

APPENDIX A

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

PROJECT: **NAMIBIA WATER SECTOR SUPPORT PROGRAM (NWSSP) – PHASE
1 (P-NA-E00-005).**

**KING KAULUMA -OMUTSEGWONIME RURAL WATER SUPPLY
SCHEME (KKRWSS).**

COUNTRY: **NAMIBIA**

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Date: October 2025

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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

Project Title: Namibia Water Sector Support Program (NWSSP) – Phase 1
Project Number: *P-NA-E00-005*
Country: Namibia
Department:
Division:
Project Category: Category 1

1. INTRODUCTION

The Government of the Republic of Namibia through the Ministry of Finance and the Ministry of Agriculture, Fisheries, Water and Land Reform (MAFWLR) has approached the African Development Bank to support the implementation of the Namibia Water Sector Support Program (NWSSP). The aim of the program is to increase access, quality, security and sustainability of water supply and sanitation services in Namibia. The program implementation is planned in two phases; The Phase I which is planned to cover all the 14 regions of Namibia is scheduled to be implemented in the next 5 years (2020 – 2025) and Phase II immediately after the completion of Phase I. Phase I is intended to address short term, immediate water solutions and Phase II will focus on long term solutions to the water shortage. Twenty-five sub-projects are proposed under NWSSP.

2. BRIEF PROJECT DESCRIPTION AND KEY COMPONENTS

The Government of the Republic of Namibia (GRN) through the Ministry of Agriculture, Fisheries, Water and Land Reform (MAFWLR) 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 development sector goal is to support sustainable production and consumption of water resources, sanitation facilities, promotion of hygiene good practices, resulting in;

- ❖ Improved access to safe drinking water for human consumption and for industry use,
- ❖ Improved food and nutrition security in the Urban and Rural areas in Namibia,
- ❖ Construction of Water Supply Schemes.

The proposed program seeks to achieve this by investing in water and sanitation infrastructure, which will lead to increase in access, quality, security and sustainability of water supply and sanitation services. The specific objectives are to support GRN to increase access, quality, security and sustainability of water supply and sanitation services in Namibia in view of water scarcity continuing to be a serious constraint in achieving the economic,

environmental, and social development agenda in Namibia. The NWSSP is intervening in four broad components with the aim to improve both the supply and management of water resources in Namibia. The four components are indicated in the table below:

No:	Component Name	Details
1	Climate Resilient Bulk Water Infrastructure Development	❖ Rehabilitation and expansion of critical and urgent major bulk water infrastructure including water treatment plants, conveyance systems, canals, and pipelines.
2	Climate Resilient Sanitation Infrastructure Development – Wastewater treatment and reclamation	❖ Rehabilitation, upgrading and expansion of critical and major sewerage networks, wastewater treatment and reclamation systems in Windhoek.
3	Rural Water Supply and Sanitation	❖ Construction of water supply schemes, including upgrading of purification plants, construction of tanks, distribution lines with manifolds and water points. Strengthening WASH “water, sanitation and hygiene” service delivery through advocacy, sensitization, promotion of decentralised sanitation & hygiene education. ❖ Development of gender responsive training and promotional material. ❖ Construction of climate resilient inclusive sanitation facilities for vulnerable people who are not able to access or afford a sewerage connection, undertake WASH friendly school campaign (hand washing and sanitation facilities responsive to gender and disability), integration of the “Leave No-one Behind” (LNOB) in the rural areas, Community Led Total Sanitation (CLTS) & Sanitation Marketing.
4	Institutional Strengthening and Capacity Building and Program Management.	❖ Enhance the capacity of the sector institutions (MAWFLR, DWAF, NAMWATER and City of Windhoek). ❖ Inter-sector coordination, especially between line sectors (environment, health, water supply and sanitation, nutrition, education, local economy and local government authorities). ❖ Support to Monitoring & Evaluation (M & E) and information systems, and accountability frameworks to track progress. ❖ Preparation of Phase II projects. ❖ Decentralization and strengthening local level management

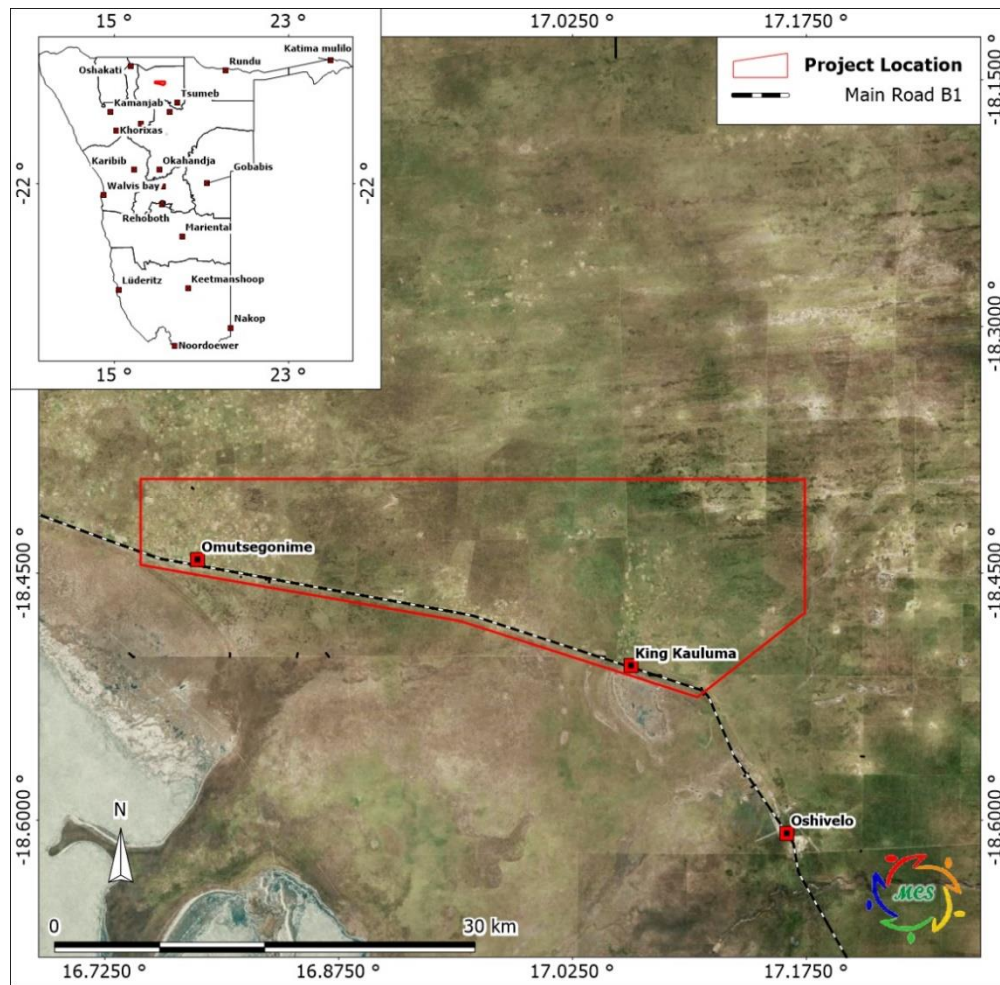
		❖ Community sensitization and mobilisation including formation and training water committees, review and update the Community Based Management (CBM), updating the IWRM Plan, Development of the country wide water master plan, mainstreaming Gender, Environment, Climate Change & Cross Cutting Issues. ❖ Support to Environmental Department to enhance its capacity for monitoring environmental and social issues during and beyond project implementation, Operationalising Water Resources Monitoring Network. ❖ Training of national, and municipal staff in sector investment framework, water resources, sanitation and environmental health operationalization of gender guidelines on Water Sector. ❖ Skills training and empowerment of women and youth. ❖ Provision of technical assistance for design, supervision and program implementation in accordance with good project management practices, program auditing, project mid-term review, Program M&E and Reporting (including baseline and end-line), Program Implementation Manual.
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The Program's intermediate outcomes are to have 100% of the population having access to improved water supply and 63.5% of the population having access to improved sanitation facilities/series. The water crisis has put pressure on existing and potential water resources resulting in water insecurity, devastating climate change effects and scarcity challenges. This has caused the problem to be a national concern facilitating the need for an immediate intervention by the Government to offer both short- and long-term sustainable solutions. The NWSSP is covering three physical components (bulk water infrastructure development, sanitation infrastructure development, rural water supply and sanitation) implemented through 25 sub-projects implemented by MAFWLR together with NAMWATER and City of Windhoek as implementing agencies. The following table shows the sub-projects of NWSSP:

Component	Implementing Agency	Sub-Projects	Location/Region
Climate Resilient Bulk Water Infrastructure Development	NamWater	Ohangwena No. 2 Wellfield	Ohangwena
		Abenab Borehole Development	Otjozondjupa
		Oshakati Purification Plant Extension	Oshana
		Omdel-Wlotzkasbaken Pipeline Replacement	Erongo
		Rundu Scheme Extension	Kavango East

Rural Water Supply and Sanitation	MAWF	Rehabilitation of Katima Mulilo - Kongola Water Supply Project Phase 1 & 2	Zambezi
		Ruacana South Water Supply Project	Omusati
		King Kauluma - Omutsegonime Water Supply Scheme (WSS)	Oshikoto
		Construction of improved sanitation facilities	All the 14 Regions
		Otjombinde Water Supply Scheme	Omaheke
		Shamvura - Shamangorwa WSS	Kavango East
		Water Supply to the Salt Block	Hardap and //Karas
		Iitapa-Okeeholongong Rural Water Supply Project Phase 2	Omusati
		Katima Mulilo - Ngoma Water Supply Project Phase 3 and 4	Zambezi
		Katima Mulilo - Kongola Water Supply Project - Phase 3	Zambezi
		Etaka Raw Water Supply Scheme (source-Olushandja Dam)	Omusati
		Eenhana - Oshikunde Water Supply Scheme	Ohangwena
		Okankolo - Onkumbula Water Supply Scheme	Oshana and Oshikoto
		Epembe Water Supply Scheme	Ohangwena
		Rain and Flood Water Harvesting Infrastructure	Central Northern Regions
		Rundu - Mukwe Water Supply Scheme Covering 30km stretch	Kavango East

The implementation of the King Kauluma-Omutsegwonime WSS will contribute to the achievement of a higher percentage of households with access to potable water throughout Namibia in general, but in the rural areas in particular. The purpose of the King Kauluma-Omutsegwonime Rural WSS is the provide potable water within reasonable distance for households in terms of the Water supply and Sanitation Policy of the MAFWLR. The project is envisaged to supply approximately 5,000 people and 1,500 large livestock with potable water. The project comprises the extension of the current water supply networks into the rural areas of the King Kauluma Village. The study area is situated along the B1 and stretches northeast of Oshivelo over an estimated total area of approximately 300km². The total length of pipe will be approximately 250km varying in diameters between 75mm and 200mm. A total of 163 manifolds will be installed, providing water to approximately 5580 people in 2025, upgradable to 7300 in 2037. Below is the project location map.



The Environmental Management Act No.7 of 2007 stipulates that the construction bulk water pipelines be subjected to Environmental and Social Impact Assessments (EIA). Matrix Consulting Services, an independent consultant, was been appointed by the Ministry of Agriculture, Fisheries, Water and Land Reform to undertake an Environmental Impact Assessment on the proposed King Kauluma-Omutsegwonime Rural Water Supply Scheme (KKRWSS) project including associated pump stations and reservoir.

The priorities were heavily influenced by financial resources availability, engineering feasibility study, groundwater potential and the urgency of the water supply project. The construction of bulk supply pipelines is a listed activity according the Environmental Management Act No.7 of 2007 which requires an environmental assessment, and an environmental management plan.

The aim of an operational and construction phase ESMP is to ensure that all activities conducted during these phases are environmentally acceptable and safe manner. This Environmental and Social Management Plan (ESMP) serves as a managing tool for environmental and social activities during the construction phase and operational phases of

KKRWSS. The ESMP was developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development.

The ESMP serves as a guiding tool for the contractors and workforce on their roles and responsibilities concerning management of environmental and social aspects on site, and also provides an environmental monitoring framework for all project phases of the development. This environmental management plan aims to take a pro-active route by addressing potential problems before they occur. The ESMP acts as a stand-alone document, which can be used during the various phases of the development.

In this report, the Contractor refers to Ministry of Agriculture, Fisheries, Water and Land Reform (MAFWLR) and its sub-contractors.

The purpose of the ESMP is to:

- ✓ Train employees and contractors with regard to environmental obligations.
- ✓ Promote and encourage good environmental management practices.
- ✓ Outline responsibilities and roles of MAFWLR and its contractors in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ Develop waste management practices.
- ✓ Prevent all forms of pollution.
- ✓ Protect the natural environment.
- ✓ Prevent soil and water erosion.
- ✓ Comply with all applicable laws, regulations and standards for environmental protection.

Phases covered by the ESMP:
Construction Phase
Operational Phase

The construction phase will entail:

- Excavations
- Transporting relevant construction material and equipment.
- Installation of associated electrical supply.
- Installation of associated water pipelines.

- Installation of stormwater management system/measures
- Land clearance
- Construction camp

The operational phase will entail:

- ✓ Pumping of water.
- ✓ Monitoring of the pipelines; and
- ✓ Maintenance of pipelines and power supply to boreholes

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The ESIA process is undertaken in terms of Namibia's Environmental Management act no. 7 of 2007 and the Environmental Assessment Policy of 1995, which stipulates activities that may have significant impacts on the environment. Listed activities require the authorisation from the Ministry of Environment, Forestry and Tourism (DEA). Section 32 of the Environmental Management Act requires that an application for an environmental clearance certificate be made for the listed activities. The following environmental legislations are relevant to this project:

➤ The Namibian Constitution

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

Requirement: The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future. The KKRWSS ESIA should align to these principles to ensure compliance to the constitution.

➤ Environmental Management Act No.7 of 2007

This Act provides a list of projects requiring an Environmental Assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term "*environment*" as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter

arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time.
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment

Requirement: The project triggers an environmental assessment to be undertaken as follows:

Regulations	Project Trigger
❖ 4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.	The project may require clearance of some trees to make way for pipeline routes. Permits may be required protected species removal.
❖ 8.1 The abstraction of ground or surface water for industrial or commercial purposes.	The KKRWSS includes the abstraction of surface water.
❖ 8.2 The abstraction of groundwater at a volume exceeding the threshold authorized in terms of a law relating to water resources.	Groundwater abstraction of 1247m ³ /day.
❖ 8.8 Construction and other activities in watercourses within flood lines.	Construction of pipelines with the Cuvelai-Etosha Basin. Omuthiya River lies South and South-East of the project area.
❖ 8.9 Construction and other activities within a catchment area.	Construction of pipelines within the Cuvelai-Etosha Basin
❖ 10.1 The construction of Oil, water, gas and petrochemical and other bulk supply pipelines.	The proposed project includes the installation of water supply pipelines.

Line Ministry: Ministry of Environment, Forestry and Tourism

3.3 Analysis of AFDB's ISS and National Legislation

AFDB ISS	Parallel Local Legislation	Similarity	Gaps
E&S OS 1 (OS1): Assessment and Management of Environmental and Social Risks and Impacts. Aspects: - Undertaking of ESIA/ESMP - Free informed consultations - Increased access to information - Community impacts - Vulnerable groups and indigenous communities. - Development of a GRM	- o Environmental Management Act No 7 of 2007 - o Environmental Regulations GN 30 of 2012 - o Environmental Impact Assessment Policy (1996)	Both aligns on ESIA requirement to be undertaken for the project.	The national legislation is silent gender, marginalised communities, although other national policies address them.
E&S OS 2 (OS2): Labour and Working Conditions. Aspects: -Protection of workers conditions -Workers organizations and rights of collective bargaining - Protection from abuse - Forced labour and child labour	- o The Constitution - o Labour Act - o National disability Policy - o National health and safety policy (2021) - o Convention on the Rights of the Child - o Social Security Act, 1994 (No. 34 of 1999, as amended) - o Employees Compensation Act, 1995 (No.5 of 1995) - o Regulations relating to the health and safety of employees at work (GN 156 of 1997) - o National Policy On HIV/AIDS (2007) - o National Gender Policy (2010)	Both aligns	No Distinctive gaps identified
E&S OS 3 (OS3): Resource Efficiency and Pollution Prevention and Management. Aspects: - promotes efficient use of water resources and prevention of pollution. - proper disposal of waste,	- o Water Resources Management Act no 15 of 2013 - o Hazardous substances ordinance	Both align, however the Hazardous substances ordinance regulates acquisition, storage and use of such substances.	No Distinctive gaps identified

AfDB ISS	Parallel Local Legislation	Similarity	Gaps
- protection of water sources from contamination.		Water-use or abstraction Permits required.	
E&S OS 4 (OS4): Community Health, Safety and Security. Aspects: - community health and safety, related to construction activities, water quality, and sanitation. - Ensuring that the water supply is safe and reliable is a primary function of this safeguard.	- Water Resources Management Act no 15 of 2013 - Regulations relating to the health and safety of employees at work (GN 156 of 1997)	Both align	National health and safety legislation very detailed on the sanitation facilities provision for construction projects.
E&S OS 5 (OS5): Land Acquisition, Restrictions on Access to Land and Land Use, and Involuntary Resettlement Aspects: - Free & informed consultation - Avoidance of conflicts - Improvement of livelihoods - Provision of secure land tenure - Compensation on full replacement cost not market values	- The National Land Policy of 1998 - The FLT Act - National Resettlement Policy 2023	The FLT Act aligns to OS5.	Relocation in national legislation must be just compensation to ensure losses and welfare of the communities are addressed, instead of replacement cost compensation in OS5. The project will prioritise avoidance of relocation and resettlement, and can only happen as a last resort.
E&S OS 6 (OS6): Habitat and Biodiversity Conservation and Sustainable Management of Living Natural Resources Aspects: - Protection of habitats, ecosystems - Priority to livelihoods and ecosystems - Mitigation hierarchy and offsets	- The Constitution of the Republic of Namibia - The nature conservation ordinance of 1976 - The environmental management Act - The Water resources management act of 2013	OS6 and national legislation align in areas specified.	No Distinctive gaps identified; however, the legislation requires permits for usage or removal of certain resources, particularly species with conservation status and water.
E&S Operational Safeguard 7 (OS7): Vulnerable Groups Aspects: - minimal impacts and protection of vulnerable groups within the project area.	- Environmental Management Act No 7 of 2007 - Environmental Regulations GN 30 of 2012	Both align, as they provide and requires checks and balances through affording concerned parties to submit views about the project and require that their concerns are satisfactorily addressed	The requirements of national legislation are silent on involvement of native and marginalised communities; however, the involvement of marginalised communities will be addressed in the ESIA.

AfDB ISS	Parallel Local Legislation	Similarity	Gaps
		prior to the development and during execution.	
E&S Operational Safeguard 8 (OS8): Cultural Heritage Aspects: - ensures minimal impacts on the Cultural Heritage	National Heritage Act No27 of 2004	OS8 aligned to national legislation.	No Significant gaps, Namibia's cultural heritage is protected and conserved primarily through the National Heritage Act, 2004
E&S Operational Safeguard 9 (OS9): Financial Intermediaries.	N/A	N/A	N/A
E&S Operational Safeguard 10 (OS10): Stakeholder Engagement and Information Disclosure. Aspects: - ensures that the stakeholder remains central to the project.	Environmental Management Act No 7 of 2007 Environmental Regulations GN 30 of 2012	OS10 aligned with national legislation	National legislation are silent on Grievance Management Mechanism.

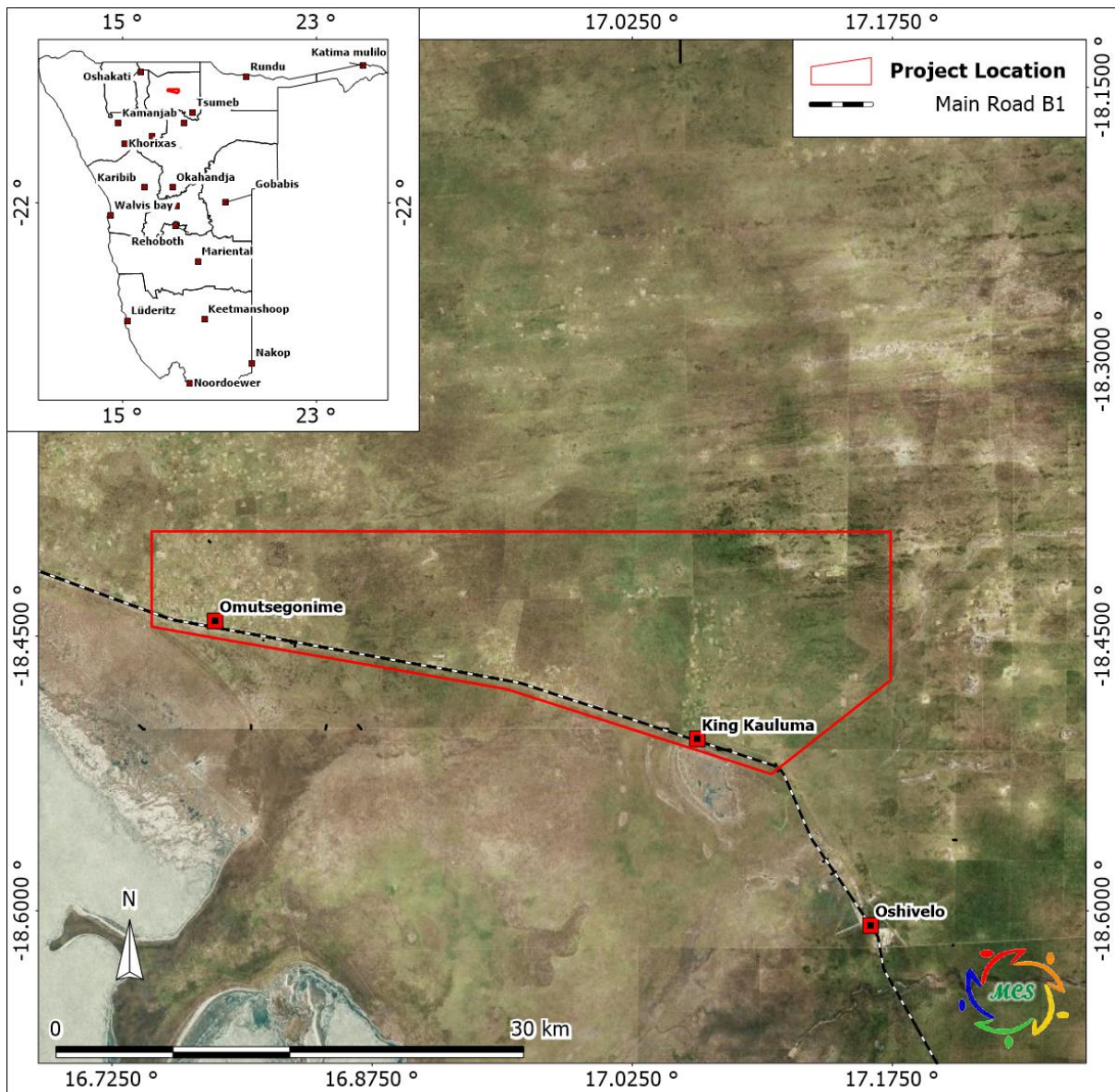
3.4 Permits Required for the project

- ❖ **Environmental Clearance** – Listed activities as per EMA act No 7 of 2007
- ❖ **Water -use License** - needed for water abstraction or discharge related to the pipeline.
- ❖ **Consumer Fuel Installation Licence** - Licenses are required for the storage and handling of hazardous substances, including fuels used for construction and operation.
- ❖ **Heritage Clearance** – Required only when heritage or archaeological artefacts are encountered during construction.
- ❖ **Harvesting permit** – For trees with stem diameter of more than 18cm and protected species.

4. DESCRIPTION OF THE BASELINE ENVIRONMENT

4.1 Locality and Land use

MAFWLR is proposing to develop a 250km King Kauluma-Omutsegwonime rural water supply scheme (KRWSS) in Oshikoto region. The project comprises the extension of the current water networks into the rural areas of the King Kauluma Village. The study area is situated along the B1 and stretches northwest of Oshivelo over an estimated total area of approximately 300km². The total length of pipe will be approximately 250km varying in diameters between 75mm and 200mm. A total of 163 manifolds will be installed, providing water to approximately 5580 people in 2025, upgradable to 7300 in 2037.



Access tracks and a pipeline servitude will be developed as part of the KKRWSS. The disturbance or work activities will be confined to the working zones.

Conservation worthy (trees and shrubs) species that are protected in Namibia under the Preservation of Trees Ordinance of 1952 and the Proclamation of the SWA Administration, No. 486 in 1972 will be avoided, and the pipeline will be diverted.

4.2 Climate (Mandelsohn)

Classification of climate: Semi-arid area

Average rainfall:	Rainfall in the area is averaged between 400 to 450mm per year
Variation in rainfall:	Variation in rainfall is averaged to be 30-40 % per year.
Average evaporation:	Evaporation in the area is averaged to be between 2800-3000 mm per year.
Precipitation:	Sporadic and unpredictable, high intensity, highly localised storm events between October and April does occur.
Water Deficit:	Water deficit in the area is averaged to be between 1,500-1,700 mm per year.
Temperatures:	Highest temperatures are measured in October with an average daily maximum of 36.1°C and minimum of 18.8°C; the coldest temperatures are measured in July with an average daily maximum of 26.6°C and minimum of 8.8°C.
Wind direction:	Wind directions in the area are predominantly easterly winds throughout the year.

4.3 Geology and Hydrogeology (Shippiki, 2025)

Surface geology at the site consists of Kalahari Group cover of unknown thickness. The Kalahari Group consists mainly of unconsolidated formations, but some degree of consolidation may be present. The subsurface geology consists of red mudstones, siltstones, sandstones, grit and conglomerate of the Ecca group - Omingonde formation.

Groundwater flow would be mostly through primary porosity in the Kalahari cover but flow along fractures, faults (secondary porosity) and other geological structures present within the underlying formations might take place where consolidated layers are present. Flow direction from the site can be expected in a southerly direction; however local drainage patterns may vary due to groundwater abstraction.

According to the Department of Water Affairs database (DWA), 16 known boreholes and/or wells exist within the project area. The local water table depth in the area is expected to be more than 30mbgl and water quality is considered good. The shallow rest water levels and good quality water observed in the area is usually due to the presence of shallow perched aquifers. This area does not fall within a Water Control Area; however groundwater belongs to the government of the Republic of Namibia. This means that the government of Namibia controls the exploration and usage of groundwater in this area. See Figure 3 below, for the hydrogeological

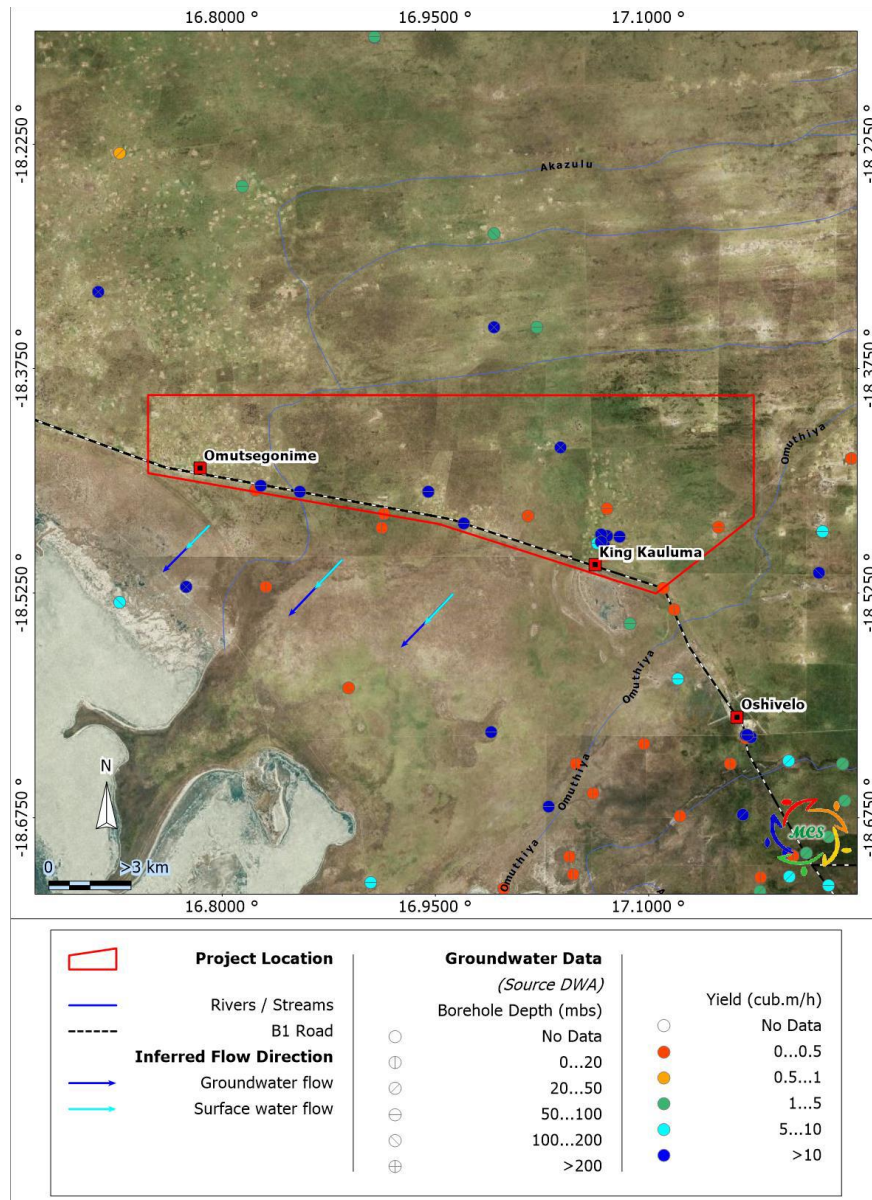


Figure 3. Hydrogeological map of study area

5. SUMMARY OF MAJOR ENVIRONMENTAL, SOCIAL IMPACTS AND CLIMATE CHANGE RISKS

The project has been classified as a Category 1 according to the AfDB's Environmental and Social Assessment Procedures (ESAP), which means that all known environmental and social risks can be minimized and managed through implementing preventative measures and sound management systems.

Positive Impacts

The main positive impacts anticipated from the project are enhanced access to ensure that water security for human consumption, agriculture (livestock) and industrial development

in Namibia is achieved. The main aim of the program focuses on increasing access, quality, security and sustainability of water supply and sanitation services in Namibia.

The project is expected to provide job opportunities to the local communities, of which at least 80% are expected to be unskilled and semi-skilled people, and can be sourced from the unemployed labour force of the local communities. The local economy of the project location is expected to benefit from the projects, as the moneys spent in the communities around the project locations would create substantial flows of revenue within these communities, thus acting as a catalyst for growth in the local economy. Goods and services procured from local businesses or enterprises will also increase the project's contribution to the growth of the local economy.

Negative Impacts

Clearing of vegetation during earthworks is expected to take place at some project sites and can make these sites susceptible to soil erosion, especially during rainy seasons. The constant movement of heavy construction vehicles during construction also tend to compact the land surface, which can reduce infiltration capability, and increase surface water runoff. The use of heavy construction machineries and increased traffic at the project site during the construction can result in soil compaction, which increases run-off capacity of the soil at the site. Waste material will be generated during the construction of the proposed development. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during the construction phase. Contamination of soil, groundwater and surface water might occur through petroleum, chemical, harmful and hazardous substances. Contaminants in the form of oil leakages, diesel, lubricants and grease from the construction equipment and machinery during the construction phase may occur. Care must be taken to avoid contamination of soil and groundwater.

Dust and waste materials will be generated during the construction phase. Dust problems are expected to be site specific and will not pose a nuisance to any neighbouring land; however it might be worse during the winter months when strong winds occur. Earthmoving equipment will be utilized during the construction phase and noise would be generated. No known heritage artifacts or areas envisaged to be impacted by the development. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during the construction phase. Safety and security issues could arise from the earthmoving equipment and tools that will be used on site during the construction activities. This increases the possibility of injuries. The presence of construction could also encourage criminal activities. Open flames, smoking or any potential sources of ignition are potential threats to health and safety, especially in areas where highly flammable materials are stored on the premises.

Involuntary resettlement is not expected for this project, and people will not have to make way for the new water supply scheme. The project is designed to ensure that there is no fixed property within the pipeline servitudes. The proposed improvements to be conducted are all to take place within the confines and boundaries of the respective working zones. Any expansions to be conducted are within land earmarked for this purpose. The major pipeline will be constructed in the existing B1 Road Servitude; however, a few people have encroached onto the road servitude illegally.

Cumulative impacts associated with the King Kauluma -Omutsegwonime Rural Water Supply Scheme (KKRWSS) are expected to include, noise emissions, land disturbance, traffic and possible accidents involving vehicles frequenting the area. This could collectively impact on the environmental conditions in the area. Cumulative impacts could occur in both the operational and the construction phase.

In general, impacts are expected to be low to medium, mostly short lived and site specific. Mitigation options recommended in the Environmental and Social Management Plan (ESMP) will guide and ensure that the impacts of the construction work are minimised. The development of the ESMP has been informed by, and in line with, the AfDB's Integrated Safeguards System (ISS) (2023).

Climate Change Risk

The proposed projects are not vulnerable to increased water levels, floods or other extreme events in their specified areas; however, the design will cater for storm water drainage. The construction and renovation work undertaken under this project are not likely to affect the greenhouse gases emitted by Namibia, a country where the level of greenhouse gases emission per capita is low. The facilities to be constructed will be designed to be low energy consumers. (E.g. Solar for water pumps). The use of environmentally friendly equipment and materials will be encouraged throughout the different phases. The project will also inflict a general positive impact on climate change. The project will encourage the use of renewable resources to supplement power for the water infrastructure and consequently reduce the use of non-renewable resources.

Site closure and rehabilitation

The Contractor is responsible for repairing any damage or rehabilitation on the site before leaving. The following shall be undertaken on site closure:

- ✓ All temporary facilities shall be removed;
- ✓ All waste, litter and contaminated water and soil shall be removed;
- ✓ All excavated areas shall be refilled and adequately compacted;
- ✓ All waste pipe/wire/steel cuttings shall be removed from site.

- ✓ All stockpiled topsoil shall be spread over the disturbed area after the activity ceases;
- ✓ Heavily compacted soil and new tracks shall be raked, this includes the operational area along the pipeline route;
- ✓ Cleared vegetation shall be used as brush-cut packing on disturbed areas after the activity ceases. No alien or invasive plant material may be used for this purpose.
- ✓ The working areas are to be inspected for spills or substances such as oil, paint, diesel etc., and these shall be cleaned up

Staff Accommodation

The appointed contractor may set up camp for staff that comes from far, however the majority of the unskilled staff that is sourced from the surrounding communities will stay at home and be transported the active working sites every day.

Potential camp locations will be selected in consultation with Contractor, Principal Agent, Local Traditional Leaders, King Nehale Conservancy and affected communities will be subsequently consulted. Contractor shall enforce a 'closed' camp policy unless otherwise agreed by Company. This is intended to deter individuals setting up near camp.

It is recommended that separate toilet facilities for male and female employees be provided, with one toilet for every 15 women and one for every 15 men

6. ENHANCEMENT/MITIGATION MEASURES AND COMPLEMENTARY INITIATIVES

Where negative impacts arise, mitigation will include measures enumerated in Tables 1 below. In terms of enhancement measures proposed under the project, the design of KKRWSS will be informed by the innovative designs that strive to address environmental, social and climate issues. The new water supply scheme is planned to incorporate renewable energy as a source of power. The project sites lie in the areas with high irradiation in the country, making it very viable to use solar for power.

This project will ensure the supply of clean water to the nearby communities, and communal farmlands. The KKRWSS under the NWSSP must include renewable energy and water use efficiency mechanisms, in order to reduce costs and ultimately reduce the impact on the environment by reducing additional pressure on power and water demand. 5 000 people are expected to benefit from the proposed water supply scheme.

7. IMPACTS & MITIGATIONS MEASURES

Table 1: Environmental and Social Impacts & Mitigation Plan

Anticipated Environmental & Social Impact	Proposed Mitigation Measures	Monitoring and Reporting Indicators	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$)	Timing
Pre-construction (Planning/Design) Phase					
Compliance with Legal Environmental and Social Requirements	✚ Conduct an environmental and social management Plan to comply with the Environmental Management Act (2007) and its regulations of 2012. ✚ Identify and address all environmental and social issues. ✚ Resettlement of people or communities may be required for the proposed development. ✚ Land acquisition issues (if any) will be addressed and documented.	*Develop site-specific ESMP for each project site. *Screening and appropriate resettlement procedure implemented.	EM/ MCS / Other relevant stakeholders	75,000	Once
Public Consultation	✚ Initiate participation of Interested and affected parties (I&APs). ✚ Inform I&APs and key stakeholders about the proposed development. ✚ Identify issues and concerns of key stakeholders and I&APs with regards to the proposed development. ✚ Develop a communication structure with stakeholder and I&APs. ✚ Promote transparency of the project.	*No of I&APs and stakeholders engaged.	EM/ MCS / Other relevant stakeholders	15,000	Before construction
Environmental Awareness Training	✚ Ensure that all persons involved in the project are aware of, and are familiar with the environmental requirements for the project.	*Record of awareness training. *Record of attendance register of training.	EM, ECO	15,000	Before construction/ Ongoing

	Develop and implement environmental emergency preparedness procedures.				
Explosives Safety Clearance	- Initiate Contact with Namibia Police Explosives Control Unit in Oshikoto, to assist with explosives clearance on the work sites before any excavations of any sort begins. - Ensure that all workers are trained about the risks of explosives in the project area. - Develop work procedures for pre-construction induction.	*Record of awareness training. *Record of explosives safety clearance by the Namibia Police Explosives Control Unit	EM, ECO	40, 000	Before construction/ Ongoing
Health and Safety Aspects	- Ensure that all persons involved in the project are aware of, and are familiar with the environmental requirements for the project. - Establish personnel protection standards and mandatory safety practices and procedures for the field activities related to Corrective Actions at the site. - Establish the lines of communication among contractors and subcontractors involved in work operations for safety and health matters. - Conduct HIV /Aids Awareness Programme on Site for not less than 90% of workers inclusive of all direct and indirect costs. - Provide and maintain condom dispenser. - Provide and maintain HIV/AIDS awareness posters. - Provide information regarding the voluntary testing of construction workers and counselling, support and care.	*Record of health and safety plan.	EM, ECO, ESO	15,000	Before construction/ Ongoing
Project Design	- Ensure new project is planned to incorporate renewable energy as a source of power. - Develop water use efficiency mechanisms, in order to reduce costs and ultimately reduce the	*Record of designs.	EM/ Project Engineers	50,000	Before construction

	impact on the environment by reducing additional pressure on power and water demand.				
Construction Phase					
Dust Pollution and Air Quality	- Ensure measures are in place to minimise dust generated by Upgrading activities, to the satisfaction of the EM and ECO. - Avoid excavation, handling and transport of materials which may generate dust under high wind conditions. - Locate stockpiles of construction materials in sheltered areas where they are not exposed to erosive effects of the wind. - Use appropriate dust suppression measures when dust generation is unavoidable, e.g. dampening with water, particularly during prolonged periods of dry weather. - Control dust on site roads through wet suppression. - Ensure all vehicle, plant and equipment are in good condition. - Encourage reduction of engine idling.	*Regular visual inspections by EM and ESO. *Number of disturbances outside designated area; *Evidence of disturbances to vegetation or property outside designated area.	ECO/ESO/Contractor	35,000	Construction phase
Noise Impact	- Ensure the use of construction vehicles and equipment that emit reduced noise levels. - Ensure proper maintenance is conducted on vehicles to ensure the reduction of noise emission. - The construction staff should be equipped with ear protection equipment. - Audio equipment (if any) should not be played at levels considered intrusive by others.	*Regular visual inspections. *Evidence of no excessive noise.	ECO/ESO/Contractor	15,000	Construction phase

	Construction activities will be limited to a period between 07h00 and 19h00.				
Contamination of Groundwater	- Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel). Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles or equipment. - No major servicing and maintenance of vehicles and/or equipment should be conducted at the site. - All fuelling, storage and chemical handling should be conducted on surfaces provided for this purpose. Drip trays, linings or concrete floors must be used when removing oil from machinery. - Spillage control procedures must be in place according to relevant SANS standards or better. - Should temporary toilet facilities be necessary, adequate containment systems should be erected at the site for use during the construction phase. - It is recommended that separate toilet facilities for male and female employees be provided, with one toilet for every 15 women and one for every 15 men - Waste should properly be contained to avoid any leakages and/or spillages, and should regularly be disposed off at a suitable sewage disposal site. Run-off from these toilets due to overflows should be avoided at all cost. - Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.	*Daily and weekly, records of remediation. *Visible contaminants from trucks and equipment; *Evidence that leaking equipment decommissioned; *Evidence of soil and water contamination.	ECO/ESO/Contractor	40,000	Construction phase

Soil and Surface Water Contamination	✚ Prevent contamination of soil and surface water through oil leakages, hydrocarbon fuel, lubricants and grease from the construction vehicles and equipment during construction phase. ✚ Spillage control procedures must be in place according to relevant SANS standards or better. ✚ Drip trays and/or plastic sheeting should be used to contain any leaks emanating from the construction plant. ✚ Any spillage of hazardous substances including fuel, oil, paint or cleaning solvent must be cleaned up immediately and disposed off at a designated disposal facility. ✚ Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into nearby water courses. ✚ Prevent illegal washing out of containers in water courses. ✚ Properly secure all temporary / portable toilets (if any) to the ground to prevent them toppling due to wind or any other cause. ✚ Maintain toilets in a hygienic state and remove waste to a licensed disposal facility. ✚ Ensure that no spillages occur when the toilets are cleaned or emptied. Prohibit urination on site, other than at designated facilities. ✚ Contain contaminated water from batching operations and allow sediments to settle before being disposed of as waste water. ✚ Stabilise cleared areas as soon as possible to prevent and control surface erosion.	*Daily and weekly, records of remediation. *Visible contaminants from trucks and equipment; *Evidence that leaking equipment decommissioned; *Evidence of soil and water contamination.	ECO/ESO/Contractor	25,000	Construction phase
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	✚ Proper environmental awareness and remedial response training of operators must be conducted on a regular basis. ✚ An emergency plan should be in place on how to deal with spillages and leakages during this phase.				
Generation of Waste	✚ Ensure that sufficient weather- and vermin-proof bins / containers are present on site for the disposal of solid waste. Waste and litter generated during this phase must be placed in these disposal bins. ✚ The Contractor shall institute a waste control and removal system for the site. ✚ No disposal of /or burying of waste on site should be conducted. ✚ No waste should be burned on site. ✚ Empty bins regularly as required. ✚ Separate hazardous wastes from general waste, clearly marked, and stored in appropriate containers. ✚ Solid and liquid hazardous waste shall be stored in separate containers. ✚ The hazardous waste storage is to be clearly marked to indicate the presence of hazardous substances, and the protocols associated with handling of such hazardous wastes shall be known by all relevant staff members. ✚ Where no formal hazardous waste disposal facility exists, any contaminated soil produced should be contained, transported and disposed of at the nearest approved Hazardous waste site; or a controlled bioremediation facility should be developed.	*Evidence of littering, *Evidence of adequate waste disposal containers; *Amount of recyclable material; *Number of incidents of unauthorised entry.	ECO/ESO/Contractor	50,000	Construction phase

	Awareness of the hazardous nature of various types of waste should be enforced.				
Traffic	- Install and maintain official traffic signalling (where necessary) on local roads / intersections surrounding the project location in conjunction with local or national traffic regulations. - Speed limit warning signs must be erected to minimise accidents. To avoid accidents with livestock and wild animals. - Construction vehicles and machinery must be tagged with reflective signs or tapes to maximise visibility and avoid accidents. - Where feasible, Construction vehicles should not travel to and from the site during peak times (07h00 to 09h00 and 16h00 to 18h00), to minimise impacts on traffic. - Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside.	*Adequate traffic signage. *Evidence of traffic congestion.	ECO/ESO/Contractor	50,000	Construction phase
Fires and Explosions	- Ensure availability of sufficient water for firefighting purposes. - Ensure that all fire-fighting devices are in good working order and they are serviced. - All personnel must be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. - Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.	*Record of fitness and service of firefighting equipment. *Record of awareness training of firefighting equipment. *Adequate and appropriate signage in place. *Fire-fighting equipment in place.	ECO/ESO/Contractor	30,000	Construction phase
Safety and Security	Display telephone numbers of emergency services, in the at project location.	*Evidence of signage in place. *Evidence of personnel using construction machinery or	ECO/ESO/Contractor	15,000	Construction phase

	✚ Provide suitable emergency and safety signage on site (manufactured of durable, weatherproof material). ✚ Demarcate and barricade any areas which may pose a safety risk (including hazardous substances, deep excavations etc). These notices must be worded in the ✚ Enforce the use of appropriate Personal Protective Equipment (PPE) for the right task or duties at all times. ✚ Prevent illegal access to the construction sites by implementing appropriate security measures. These security measures must not pose a threat to surrounding communities. ✚ Should a construction camp be necessary, it should be located in such a way that it does not pose a risk to the public. ✚ Equipment housed on site must be placed in a way that does not encourage criminal activities. ✚ For safety and security reasons it is recommended that the entire site (construction site and camp) be fenced-off and security personnel be employed to safeguard the premises and to avert criminal activities. ✚ Sensitize operators of earthmoving equipment and tools to switch off engines of vehicles or machinery not being used. ✚ The contractor is advised to ensure that the team is equipped with first aid kits and that they are available on site, at all times. ✚ Proper barricading and/or fencing around the work sites should be erected to avoid entrance of animals and/or unauthorized persons.	equipment possessing appropriate PPE.			
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	✚ Safety regulatory signs should be placed at strategic locations to ensure awareness. ✚ Adequate lighting within and around the construction locations should be erected, when visibility becomes an issue. ✚ Contractor shall enforce a 'closed' camp policy unless otherwise agreed by Company. This is intended to deter individuals setting up near camp.				
Nuisance Impact	✚ Maintain tidiness on site at all times. ✚ Take cognition when parking vehicles and placing equipment.	*Evidence of tidiness and housekeeping.	ESO, Contractor	5,000	Construction phase
Erosion and Sedimentation	✚ Avoid unnecessary removal of topsoil cover during construction. ✚ Ensure stockpiles are located within the boundary of the site and are protected from erosion. ✚ Stabilise cleared areas as soon as possible to prevent and control surface erosion. ✚ Limit clearing of vegetation to those areas within the footprint of construction. ✚ Minimise open areas and reduce the frequency of disturbance.	*Evidence of proper stockpiling and management. *Evidence of surface erosion. *Evidence of surface erosion. *Number of disturbances outside designated.	ESO, Contractor	10,000	Construction phase
Ecological Impact	✚ Limit clearing of vegetation to those areas within the footprint of construction, minimise open areas and reduce the frequency of disturbance. ✚ Big trees and protected trees (e.i. Camel thorn (<i>Acacia Erioloba</i>), Marula trees (<i>Sclerocarya birrea</i>), Mopane trees) present at the project site should be conserved and incorporated into the development. ✚ Disturbance of areas outside the designated working zone is not allowed.	*Evidence of conservation. *Number of disturbances outside designated.	ESO, Contractor	10,000	Construction phase

Archaeological/ Heritage Impact	- The construction manager should always do a familiarization walk of site. - Should any archaeological artefacts or objects be found during site clearing, excavations and site establishment, all work must stop, and the police and the national heritage council must be contacted.	*Regular visual site inspection.	ESO, Contractor	10,000	Construction phase
Socio-Economic Aspects	- Construction contractors should be sourced from the local community, or region at large (where feasible). - Construction workers should be sourced from the local community (where feasible). - Suppliers of construction materials should be sourced from or region at large (where feasible). - Locally source services required during the construction process, such as securities, rental of portable toilets, plant hire, etc. - Designate an area outside the construction site for informal traders (if any), to allow them to trade.	*Evidence of local contractors. *Evidence of local construction workers. *Evidence of local suppliers and service providers.	ECO/ESO/Contractor	20,000	Construction phase
Exposure to Old Explosives	- All work areas must cleared by the NAMPOL Explosives Control Division before any excavations can commence. Safe zone work areas to be clearly marked and demarcated. - All workers needs to trained on explosives awareness.	* Regular site inspections to ensure work is conducted safe zone declared areas.	ECO/ESO/Contractor	40,000	Construction phase
Operation and Maintenance Phase					
Dust Pollution and Air Quality	- Acquire all reasonable measures to minimise dust generated by operational activities. - Avoid handling and transporting of materials which may generate dust under high wind conditions or when a visible dust plume is present.	*Records of number of dust complaints. *Visible dust plumes. *Visible wind erosion.	MAFWLR	90,000	Operational phase

	- Appropriate dust suppression measures should be deployed when dust generation is unavoidable, e.g. dampening with water (wet suppression.), particularly during prolonged periods of dry weather. - Ensure all vehicle, plant and equipment are in good condition. - Promote the reduction of engine idling at the project site.	*Regular visual inspections of air quality at site. *Evidence of vehicles idling too long.			
Noise Impact	- Ensure the use of operational vehicles, equipment and machines that emit reduced noise levels, compatible with the most recent environmental standards. - Ensure proper maintenance is conducted on vehicles to ensure the reduction of noise emission. - Where necessary, workers should be equipped with ear protection equipment. - Daily maintenance activities should be limited to 07H00 - 19H00 (where feasible). - Utilise stringent vehicle and equipment noise specifications. - Perform appropriate and timeously maintenance of equipment and vehicles.	*Record of noise complaints. *Evidence of no excessive noise. *Records of grievance procedure.	MAFWLR	5,000	Operational phase
Contamination of Groundwater	- Ensure compliance to the maintenance and service plans of project sites' vehicles and equipment. - All leaks should be properly contained and repaired immediately. - Leaking equipment should be removed from the work area to a designated containment area, which should be equipped with a waste water collection system.	*Records of vehicle maintenance. *Record visible contaminants from vehicles and equipment.	MAFWLR	95,000	Operational phase

	Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures.				
Contamination of Surface water	- Ensure that stormwater management systems are regularly maintained and tested, and are in good working order. - Ensure compliance to the maintenance and service plans of project sites' vehicles and equipment. - All leaks should be properly contained and repaired immediately. - Leaking equipment should be removed from the work area to a designated containment area, which should be equipped with a waste water collection system. - Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures.	*Regular visual inspections of storm water channels. *Evidence of no leakages or pollution from stormwater ways.	MAFWLR	90,000	Operational phase
Generation of Waste	- Ensure sufficient weather- and vermin- proof bins / containers are present on site, considering that the project is within King Nehale Conservancy. - MAFWLR must ensure the presence of waste skips around the project locations. - Ensure waste removal from site is done timeously. - Implement measures to manage litter from the project site. (e.g. cover waste in windy conditions).	*Evidence of waste management. *Evidence of no litter in and around the site.	MAFWLR	60,000	Operational phase

	- Regularly clear windblown litter that gathers along project site or beyond. - Dispose of any hazardous waste generated at an approved hazardous waste site. - Awareness of the hazardous nature of various types of waste should be enforced.				
Traffic	Speed limits and road signs as set out by national traffic regulations should be adhered to in order to minimise accidents.	*Evidence of no congestion or traffic accidents.	MAFWLR	15,000	Operational phase
Safety and Security	- Display contact details of emergency services in the area at strategic locations of the project site. - Demarcate and place signage on any areas which may pose a safety risk (including trenches, excavations etc). The project personnel are advised to ensure that proper personal protective gear and first aid kits are available, at all times. - Project personnel should be properly trained in first aid and safety awareness.	*Evidence of signage in place. *Evidence of use of appropriate PPE for specific tasks.	MAFWLR	30,000	Operational phase

8. ENVIRONMENTAL AND SOCIAL MONITORING PROGRAM

Monitoring includes monitoring implementation of the proposed mitigation measures to assess their efficiencies and development alternative or supplementary mitigations measures if the expected results are not reached. Although is institutionally experienced to manage the implementation of major water infrastructure projects, it lacks sufficient technical capacity in environmental and social management aspects. For this reason, environmental monitoring of the ESMP will be monitored by an independent Environmental Control Officer (ECO) to be appointed for the project. During the construction phase, contractors will be responsible for implementing the mitigation and improvement measures contained in the ESMP. During the operational phase, direct responsibility for environmental conformity and the implementation of the mitigation, management and monitoring measures described in the ESMP report, will continue to be with MAFWLR. Traditional Authorities will report directly to the EM. Regular periodic reporting to the Environment Manager will mainly be responsibility of the Contractors and ECO. The EM will compile half-yearly environmental and social monitoring reports concerning ESMP implementation and corrective actions required. In addition, the permit conditions of the environmental clearance will be monitored by the relevant Ministry of Environment, Forestry and Tourism staff.

The detailed E&S monitoring programme is as follows:

Monitoring Parameter	Monitoring Location	Measurement Unit / Method	Target Level / Standard	Monitoring Frequency	Responsibility for Monitoring
Dust emissions	* Construction sites, and * Access roads to project sites	Visual inspection	No complaints from learners, students and/or general public	Daily	Environmental site officer/Contractor
Noise pollution	Construction site boundaries	Visual inspection	No complaints from learners, students and/or general public	Daily	Environmental site officer/Contractor
Soil contamination	* Construction sites, and * Some site-specific areas around project sites	Visual inspection	No contamination of soil	Daily	Environmental site officer/Contractor
Contamination of surface and groundwater	Construction sites	* Sampling of groundwater monitoring boreholes, and * Visual inspection	No pollution of surface and groundwater	* Daily - Visual monitoring * Quarterly - Monitoring boreholes	Environmental site officer/Contractor
Solid & hazardous waste	* Construction sites, and * Collection, storage and transfer areas at project sites	Monitor and document waste management and disposal thereof.	* No uncontrolled waste at project sites * No complaints from the public	Daily	Environmental site officer/Contractor

Monitoring Parameter	Monitoring Location	Measurement Unit / Method	Target Level / Standard	Monitoring Frequency	Responsibility for Monitoring
			<i>* Evidence of tidiness and housekeeping.</i>		
<i>Safety and Security</i>	<i>* Project sites, and * Access roads</i>	<i>* Visual inspection * Record of incidence/accidents</i>	<i>No record of incidence/accidents /theft</i>	<i>Daily</i>	<i>Environmental site officer/Contractor</i>
<i>Explosives Safety</i>	<i>* Project sites, and * Access roads</i>	<i>* Pre-Works explosives clearance authorisations on record * Record of incidence</i>	<i>No record of incidences</i>	<i>Daily</i>	<i>Environmental site officer/Contractor</i>
<i>Disruption of traffic</i>	<i>* Project sites, and * Along access roads</i>	<i>Visual inspection</i>	<i>* No traffic flow disruptions * No complaints from the public</i>	<i>Entire project duration</i>	<i>Environmental site officer/Contractor</i>
<i>Soil erosion and sedimentation</i>	<i>Site specific areas within project site</i>	<i>Visual inspection</i>	<i>* Evidence of no soil erosion * No affected vegetation growth</i>	<i>Entire project duration</i>	<i>Environmental site officer/Contractor</i>
<i>Changes in the fauna and flora</i>	<i>* Project sites and surroundings; and * Access roads to project sites</i>	<i>* Visual inspection * Changes in vegetation type</i>	<i>* No disturbance to fauna and flora * No invasive/alien species * No protected species disrupted</i>	<i>Entire project duration</i>	<i>Environmental site officer/Contractor</i>
<i>Grievances</i>	<i>Project locations (i.e. neighbouring properties/land, local communities and authorities)</i>	<i>Receive and register grievances from the public</i>	<i>No grievances from the public</i>	<i>Entire project duration</i>	<i>Environmental site officer/Contractor</i>
<i>Socio-economic upliftment</i>	<i>* Local communities and labour force * Local contractors, businesses and suppliers</i>	<i>* Number of local population employed * Number of local contractors and suppliers on project</i>	<i>* Local population employed, * Local contractors, suppliers used on project</i>	<i>Entire project duration</i>	<i>EM, Environmental site officer/Contractor</i>

9. ESMP ADMINISTRATION

9.1 ESMP Availability

Copies of this ESMP shall be kept at the pipeline sites and should be distributed to all senior staff members, including those of the contractors.

9.2 ESMP Amendments

The ESMP amendments can only be made with the approval of the ECO officer and ultimately the DEA. Amendments to the ESMP should be liaised to all employees and contractors.

9.3 Non-compliance of the ESMP

Problems may occur in carrying out mitigation measures or monitoring procedures that could result in non-compliance of the ESMP. The responsible personnel should encourage staff to comply with the ESMP, and address acts of non-compliance and introduce penalties.

The project manager/contractor is responsible for reporting non-conformance with the ESMP, to the ECO officer. The project manager in consultation with the ECO officer must, thereafter, undertake the following activities:

- ✓ Investigate and identify the cause of non-conformance.
- ✓ Report matters of non-conformance to Ministry of Agriculture, Fisheries, Water and Land Reform Environmental Department (depending on the severity of the incident).
- ✓ Implement suitable corrective action as well as prevent recurrence of the incident.
- ✓ Assign responsibility for corrective and preventative action.
- ✓ Any corrective action taken to eliminate the causes of non-conformance shall be appropriate to the magnitude of the problems and commensurate with the environmental impact encountered.

9.4 Environmental Register

An environmental register should be kept on site in which incidents related to actual impacts are recorded. This will include information related to incidents as spillages, dust generation and complaints from adjacent neighbours. It should also contain information relating to actions taken. Any party on site may complete the register, however, it is envisaged that the Project Manager, the contractor and the ECO officer will be the main contributors, and who will also be the main parties involved in suggesting mitigation measures.

9.5 Environmental Control Officer

The Environmental Control Officer for the site can be an environmental officer from the contractor or an independent environmental consultant appointed by the client to monitor and review the on-site environmental management and implementation of this ESMP.

Duties of the ECO officer:

- ✓ The identification of potential environmental impacts, prior to the onset of decommissioning. A site visit may also be required prior to site development. This would be carried out in consultation with the Technical Manager.
- ✓ Providing of an environmental register at the site to be filled in by any person reporting an environmental incident, issue or concern and inspected by the ECO officer on a regular basis to check for issues raised and actions taken.
- ✓ Ensuring that the ESMP conditions are adhered to at all times and taking action.
- ✓ Ensuring that environmental impacts are kept to a minimum.
- ✓ Reviewing and approving method statements in consultation with the Technical Manager.
- ✓ Reporting to Ministry of Agriculture, Fisheries, Water and Land Reform and the Technical Manager on a regular basis and advising of any major environmental impacts. Attending the site meetings (when necessary)
- ✓ Inspecting the site and surrounding areas regularly, and monitoring an ongoing environmental awareness program in conjunction with the Project Manager.
- ✓ Requesting the removal of people and/or equipment not complying with the specifications of ESMP.
- ✓ Keeping both a written and photographic record of progress on site from an environmental perspective, and an ad hoc record of all environmental incidents
- ✓ Undertaking continual review of the ESMP and submitting a report to the relevant stakeholders.

The ECO officer will submit all written instructions and verbal requests to Ministry of Agriculture, Fisheries, Water and Land Reform/contractors via the Project Manager and Project Engineer.

10. PUBLIC CONSULTATIONS AND DISCLOSURE REQUIREMENTS

The Namibian Environmental Management Act (EMA) of 2007 makes public review of Environmental Assessment Reports mandatory but is silent on disclosure of the documents. The regulations only speak about the provision of 7 days given interested and affected parties to comment on submitted applications to MET. The absence of this provision in the Namibian environmental law will therefore be addressed by applying the AfDB's requirements for both consultation and disclosure as stipulated in its Disclosure and Access to Information (DAI) policy and ISS. In this regard therefore, ESMP summary will be disclosed by the Bank on its website for 30 days to allow public review and comment.

Extensive consultations were conducted as part of preparation of the ESIA process. Meetings with key stakeholders including project affected communities and relevant parties active in the project area were conducted. During preparation of the ESIA, consultative public participation meetings were conducted from 30th November 2024 at various venues. The meetings were advertised in national newspapers and notices with relevant information were placed on all sites. Stakeholders were involved through interviews and consultation forums to give their views and opinions as stakeholders. Most of the interested and affected parties welcomed the projects, with a few concerned about local involvement during the construction phase and safety concerns due to the proximity of households or businesses. The King Nehale Conservancy emphasized that no illegal harvesting of wood and hunting of any animals within the conservancy.

Stakeholder engagement is a continuous process, it is expected that engagement with neighbouring communities would continue during the operations phase, especially with those particularly for noise pollution. For this purpose, grievance management mechanisms for community complaints will be set up to prevent, mitigate, or resolve tensions and conflicts between companies and local communities. All interested and affected parties will be eligible to submit a grievance to the Project if they believe any project practice is having an adverse impact on the community, the environment, or on their quality of life. They may also submit comments and suggestions to the project implementation unit through the Environmental Control officer assigned by the developer.

11. INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDING REQUIREMENTS

The overall responsibility of ensuring that environmental mitigation actions and the overall ESMP are implemented will rest with the Executing Agencies, which are MAFWLR. The Executing Agencies will set-up an Implementation Unit (IU) and each appoint representative(s) from the respective ministries for the implementation unit. Although the two executing agencies are institutionally experienced to manage the implementation of major education infrastructure projects, it lacks sufficient technical capacity in environmental and social management aspects. For this reason, environmental monitoring of the ESMP will be monitored by an independent Environmental Control Officer (ECO) to be appointed for each organ. The institutional arrangements for the implementation of the EMSP are highlighted in the following Responsibility Matrix table:

Function	Name / Mobile Number	Responsibility
Environmental Manager (EM) Or (Implementation Unit)	1. Ministry of Agriculture, Fisheries, Water & Land Reform (MAFWLR) <i>Project Manager</i> <i>Mr. Victor Slinger</i> <i>Victor.Slinger@mawlr.gov.na</i>	- Overall management of project and ESMP implementation. - Oversees site works, liaison with Contractor, ESO and ECO.
	2. Ministry of Agriculture, Fisheries, Water & Land Reform (MAFWLR) <i>Director of Water Resources Management</i> <i>Ms. Maria Amakali</i> <i>Maria.Amakali@mawlr.gov.na</i>	
AfDB	<i>Environmental Specialist</i> <i>Mr. Assefaw Mecuria</i> <i>m.assefaw@afdb.org</i>	Project Financing, Task Management (NWSSP) , and ensuring Social Safeguards compliance
	<i>Chief Social Safeguards Specialist</i> <i>Mr. Annah M. Rutebuka</i> <i>a.rutebuka@afdb.org</i>	
Environmental Control Officer (ECO)	Ministry of Agriculture, Fisheries, Water & Land Reform (MAFWLR) <i>To be appointed</i>	Implementation of ESMP and liaison between MAFWLR, Contractor and relevant stakeholders.
Environmental Site Officer (ESO)	Will be appointed by contractors.	Interaction with ECO, landowners and labourers. Must understand the ESMP.
Contractor	Will be appointed by EM.	Implementation and compliance with recommendations and conditions of the ESMP, Appoints dedicated person (ESO) to work with ECO.
Other Key Stakeholders		
King Nehale Conservancy	<i>Chairperson</i> <i>Mr. Edward Amweelo/Ms. Esther Petrus</i> <i>+264814658339 +264812300535</i> kingnehaleconservancy@gmail.com	Key Stakeholder
King Kauluma Village Traditional Authority (Oshiti Sha Haihonya)	<i>Headwoman</i> <i>Mrs. Rebecca Petrus</i> <i>+264813503411</i>	Key Stakeholder
Omutsegwonime Village Traditional Authority	<i>Chairperson</i> <i>Mr. Matheus Elia</i> <i>+264818182164</i>	Key Stakeholder

In addition, the permit conditions of the environmental clearance will be monitored by the relevant Ministry of Environment and Tourism staff. In general terms the institutional capacity to effectively manage social and environmental matters is considered appropriate and adequate. With these various levels of ESMP oversight complimenting each other, institutional capacity to effectively

manage environment and social matters is considered sufficient to ensure project is implemented accordingly. Regular periodic reporting to the Environment Manager will mainly be responsibility of the Contractors and ECO. During the operational phase, direct responsibility for environmental conformity and the implementation of the mitigation, management and monitoring measures described in the ESMP report, will continue to be with MAFWLR.

12. ESTIMATED COSTS

The envisaged cost for the ESMP implementation is U\$950,000 as depicted below. These costs will be directly integrated into the main project budget.

Project Activity	Cost Estimate(US\$)
Pre-Construction (Planning/Design) Phase (Project design, awareness training, ESMP updates etc.)	210,000.00
Construction Phase (Supervisions, emissions control, ESMP implementation etc.)	355,000.00
Operation and Maintenance Phase	385,000.00
Decommissioning Phase	To be determined at closure
TOTAL	950,000.00

13. IMPLEMENTATION SCHEDULE AND REPORTING

The project is envisaged to commence in June 2025 and be completed by end by May 2026. The contractor will have an Environmental Site Officer who will report to the Project Manager at the various individual projects. The latter will then report on a weekly basis to MAFWLR management through the Project Implementation Unit. This will be streamlined in the procurement documents. The Environmental Control Officer (ECO) will monitor the implementation of the ESMP of the project on a monthly basis and compile a monthly report that will be submitted to the EM (who is part of the Project Implementation Unit). The ECO will compile a bi-annual report, and submit to the EM, who will review and send it to the Bank for review and follow-up. The Bank will be scheduled supervision visits whose composition will include an environmental and social specialist who will offer additional support on matters of environmental monitoring and reporting.

14. CONCLUSION

The planned construction and renovation works are slated to engender significant positive impacts on the communities by ensuring clean water supply. Nevertheless, the construction, rehabilitation and maintenance of the social infrastructure can result in direct and indirect environmental and social impacts, including soil, water, air and noise pollution, waste generation and disposal, community health, safety and security and labour and working conditions. These impacts are expected to be site-specific and can be minimized by applying appropriate management and mitigation measures.

The Environmental and Social Management Plan should be used as an on-site tool during all phases of the proposed development. MAFWLR –who have overall responsibility for ESMP implementation–, are to continuously monitor and audit all activities during the construction and operational activities of the King Kauluma-Omutsegwonime Rural Water Supply Scheme infrastructure development, to ensure that the ESMP is fully implemented and complied with in accordance with national regulations and AfDB safeguards requirements. Parties responsible for non-conformances of the ESMP will be held responsible for any rehabilitation that may need to be undertaken. This ESMP caters for all upgrade, operational and possible decommissioning phases, but will need to be reviewed from time to time, especially when revisions are made to the project development plans. It is recommended that this information be made available to the community on a regular basis.

15. REFERENCES AND CONTACTS

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