirement Annuity	other means of income
Akutsima	59	2	18	26	2	1
Amarika	75	12	16	23	0	1
Amega	30	1	7	13	1	0
Okambata	23	2	5	9	0	0
Okolumono	46	2	14	47	0	0
Olumbelengwa	47	6	8	16	0	0
Onakatili	47	2	6	8	0	0
Uutsathima	102	18	27	41	2	0
Okagongo	3		3	2		
Okakewa	19	1	0	4	0	0
	451	**46**	**104**	**189**	**5**	**2**

In terms of development, the region is lagging. Within the project area, it is noted that only few areas that have institutions such as schools, a clinic, a police station, and a nature conservation office also being referred to as a Veterinary center Table 16).

Table 13 Public development service facilities in the proposed project area.

Public development public facilities per village						
Village	**Clinic**	**Police**	**Nature conservation/ Vet**	**Combined school**	**Primary school**	**Kindergarten**
Akutsima	1	0	0	0	1	0
Amarika	1	0	0	0	1	1
Olumbelengua	0	0	0	0	1	0
Uutsathima	1	1	1	1	0	1
Totals	**3**	**1**	**1**	**1**	**3**	**2**

Based on the IOWRSS Phase 2 Demographic Research Report 2022, there is lack of economic activities in most of the villages to improve local economic development. Thus, the labour

(especially un-skilled labour) required for the proposed project implementation should be sourced from the targeted villages

- **Access to electricity and water**

In the Project area, only 7% of households in the region use electricity whereas candles contribute 48.5% as a source of light (IOWRSS Phase 2 Demographic Research Report 2022).

Omusati Region is one of the regions in Namibia suffering from water scarcity, unreliable water supply and food insecurity in some areas. Even though there is plenty of underground water in the region, it is very salty, making it impossible for human consumption. The occurrence of drought, ageing and dilapidated infrastructure is said to be the main cause of severe water shortages in the Omusati region. The region houses the Olushandja and Etaka dams, which provide all four northern regions with water, however the shortage of water persists in some areas of Omusati region.

Figure 16 Existing raised water tanks along the project proposed route.

In the proposed project area, boreholes, wells/hand-dug wells, and communal water taps were identified as the primary sources of water in the communities (IOWRSS Phase 2 Demographic Research Report 2022). While acknowledging that the project area has variety of water sources, none of the water sources that can provide water to the villages consistently throughout the year (IOWRSS Phase 2 Demographic Research Report 2022). The only communities with water points are Olumpelengwa, Onakatili, and Akutsima, with the rest relying on hand dug wells. The communal water taps, and boreholes are accessible to residents of neighbouring villages.

There have been Government intervention to address and arrest the shortage of water in the remote areas of the Omusati Region. According to Omusati region Governor Erginus Endjala during the 2019 state of the region address, which highlighted development activities carried out throughout the region during the 2018/19 financial year, it was stated that the Government has completed the construction of a water pipeline between Oshuukwa and Okeeholongo in the Omusati region's Okahao constituency costing N$ 60 million.

Figure 17 Akutsima water desalination plant in Omusati region.

The 65-kilometre Oshuukwa (Iitapa)-Okeeholongo water pipeline, which is one of the longest pipelines in the region, supplies water to the villages of Otoongo, Okakoto, Iitapa and Onambandje in an area that has previously experienced serious water scarcity. The project now provides water meters free of charge to about 1 000 households in its vicinity. The Government through the Ministry of Agriculture, Water and Land Reform continue to implement projects that will provide water in rural areas in the Omusati region and other parts of the country.

CHAPTER EIGHT

8. IMPACT DESCRIPTION AND ASSESSMENT

The receiving socioeconomic environment and the surrounding biophysical environment may be affected by a range of potential environmental and social impacts of IORWSS Phase 2 activities. The objective of this chapter is to evaluate the significance of the potential impacts that were identified throughout the scoping and public participation process. The proposed IORWSS Phase 2 I will have several favourable socio-economic and environmental impacts. Positive impacts should be maximized while negative impacts should be reduced or controlled.

8.1 Potential Identified Impacts

8.1.1 Socio-economic benefits

The proposed IORWSS Phase 2 Project is anticipated to have a significant positive impact on the population's access to clean, safe drinking water throughout the year. Domestic water that is hygienically safe allows for the exclusion of contamination and water-borne illnesses, with significant health benefits that follow.

There will be significant changes in people daily lives who previously did not have access to water in a convenient location. Most of the time savings will go to women and children. The projects are anticipated to help increase females' sense of responsibility and self-worth by lessening the workload placed on them. Furthermore, reducing infant mortality, which is still high, requires changes to the (hygienic) environments in which babies are raised.

- **Skills Development and Transfer: Construction Techniques and Skills**

The involvement of communities where these projects are implemented in the construction of various water and related infrastructure provides community members with first-hand, practical exposure to various construction methods and techniques. This is done using the labor-intensive approach to the Iitapa-Okeeholongo Rural Water Supply Scheme - Phase 2 Project. Since many community members participate in various construction activities during

different project development phases, this helps the communities with the maintenance and repair of their infrastructure and improves community awareness of the layout and configuration of the various pipeline networks and other infrastructure.

Numerous community members are expected to assist with various project construction tasks, which contributes to a stronger sense of community ownership of the infrastructure. Another advantage is that after the projects are finished, community members can apply for jobs with civil engineering contractors, helping their applications along by having some background in different types of construction.

The Project significant socioeconomic and environmental impacts are summarised in Table 7.

Table 14 Socio-economic Benefit of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2

Benefit	Description
Economic Productive Time Usage	The Phase 2 project of the Iitapa-Okeeholongo Rural Water Supply Scheme is linked not just to community health but also to productive time usage. Most people, especially women, children, and vulnerable groups, must travel long distances to obtain water. This consumes a significant amount of their productive time daily. Since safe, sustainable water is easily accessible, less time is spent obtaining it. If a reliable supply of water is brought closer to communities, the time spent previously travelling long distances to collect water can be better spent on household chores, livestock and Omahangu fields (rural communities), or other economic and income-generating activities, raising the communities' standard of living.
Iitapa-Okeeholongo Local Workforce	Clearing pipeline roots, establishing treatment water purification plants, digging, backfilling, and compacting pipeline trenches would all be part of the Iitapa-Okeeholongo communities' involvement. Local residents will be prioritised when

	hiring unskilled labourers during the project's construction phase. Since women have few options to earn money in the community, the revenue they would get will be crucial to promoting community well-being and poverty reduction.
Water Infrastructure Construction Remuneration	The contractors and subcontractors chosen to carry out construction work for the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project will hire labourers within the project area as part of community development (Iitapa-Okeeholongo). The labour component accounts for roughly 15% of total expenses in water delivery, which, given the high cost of such projects nowadays, translates to a significant sum paid to locals employed by the contractor. These community members will directly contribute to the Namibian government's stated Black Economic Empowerment (BEE) aims because they all come from previously disadvantaged backgrounds. The purpose of BEE[12] is to empower previously disadvantaged Namibians.
Social Benefits	The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project is expected to provide major benefits by ensuring that the populace has access to safe, sanitary drinking water throughout the year. When home water is hygienically safe, contamination and water-borne diseases can be prevented, and major health benefits can be predicted. Locals who previously did not have access to water will see big changes in their daily lives. Time savings will assist children and mothers the most. By reducing women's workload, the programs are projected to contribute to an increased sense of self-esteem and responsibility among the female population. Changes in the (sanitary) conditions in which infants are raised are also crucial to lowering infant mortality, which remains high.

[12] Ganaseb, Ferdinand. (2008). An investigation of black economic empowerment and its impact on development in Namibia.

	A more economically active and productive population contributes to poverty reduction and general social development.
Manpower Development	The engagement of Iitapa-Okeeholongo villages in the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project will provide first-hand, hands-on exposure and competence with varied building methods and techniques. This helps local communities maintain and repair infrastructure, and because many community members participate in various construction activities during various project development phases, it enhances community awareness of pipeline networks and other infrastructure layout and configuration. The infrastructures will have a higher sense of ownership within the larger community because multiple community members are expected to assist with various phases of the projects' construction. Contractors will be required to set up construction camps and hire local people inside the project area. Residents of the Iitapa-Okeeholongo community will be directly engaged by the contractors, allowing them to gain experience in several aspects of civil engineering construction, including water point construction, concrete work, and the erection of elevated reservoirs, among other things. This will represent a significant transfer of construction skills and experience to people in the Iitapa-Okeeholongo area (Omusati Region), where the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project is being implemented, and to the community areas where these projects are being developed, the majority of whom are previously disadvantaged, and into previously largely undeveloped areas. The community members will profit from this experience after the projects are completed.

8.1.2 Social-economic effects

Negative social effects are categorised as anticipated social groups. The following table lists the major social issues that have been identified as being connected to IORWSS Phase 2 proposes activities :

- Deterioration of or intrusion into private or public property Issues with land use and land rights.
- Relocation of individuals against their will to facilitate project activities.
- Failure of implementing organisations to develop the capacity to run and manage project infrastructures.
- The absence of community participation in decision-making and the mainstreaming of indigenous knowledge through consultations.
- Poor coordination between stakeholders on the project
- Unstable water supplies
- Loss of sources of income or other means of support competition for scarce freshwater resources.
- Workplace Safety and health access to assets or loss of assets
- Excessive use of/abstraction from water sources
- The strain on resources brought on by the massive influx of outsiders into the project area access to or loss of assets, such as farmlands.
- Social Intrusion: (impact on the local young women and girls)
- Spread of HIV and STIs due to influx of out-of-area people into the project area

8.1.3 Environmental impacts

The identified key environmental issues associated with Iitapa-Okeeholongo Rural Water Supply Scheme - Phase 2 activities are listed below:

- Visual impact
- Odour nuisance
- Man-made Wetlands

- ❖ Vehicular Traffic Safety Noise and vibrations
- ❖ Vegetation loss
- ❖ Land disturbances (pollution of soils and water) Waste generation
- ❖ Health and safety
- ❖ Dust impact (air quality)

- **Environmental Impacts of Pipelines and other infrastructure**

Environmental concerns create some of the most significant challenges for the proposed development. The construction and operations of pipelines must find a way to meet environmental codes and regulations while continuing to run efficient, cost-effective pipelines.

Habitat loss and fragmentation is a key environmental concern of the proposed IORWSS Phase 2 pipeline placement. In selecting the final route, the planners avoid areas of high concern instead of trying to lay the pipeline over previously disturbed areas to minimize habitat destruction. The project will also try to make use of existing access roads, as this will help you minimize the negative impact of construction. As you plan your pipeline, carefully assess multiple routes (achieving the same project goal) so that you can create the most environmentally friendly course possible.

Access route impact: The impact of an access route is not expected to be detrimental to most fauna as there are numerous tracks throughout the general area with large parts of the route following existing roads and the overall footprint is small. However, track discipline should be maintained (e.g., speed limit of 30km/h). During construction phase, access routes can be created where there is no existing access routes or roads . However off-road driving from the created routes should be avoided or minimal. Driving at night during construction should be avoided to prevent collision with domesticated animals or any small wild animals .

The impact of the water pipeline and the transmission line infrastructure is not expected to be detrimental to unique larger trees and shrubs especially if unique habitats such as *Acacia erioloba*. Some individual larger trees like Acacia species associated with ephemeral drainage lines may have to be removed (infrastructures) and/or pruned (transmission line). Removal of bigger or larger trees will be avoided unless there is no other environmental sound option. The team has thoroughly evaluated a number of routes to design the most environmentally friendly course feasible.

Furthermore, more settlements and people will move to the area during the project's operational phase because of the water that will be made available. This will hinder the conservation efforts of community conservancies like Sheya Shuushona and could lead to an increase in conflict between people and wildlife because of the increased population. In addition, impacts on the project region throughout the operational period include deforestation, increasing human settlement, and the effect of animal migration, such as elephant migration. The program will have accrued positive impacts among improved community livelihood, healthy, economic growth, and employment of people

Table 8 details the proposed IORWSS Phase 2 Project's specific activities and their impacts on the receiving environment and community area, referring to the project area, land use, affected environment, and project infrastructure.

Table 15 Specific for Iitapa-Okeeholongo Rural Water Supply Scheme – Phase 2 project activities resulting in potential social and environmental impacts

PROJECT NAME	LOCATION	BENEFICIARIES	POTENTIAL SOCIAL AND ENVIRONMENTAL IMPACTS.	ACTIVITIES TRIGGERING ENVIRONMENTAL ASSESSMENT	READINESS/STATUS
IORWSS-Phase 2	Omusati Region Covering Akutsima, Amarika, Okolumono, Olumpelengwa, Uutsathima and Aamega villages.	About 10 000 expected beneficiaries; and water coming from the Olushandja Dam	Existing pipelines will be impacted, and new pipelines will have an impact on the surrounding communal farmlands. Because these villages are near the Etosha National Park, the presence of sensitive ecosystems is expected. The development of bulk pipeline construction activities may have an impact on wildlife in Etosha National Park.	Phase 2D construction of water supply infrastructure in Sub-Area (Okeeholongo - Amege -Amarika). Pipeline distribution network construction, including booster pump stations, bulk pipelines, elevated reservoirs/tanks, and distribution lines with manifolds and water points.	Phase: 1 & 2 A, B, C were completed including EIAs

				Okahao Plant's supply network is being upgraded.	
Capacity Development	Project area		While this will not have a direct impact on the physical environment, increasing institutional and community capacity to manage, maintain, and repair water supply infrastructure will have long-term positive effects on the local environment and resilience to climate change. This will also allow for the monitoring and evaluation of the project implementation process at the beginning, mid-term, and end of the project.	-	In-house technical assessment done

- **Offset Habitat Loss**

Habitat loss, emissions, and other negative effects are unavoidable during the laying of pipelines and related infrastructure. The contractors should prioritize offsetting the damage. A huge part of how to reduce the environmental impacts of pipelines is putting time and money into green efforts that can help balance out the effects of construction. For example, replanting trees or supporting local nature reserves are effective ways to compensate for any habitat loss caused.

- **Maintain Safe, Functioning Pipelines**

Once the pipeline and related infrastructure start running, the contractors have a responsibility to ensure it does not cause further harm to the environment. Leaks, emissions, and other damage from pipelines can destroy vegetation, harm local wildlife, and add to local water and air pollution levels. Operators can help avoid these issues through strict inspection and maintenance routines. When the proponent and contractors stay on top of pipeline repairs, they can help prevent major problems and environmental damage.

CHAPTER NINE

9. MEASURES TAKEN TO CREATE AN ADEQUATE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE PROJECT

The chapter outlines the steps taken to create a suitable ESMP to guarantee project implementation. It highlights the project's strategy and ESMP for Phase 2 of the Iitapa-Okeeholongo Rural Water Supply Scheme.

9.1 Strategy

The IORWSS Scheme Phase 2 Environmental and Social Management Plan is based on the following principles:

- IORWSS Scheme Phase 2 project activities.
- Planning and execution of the project will include environmental management. Together with the other two implementing agencies, MAWF is the lead agency, and AfDB is the funding agency.
- Implementing agencies will oversee monitoring environmental and social issues, with assistance from relevant government ministries and departments.
- The technical materials will guide the design of the water supply and sanitation works, which will include recommended measures to minimise negative impacts and encourage positive environmental effects.
- Capacity building in social and environmental issues will primarily be provided to implementing agencies at various levels ranging from national to regional, contractors, and local communities.

The AfDB Environmental and Social Assessment OS1 classifies the project as Category 2 because the environmental and social impacts are anticipated to be less severe, localized, and easily manageable in the Iitapa-Okeeholongo communities.

This indicates that it will have adverse site-specific environmental and/or social impacts that can be reduced by using the right management and mitigation measures, or by incorporating the size and magnitude listed in Section 27 of the Environment Management Act scheduled activity where Environmental Assessments (Environmental Scoping or full EIA) are required.

9.2 Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) is a tool used to assign tasks, responsibilities, and actions to be taken to reduce or eliminate projects' negative environmental effects. The Environmental and Social Monitoring Plan (ESMP) for the IORWSS Phase 2 project complies with Namibia's Environmental Impact Assessment Guidelines and the African Development Bank's Environmental and Social Assessment OS1.

Since most of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project activities entails public works, which will be mainly artisanal, it is anticipated that the environmental impacts will be localized and manageable.

An ESMP will be created as a check and balance to guarantee project executants will protect the environment. The following will be part of the ESMP:

- An explanation of potential negative effects that the ESMP is designed to address
- Any environmental and social analysis to be used in program-based operations (PBO) implementation, including environmental and social criteria for budget allocation.
- Any environmental and social management should be incorporated into the plans for implementing the PBO.
- Any system for managing the environment and society, such as an ESMF, to be used in investments or activities further down the line.
- An explanation of the anticipated mitigation measures, including when and how they will be put into action.

- Any specifications for monitoring and reporting on downstream activities on the social and environmental fronts
- A list of the individuals in charge of carrying out the ESMP.
- institutional arrangements, capacity building, cost estimate, and funding source needed to ensure effective environmental and social management during PBO implementation.

CHAPTER TEN

10. PROJECT MONITORING PLAN AND SUPERVISION

The primary goal of monitoring is to ensure that responsible organizations implement the identified negative impacts and mitigation measures. Monitoring will serve as a check balance between the environment and development, determining whether the mitigation measures were successful in restoring, improving, or worsening the pre-program environmental and social conditions, and determining what additional mitigation measures may be required. The responsibility for monitoring and evaluating mitigation measures is divided between two levels: local and national.

10.1 Monitoring

The implementing agencies have a responsibility to implement this ESMP and participate in various monitoring programs, making sure that the ESMP requirements are met to address specific adverse impacts of their projects. Supervision is important because it will allow the various contracted institutions to implement the ESMP.

This ESMP is recommending the monitoring of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 activities to be done in two parts: **internal and external monitoring**.

Internal monitoring (conducted as part of The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 implementation) would be applied to various aspects of the ESMP, including:

a) The project screening procedure (to make sure it operates successfully and effectively).
b) Environmental and social monitoring of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project implementation in terms of changes to baseline conditions, adherence to necessary protection and compensatory measures, and recommendations made by environmental and social studies conducted for the project such as ESIA, environmental or social impacts, to ensure that they do not exceed expected limits.
c) Ensuring that all necessary safeguards have been properly put in place, assessing the effectiveness of mitigation measures, and suggesting additional mitigation measures as necessary to control impacts.
d) The implementation of capacity-building and training.

The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project would benefit from external monitoring, which could be conducted as a separate process regularly (say, every five years) as part of a periodic review of the project's overall progress.

Namibia must conduct monitoring to fulfil its international obligations. A thorough set of monitoring and reporting guidelines must be created by MAWF and the other implementing agencies with the assistance of the hired environmental consultant. Monitoring is required of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 project activities resulting from its implementation. It is suggested that local, community, and regional levels of monitoring be used.

Monitoring should cover:

i. **Baseline monitoring** - needed to collect data on environmental resources and the social setting of the project area before the implementation of the project.
ii. **Compliance Monitoring** - to ensure that environment and social protection and compensatory measures are complied with.
iii. **Impact Monitoring** - focusing on each predicted impact and the effectiveness of the proposed mitigation measures

10.2 Monitoring Checklist and project supervision checklist

10.2.1 Monitoring Indicators

The monitoring strategy relies on monitoring indicators. The indicators should be as follows:

a) Specific to avoid ambiguity in the items being measured.

b) Measurable for ease of quantification and

c) Quantifiable so that it can be easily translated into units of measurement and verified.

Indicators should be measured in units such as time (duration), frequency (how frequently), area or volume (size of cleared land), and length (length of stream affected). Some indicators may be qualitative in nature. When comparing the state of the environment before and after a sub-project, for example, in the illustration in Table 14.

Figure 18 State of the environmental comparison assessment.

ASPECT	CONDITION	
	Before	After
Natural Resources		
Communal land		
Wildlife		
Stream Water		

Some of the main socio-economic indicators by which to evaluate the successful implementation of the Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 ESMP are:

(a) Affected individuals, households, and communities can maintain their pre-subproject standard of living, and even improve on it; and

(b) Number of farmers and community groups that have remained supportive of the subproject.

10.2.2 Monitoring Checklists

Using monitoring checklists, progress, and problems in the implementation of this ESMP will be reported in the project's quarterly and annual project implementation reports (PIRs). Checklists are crucial, especially when it comes to working supervision. Key monitoring indicators are listed below:

- Safe waste management related to construction works.
- Reforestation and land restoration
- Compliance with the Environmental Guidelines for Contractors; and
- Best practice in the implementation of project activities.

10.3 Areas to be monitored

The areas to be monitored must be precisely mapped before monitoring begins. This helps by providing details on where to watch, when to watch, how, what tools to use, what units of measurement, and who enforce compliance and checks. As listed below, the following areas will be taken into consideration for monitoring:

- Ambient air quality
- Chemical pollution
- Loss of natural and cultural heritage
- Marginal lands/fragile ecosystems
- Noise and Vibrations
- Socio-Cultural Issues
- Soils
- Vegetation
- Water resources
- Wildlife

Figure 19 The Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2 Areas that need monitoring and the responsibilities

PARAMETER TO BE MONITORED	AREA OF PARAMETER TO BE MEASURED	WHEN IS THE PARAMETER TO BE MONITORED/ FREQUENCY OF MEASUREMENT OR CONTINUOUS?	HOW IS THE PARAMETER TO BE MONITORED / TYPE OF MONITORING EQUIPMENT?	UNIT OF MEASURE	PROJECT PHASE	RESPONSIBILITY
Vegetation loss	Area of vegetation Cleared along the pipeline route (60km)	Before commencement of construction works and after works	Survey area was vegetation is cleared due to pipeline and other related infrastructure construction	No. of trees cut, or sq. meters of grass removed.	Construction	MAWF (Directorate of Forestry), & MEFT
Soil erosion	Construction site and surrounding areas	Before and after commencement works	The depth of topsoil removed	m3	Construction	MAWF MEFT

Loss of farmland, property and crops	Communities were infrastructure is passing	Before and after commencement of civil works.	Area of land lost	Hectare (Ha)	Construction	The Ministry of Land Reform, MAWF
Groundwater pollution.	Well fields, surrounding communities, construction site	Monthly	Water quality testing	Faecal coliform counts,	Construction and Operation	MEFT, MAWF, Contractors, EAP
Construction site waste and drilling waste	Construction site, surrounding communities	Daily, Weekly and Monthly	Amount of Amount Construction and demolition wastes (CDW)	m3	Construction	Contractor, MET, ESMP EAP
Accidents, health and safety of workers at both construction and operational phase	Pipeline and related infrastructure construction sites	Daily	Record of cases reported and treated	No. of accidents or near miss.	Construction And Operation	The Ministry of Health and Social Services, Contractor

Increase of STD and HIV/AIDS due to the presence of construction workers	Local communities	Bi-annual	Record of the cases reported at a local clinic	No. of reported of STDs and HIV/AIDS cases.	Construction	The Ministry of Health and Social Services, Contractor
	Construction sites and settlements close to construction	During the use of heavy machinery, Monthly During use of heavy machinery, monthly	Number of times working areas are watered. Use of a noise measuring Meter - Sound-level Meter / Decibel Meter	bd, kg/m3	Construction	Contractors
Water treatment waste like aluminium sludge is toxic to the environmental.	Surrounding areas	Quarterly	Weigh the waste released	Kg	Operation	MEFT

cross-contamination of water in the distribution pipelines	Communities receiving water	Quarterly	pH, turbidity	Faecal coliform counts	Operation	NamWater and MAWF
Contamination of Reservoirs tanks and tanks at the clients' premises.	Surrounding communities	Annually	pH, turbidity	Faecal coliform counts	Operation	NamWater

10.4 Environmental and Social Monitoring Plan (ESMP)

The IORWSS Phase 2 beneficiary communities will be the primary actors at the local level. The contractor will monitor and comply with the environmental and social needs as stated in the ESMP and other management plans using the Environmental list checklist created by MAWF. The EAP will oversee reviewing compliance and providing feedback. MEFT will keep an eye on everyone's adherence to the rules.

MEFT will oversee monitoring environmental compliance for all sub-project activities on a national level. The guidelines presented in this monitoring plan will serve as a guide for the implementation of environmental and social mitigation measures. These recommendations' goals are to:

a) Ensure that the building, operating, and maintaining processes are conducted in a way that safeguards the social and environmental conditions, as well as the physical and psychological health of the workforce and the general public.
b) Provide timely information about the success or failure of the subprojects' implementation process, as described in the ESMP, to MAWF and other implementing agencies and regulating authorities. This oversight will guarantee that all requirements are met during the execution of the related projects.
c) Ascertain whether the project's mitigation measures have been successfully implemented; and

The following are the primary components of the monitoring plans:

- The environmental issue to be monitored and the means of verification.
- Specific areas, locations, and parameters to be monitored.
- Applicable standards and criteria.
- Material procurement monitoring (checks for valid permits).
- Duration; and
- Institutional responsibilities for monitoring and supervision

11. ANNEXES

Please note that annexes are attached as documents.

12. BIBLIOGRAPHY

- African Development Bank Group. 2013. Safeguards and Sustainability Series: African Development Bank Group's Integrated Safeguards System — Policy statement and operational safeguards. Volume 1– Issue 1. Tunis, Tunisia.
- African Development Bank Group. 2015. Integrated Safeguards System Guidance Materials. Volume 3:
- African Development Bank Group. 2015. Integrated Safeguards System Guidance Materials. Volume 2:
- African Development Bank Group. 2015. Safeguards and Sustainability Series: Environmental and Social Assessment Procedures. Volume 1 - Issue 4. Abidjan, Côte d'Ivoire.
- African Development Bank Group. 2015. Safeguards and Sustainability Series: Integrated Safeguard System Guidance Materials. Volume 1: General Guidance on Implementation of Operational Safeguards 1. Abidjan, Côte d'Ivoire.
- African Development Bank Group. 2016. Development and Indigenous Peoples in Africa. Abidjan, Côte d'Ivoire.
- African Development Bank Group. Safeguards and Sustainability Series: Development and Indigenous Peoples in Africa. Volume 2 Issue 2. Abidjan, Côte d'Ivoire
- African Development Bank Group. Safeguards and Sustainability Series: Assessment of the use of "Country Systems" for environmental and social safeguards and their implications for AfDB-financed operations in Africa. Volume 1 - Issue 3. Abidjan, Côte d'Ivoire.
- Demographic Research Report for Iitapa-Okeeholongo Rural Water Supply Scheme Phase 2, First Draft Report 2022
- Hamutoko, J. T., Wanke, H., Beyer, M., Gaj, M., and Koeniger, P.: Spatio-temporal variations of hydro chemical and isotopic patterns of groundwater in hand-dug wells: The Cuvelai-Etosha Basin, Namibia, Proc. IAHS, 378, 29–35, https://doi.org/10.5194/piahs- 378-29-2018, 20

- Republic of Namibia. 2007. Environmental Management Act No. 7 of 2007. Ministry of Environment and Tourism. Windhoek, Namibia.
- Republic of Namibia. 2007. Promulgation of Environmental Management Act No. 7 of 2007. Government Gazette No. 232 Windhoek, Namibia.
- Republic of Namibia. 2012. Environmental Impact Assessment Regulations. Government Notice 30 of 2011. Ministry of Environment and Tourism. Windhoek, Namibia.
- Sector Keysheets. Abidjan, Côte d'Ivoire.
- SESA Draft 1 Report 2019: Namibia Water Sector Support Program (NWSSP): Strategic Environmental and Social Assessment (SESA) Report

Online Resources

- https://equator-principles.com/about-the-equator-principles/
- https://www.lac.org.na/laws/annoSTAT/Environmental%20Management%20Act%207%20of%202007.pdf
- https://www.lawinsider.com/dictionary/environmental-and-social-management-framework
- https://www.sgs.com/en/our-services/sustainability-solutions