RED-DUNE CONSULTING CC

APP: 240303002910

Environmental Scoping Study For The Proposed Drilling Of Boreholes for Water Supply at Mahundu, Ioma and Ngoma Villages In Salambala Conservancy, Zambezi Region

SALAMBALA CONSERVANCY

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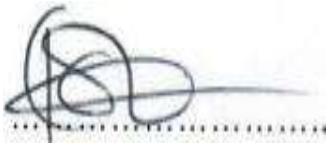
AUTHOR (s):	Mr. Ipeinge Mundjulu  Ms. Nangula Amutenya 

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ACRONYMS

CBNRM	Community Based Natural Resource Management
CCFN	Community Conservation Fund of Namibia
CEO	Chief Executive Officer
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
ESI	Environmental Social Indicators
ESMF	Environmental and Social Management Framework
FDM	Frequency Domain Electromagnetic
FPIC	Free Prior Informed Consent
GPS	Global Positioning System
GRM	Grievance Redress Mechanisms
HWC	Human Wildlife Conflict
HWC and WC	Human Wildlife Conflict - Wildlife Crime
I&APs	Interested and Affected Parties
ILO	International Labour Organization
IRDNC	Integrated Rural Development and Nature Conservation
ISO	International Standard Organisation
IWRM	Integrated Water Resource Management
KFW	German Development Bank
L	Litre
m^3	Cubic

MAWLR	Ministry of Agriculture Water and Land Reform
MEFT	Ministry of Environment Forestry and Tourism
MM	Millimetres
Mm^3	Million Cubic
NACSO	Namibian Association of CBNRM Support Organizations
^oC	Degree Celsius
OMDEL	Omaruru Delta
PPE	Personal Protective Equipment
PPP	Public Participation Process
R	Reversible
RD	Red-Dune Consulting CC
SEMP	Social Environmental Management Plan
SM	Site Manager

EXECUTIVE SUMMARY

Many conservancies have observed an increased abundance of wildlife populations which often led to competition for grazing space and competition for scarce resources such as water. The increase in wildlife is unfortunately also accompanied by increased frequency and severity of Human Wildlife Conflict (HWC), resulting in damage to crops, infrastructure, injuries, and loss of life to people and livestock.

The location of Salambala Conservancy on the banks of Chobe Rivers, makes Chobe River to be to be primary source of surface water both for human and animals especially during dry season. The River supports a large population of crocodiles which created a challenge of "*human-crocodile conflict"* during collection of water by people and access by animal. Similar to most conservancies on located on the Chobe River banks, such as Kabulabula and Kasika, often, animal are attacked by crocodiles and fatal attack involving people has been reported.

The Conservancy is also to populations of key wild life species such as elephants, Leopards, Hippos, and Lions. Elephants and Hippos are known to destroy crops, while lions seldomly contribute to livestock losses.

In December 2022, Salambala Conservancy applied for a Grant to the Community Conservation Fund of Namibia (CCFN) to be supported with alternative safe water point, a measure, amongst many, that is aimed to mitigate Human Wildlife Conflict (HWC). CCFN, through the project *"Poverty Oriented Support to Community Conservation in Namibia"* is now supporting Salambala Conservancy with three solar powered boreholes at Mahundu, Ioma and Ngoma Villages. The boreholes will serve as a water supply infrastructure to enable safe access to water points for human and livestock. This intervention is in line with the project's objective of "providing targeted conservancies with the means to address the HWC challenges they face in line with the National Policies of Namibia".

Section 27 of EMA, has listed the "*Abstraction of ground water"* as an activity that may not be undertaken without Environmental Clearance Certificate. To fulfil this statutory requirements, Red-Dune Consulting CC (RDC) was appointed to develop an Environmental Management Plan (EMP) that would guide drilling and operation of the proposed boreholes at Mahundu, Ioma and Ngoma Villages.

The project's magnitude is relatively small and its potential negative impacts are not significant to; the Chobe River flow, aquatic bio-diversity, bio-physical environment on land and, it has positive impact on socio-economic in addressing *the human-crocodile conflict* and poverty eradication by supporting livestock of the community and potential community gardens.

1 INTRODUCTION AND BACKGROUND

1.1 Poverty Oriented Support to Community Conservation in Namibia

The Community Conservation Fund of Namibia (CCFN) is a non-profit Association incorporated under Section 21 of Namibia's Companies Act of 2004. Using a foundation model, the CCFN is mandated to raise funds and manage various financial mechanisms such as endowments, sinking or revolving funds, to ensure the long-term sustainability of Community-Based National Resource Management (CBNRM) activities that are carried out by communal conservancies and other entities with a similar legal mandate.

Box 1. A Conservancy is...

- a legally registered area with clearly defined borders and a constituted management body run by the community for the development of residents and the sustainable use of wildlife and tourism.
- managed by a group elected to serve the interests of all its members.
- a place where residents can add income from wildlife and tourism to traditional farming
- activities.
- a place where wildlife populations increase as they are managed for productive gain.
- a place where the value of the natural resources increases, enhancing the value of the land.
- a forum through which services and developments can be channelled and integrated.
- zoned for multiple uses to minimize conflict and maximize the interests of all stakeholders.

With financial support from the German Government through the KfW Development Bank, CCFN is implementing a project, "Poverty Oriented Support to Community Conservation in Namibia". The project's main objective is to contribute to biodiversity conservation and rural development through the establishment of sustainable Human-Wildlife-Conflict (HWC) management systems in Namibia's communal conservancies.

The project is (i) working together with CBNRM partners to develop and institutionalize long-term mechanisms and structures that make management of HWC part of the sustainability strategy

of CBNRM (ii) providing targeted conservancies with the means to address the HWC challenges they face in line with the National Policies of Namibia.

1.2 Community Based Natural Resource Management

Before Namibia gained its independence in 1990, residents in the communal areas had few rights to use wildlife. Predators and foraging wild animals were regarded as threats due to their destruction of crop fields, human attacks, killing of livestock as well as damaging of infrastructures, especially water infrastructure. In turn, community retaliate by killing wild animals, which gave birth to a concept commonly known as Human Wildlife Conflict and Wildlife Crime (HWC-WC).

After independence, and in line with Article 95l[1] of the Namibian Constitution, Namibia has adopted policies, legal instruments, and strategies for addressing HWC-WC. One such strategies is enabling communities and private businesses to benefit from wildlife-based tourism and sustainable natural resource management commonly known as Community-Based Natural Resource Management (CBNRM) which is guided by the National Policy on Community Based Natural Resource Management.

The CBNRM concept is based on the understanding that if natural resources have sufficient value to rural communities, and allow for rights to use, benefit and manage, then appropriate incentives for people to use natural resources in a sustainable way will be created through the establishment of a Conservancy. The CBNRM programme links conservation to poverty eradication through developing the conservation, hunting and tourism industries which in turn contribute to the Gross Domestic Product, employment creation and the improvement of the well-being and social upliftment of rural communities.

[1] The State to actively promote and maintain the welfare of the people by adopting policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future."

1.3 Challenges faced by Conservancies

The CBNRM has yielded into remarkable recovery and increase of wildlife populations, including key predator species and internationally threatened or endangered species such as elephant and black rhinoceros[2]. However, this increased wildlife population resulted into their expanded foraging ranges into communal and freehold farming arear resulting in an increased frequency and severity of Human Wildlife Conflict (HWC) especially involving elephants, feline predators, crocodiles and hippopotamus[3][4].

The conflicts include damage to crops, gardens and infrastructure (water points, fences, kraals, boreholes, etc.), loss of life or injuries to people and livestock mortalities. Climate change is known to contribute to shift of wildlife population to areas that are not heavily affected by drought, which further exacerbate HWC & WC.

Wildlife trafficking became a million-dollar criminal enterprise that has expanded to more than just a conservation concern. The increasing involvement of organized crime in poaching and wildlife trafficking threatens peace, strengthens illicit trade routes, and destabilizes economies and communities that depend on wildlife for their livelihoods.

Namibia is not spared from Wild Crime[5] (WC). Although the country has made remarkable effort in preventing WC, the country is still facing this challenge and requires significant financial resources to address the challenge. Statistics indicates that 27 elephant and 61 rhino were poached in 2018 while in 2019, 39 live and 65 dead pangolin were seized in 2019. Furthermore, conservancy residents experiencing HWC sometimes engage in retaliatory killing to remove problem animals[6].

[2] Republic of Namibia: Revised National Policy on Human Wildlife Conflict Management 2018-2027
[3] Brian T. B. J and Jonathan I. Barnes 2006., Human Wildlife Conflict Study Namibian Case Study
[4] Ailla-Tessa Nangula Iiyambula 2021., Identifying the Spatio-Temporal Distribution and Drivers Of Human-Carnivore Conflict In Epupa And Okanguati Conservancies, Kunene Region Namibia
[55] Republic of Namibia: Revised National Strategy on Wildlife Protection and Law Enforcement 2021 - 2025
[6] Project Document: Integrated approach to proactive management of human-wildlife conflict and wildlife crime in hotspot landscapes in Namibia

2 SALAMBALA CONSERVANCY

Salambala Conservancy was registered in June 1998. It covers an area of 3364 km^2 and has a population of 9193 people.

2.1 Location

Salambala Conservancy in located in the southern floodplain of Kabbe South Constituency in Zambezi Region (see Figure 1 & 2). It situated on the northern banks of Chobe Rivers, the border between Namibia and Botswana.

Figure 1. Location of Salambala Conservancy

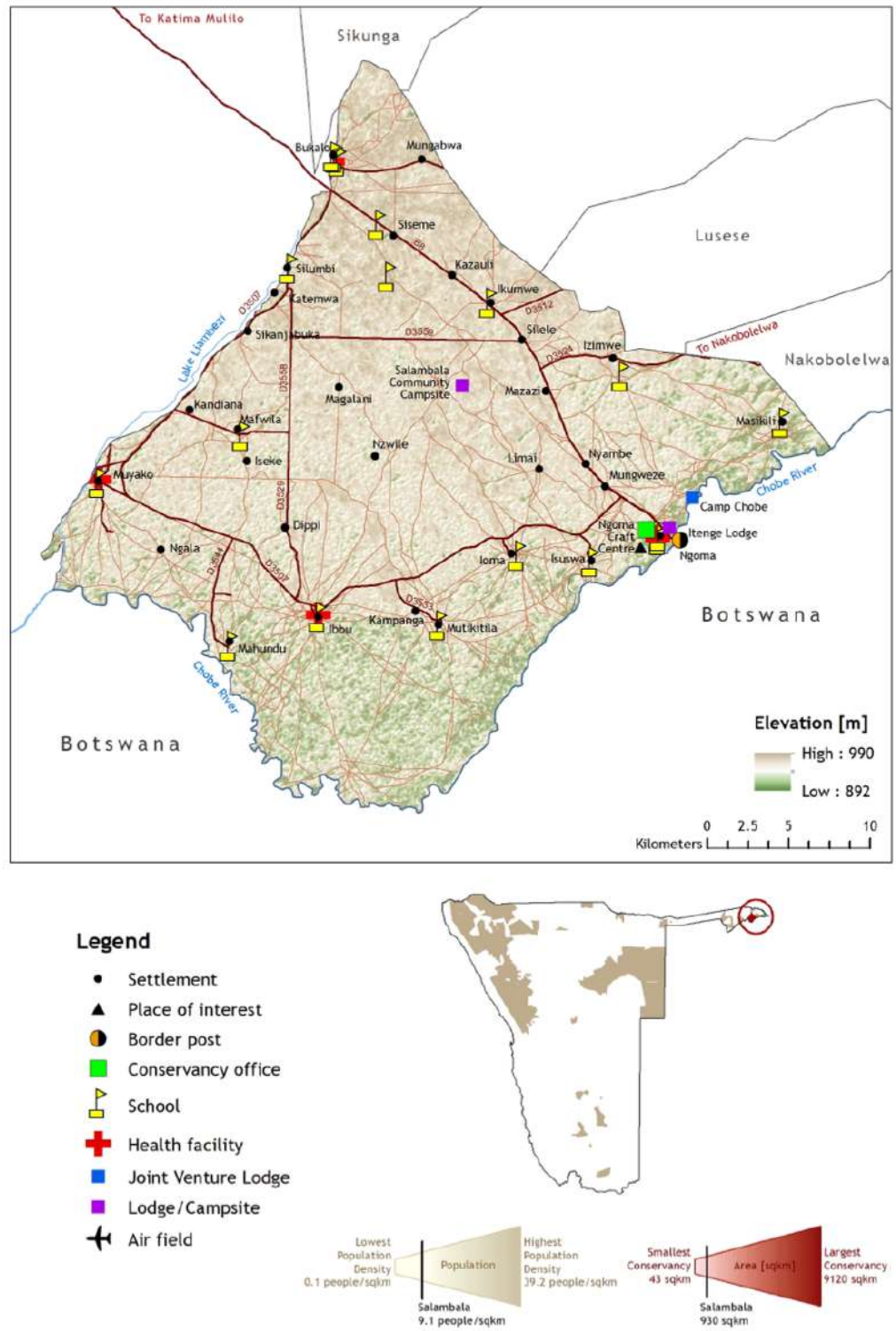

Figure 2. Map of Salambala Conservancy (Source: NASCO, 2022)

The proposed borehole will be drilled at Mahundu village (17,97916667 S, 24,47250000 E), Ioma Village (17,9208333 S, 24,64555556 E) and Ngoma village (17,89305558 E, 24,7086111 E).

2.2 Physical Characteristics

The conservancy has a flat topography, made up of thick forest and flood plains on the banks of Chobe River (Figure 3).

Figure 3. Area physical characteristics at Mahundu Ioma Village, Salambala Conservancy (Source: Red-Dune Consulting 2024)

2.3 Challenges Faced by the conservancy / communities in the area

2.3.1 Human Wild Life Conflict (HWC)

The location of Salambala Conservancy on the back of the Chobe River made the River to be the main source of water both for human and animals. The River home to a large population of crocodiles which created a challenge of "*human-crocodile conflict"* during collection of water by people and access by animal. Often, animal are attacked by crocodiles and attack involving people has been reported. Furthermore, the conservancy is home to elephants, buffalos, hippopotamus, zebras, lechwe, blue wildebeest, kudu, impala, waterbuck, reedbuck, lions and leopards.

The Conservancy has raised the challenge of HWC to CCFN and through a grant proposal and requested assistance to develop / establish safer water access point to mitigate the HWC.

The charts in Figure 4 below shows the type and total number of human wildlife conflict incidents each year, subdivided by species, grouped as herbivores and predators.

The charts in Figure 4 below shows;

- **A,** total number of incidents each year, subdivided by species, grouped as herbivores and predators,
- **B**, the number of incidents per species for the last 3 years; the darkest bar (on the right) indicates the current year for each species
- **C,** the number of incidents per category for the last 3 years; the darkest bar (on the right) indicates the current year for each type.

It shows that, most HWC incidences are destruction of crops by herbivores (elephants, hippos and antelopes), while hyenas, crocodile, lions and leopard are responsible for livestock losses.

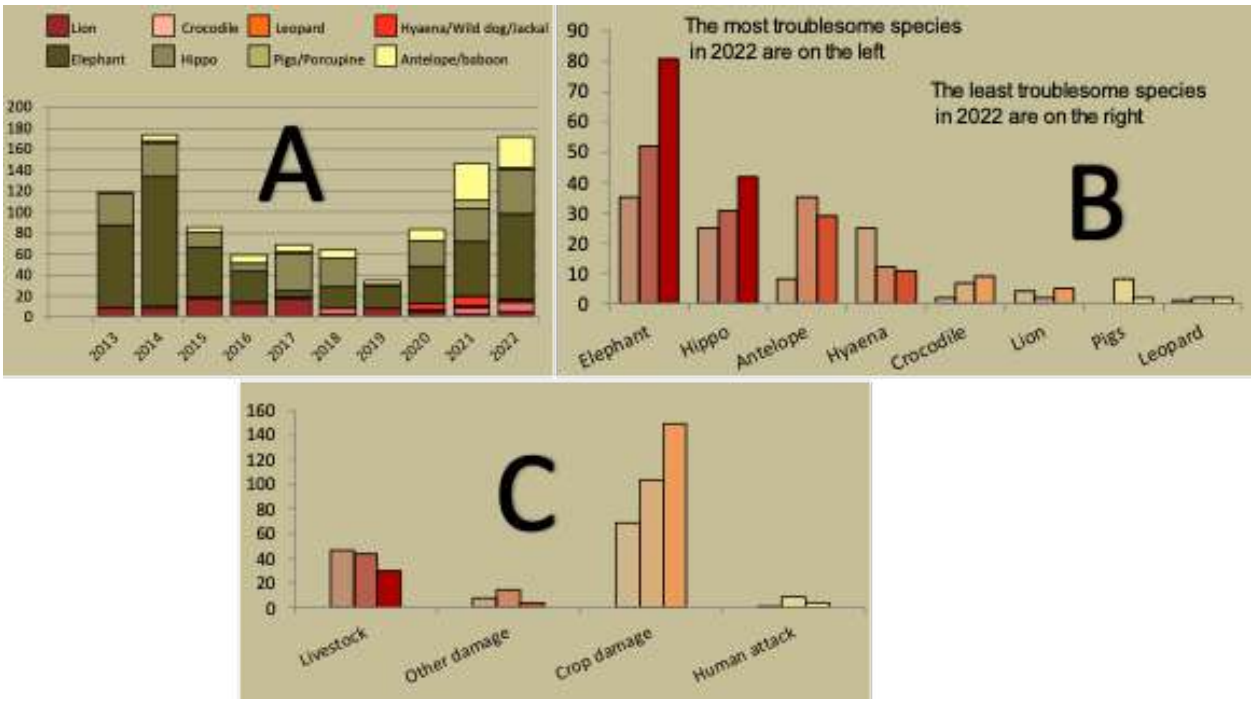

Figure 4. Total number of HWC incidents each year, subdivided by species and type of conflict (NACSO, 2022).

2.4 HWC Mitigation Options

In order to mitigate HWC, CCFN agreed to support the conservancy with drilling of three new boreholes at Mahundu, Ioma and Ngoma villages, which are located on the banks of Chobe River aiming to prevent communities and animal accessing the river and consequently reduce HWC / *human-crocodile conflict*.

2.5 Support from Community Conservation Fund of Namibia (CCFN)

With financial support from the German Government through the KfW Development Bank, CCFN is implementing a project, *"Poverty Oriented Support to Community Conservation in Namibia"*. The project's main objective is to contribute to biodiversity conservation and rural development through the establishment of sustainable Human-Wildlife-Conflict (HWC) management systems in Namibia's communal conservancies.

In line with the project objectives, CCFN is supporting Salambala Conservancy to drill three solar powered boreholes at Mahundu, Ioma and Ngoma villages to ensure safe drinking water points for animal. This intervention speaks to the project's objective of "*providing targeted conservancies with the means to address the HWC challenges they face in line with the National Policies of Namibia*".

The project is (i) working together with CBNRM partners[7] to develop and institutionalize long-term mechanisms and structures that make management of HWC part of the sustainability strategy of CBNRM (ii) providing targeted conservancies with the means to address the HWC challenges they face in line with the National Policies of Namibia, which is of particular relevance to this proposed intervention.

3 STATUTORY REQUIREMENTS

The protection of the environment is enshrined under Article 95l of the Namibia Constitution. The Environmental Management Act (Act No 7 of 2007) (EMA) and its Environmental Impact Assessment Regulation 2012, has listed Water Resource Developments activities not to be undertaken without an Environmental Clearance Certificate (ECC) as follows.

a) 8.1 The abstraction of ground or surface water for industrial or commercial purposes
b) 8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.

To fulfil the above statutory requirements, Red-Dune Consulting CC (RDC) was appointed to Develop an Environmental Management Plan (EMP) that would guide drilling and operation of the proposed boreholes at Mahundu, Ioma and Ngoma villages in Salambala Conservancy.

[7] IRDNC

In addition to EMA, there are other statutory requirements that would need to be fulfilled. The Ministry of Agriculture, Water and Land Reform as the custodian of the Water Resources Management Act, No.11 of 2013 instructs that a permit must be obtained prior to any borehole drilling activities can be undertaken.

4 TERMS OF REFERENCE

The scope to develop this EMP is guided by the Terms of References as provided in the EIA Regulation 2012, Section 9 (a-b) but, not limited to the following;

- Provide a comprehensive description of the proposed Project;
- Identify relevant legislation and guidelines for the project;
- Identify potential environmental (physical, biological and social) conditions of the
- project location and conduct risk assessment;
- Inform Interested and Affected Parties (I&APs) and relevant authorities about the
- proposed project to enable their participation and contribution;
- Develop an Environmental Management (EMP) that would be a legal guideline for the environmental protection by the project.

5 THE PROPONENT

Salambala Conservancy is the proponent for this application with financial support from CCFN.

6 PROJECT DESCRIPTION

6.1 Underground water in Zambezi Region

The aquifers in the Zambezi region are known to have a thickness of up to 125m, formed by coarse grained, semi-consolidated to consolidated sandstone with underlying layer of basal / brackish to saline water (**see Figure 5**).

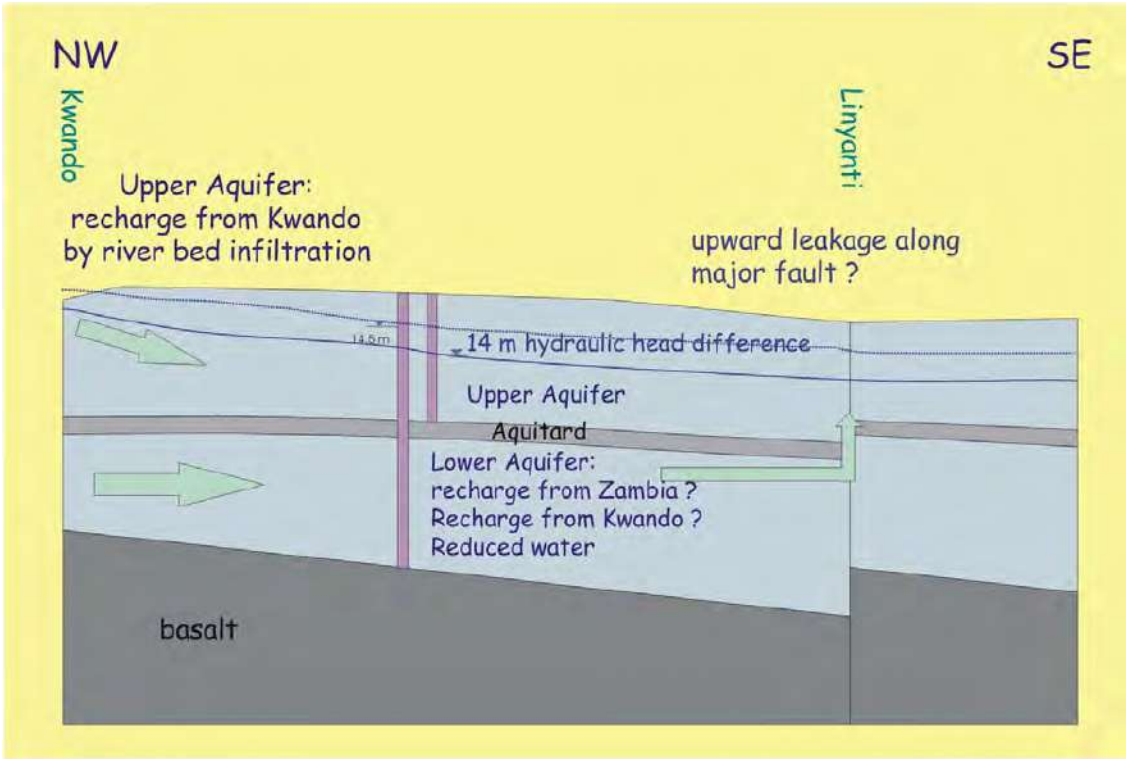

Figure 5. Schematic Concept showing the Structure of the Aquifer System in the Eastern Caprivi (Groundwater Investigations in the Eastern Caprivi Region, Main Hydrogeological Report pp46)

The Groundwater Investigations in the formerly known as Eastern Caprivi Region 2005 study indicated that, per capita water use in Zambezi is 16 L/day and combined 55 L/day for livestock. At the time of this study, the current total water supply in the entire conservancy was not known.

6.2 Project Alternatives

The EMA requires impact assessment to explore various project alternatives which aims to ensure that a chosen project component does not have significant impact to the environment. Project alternatives ranges from not implementing the project (no go alternative), when the environmental impacts are severe, or there is high degree of uncertainty. Other alternative considers the project site, technology, and equipment to be used. The description of alternatives is given in **table 1** below.

Table 1. Project Alternatives

Project Alternative	Description	Advantages	Disadvantages	Alternative adoption
No project	Do not implement the project	None	HWC may increase, which could threaten the cost benefits of the conservation incentives by conservancy members.	No
Implement the project	Implement the project	Reduce HWC Improved water supply	None	Yes
Diesel Power Pump	Use of diesel-powered water pump	Cost effective and quick to implement	Difficult to upkeep with fuel supply Diesel is very costly, and communities always don't have the means to buy diesel.	No
Solar Powered Pump	Use of solar powered water pump	Environmentally friendly. Does not require fuel to operate	The borehole operation could be impacted during cloud cover	Yes

7 DESCRIPTION OF THE RECEIVING ENVIRONMENT

7.1 Populational demography

The 2023 population census indicated that Zambezi region has total population of 142 373 people. Overall, 61% of the region population makes up the labour force whereby 62% and 32% of the labour force is employed and unemployed respectively. The region has 8 electoral constituencies as presented in Table 2 below. Salambala Conservancy falls within Kabbe South Constituency.

Table 2. Population distribution in constituencies of Zambezi Region (Census 2023)

Zambezi	**142 373**
Judea Lyaboloma	8 738
Kabbe North	12 253
Kabbe South	11 345
Katima Mulilo Rural	24 016
Katima Mulilo Urban	46 401
Kongola	12 069
Linyanti	10 425
Sibbinda	17 126

The average household size in the Zambezi Region was 4.4 people/household in 2015[8], with a relatively young population of approximately 39% of the total population to be less than 15 years old. Officially, employment rate for Zambezi Region is 62%[8] , which is closely like the national average of 63.1%. Most of the employable adults are engaged in the category of agriculture, forestry, and fishing as the main sources of household income. Tourism and wildlife management are an important growing component of the economy, providing jobs through accommodation establishments and conservation work.

[8] Namibia Statistics Agency.2015. Namibia Household Income and Expenditure Survey Report

7.2 Socio-economic profile

The community of Salambala Conservancy are mostly subsistence farmers who rear crops and livestock. Tourism is the main income generating activity for the conservancy through trophy hunting concession. Often, meat from trophy hunting is distributed to residents.

Figure 6. Crop field on the background of the Community meeting

7.3 Regional Geology and Topography

According to Mendelsohn *et al 2002*, Zambezi region, is formed up of the Kalahari Basin. The Kalahari Basin was formed from the split between Namibia and South America to form a broad coastal plain which is now the Namib Desert. The Kalahari Basin gradually filled up with sand and water borne deposit. These deposits of sands, clay and calcrete formed the Kalahari Group.

The soils are fluvisols that are derived from river deposits, and these loamy soils vary locally in the proportions of clay (distributed in the areas which experience frequent flooding) and sand (found mainly in the non-flood prone areas). While soils are naturally fertile and suitable to a range

of crops, the sandy parts have poor soils with rather low nutrient levels, similar to other soils in the Kalahari Sandveld[9].

Generally, the Zambezi region is flat and sloping toward the eastern direction. This is because, the geology of the area was formed from the filling up of the coastal plain with Namib sand and water borne deposits. Flooding is frequent in the region because of direct rainfall and rise in the Zambezi River from Angolan inflows.

The lithology of the aquifer in surrounding areas is not well known. The geohydrology indicates that the aquifers are found in Kalahari Deposits where soils are clayey loam with low infiltration potentials and faced with evaporation rates higher than rainfall which consequently causes low potential of ground water recharge.

7.4 Climate

7.4.1 Rainfall

Generally, Namibia is an arid country, with a large part of country having a climatic condition characterized by high temperatures and, periodic low rainfall. Rainfall decrease from east to west, with Zambezi Region receiving the highest rainfall of 600ml/year to less than 25 ml in the Southwest and West of the country. The country experiences high climatic variability in the form of persistent droughts, unpredictable and highly variable rainfall patterns, temperatures and scarcity of water.

High solar radiation, low humidity and high temperatures lead to very high evaporation rates, which vary between 3800 ml per annum in the south to 2600 ml per annum in the north. In many areas, potential evaporation is about five times greater than the average rainfall. Surface water sources such as dams are subject to high evaporation rates.

[9] Mendelsohn, J., Jarvis, A., Roberts, C., Robertson, T. (2002). Atlas of Namibia. A Portrait of the Land and its People. Cape Town (David Philip Publishers; New Africa Books (PTY) Ltd)

Zambezi region has the highest average rainfall of about 600 mm which is similar to that of Salambala Conservancy (**see Figure 7**).

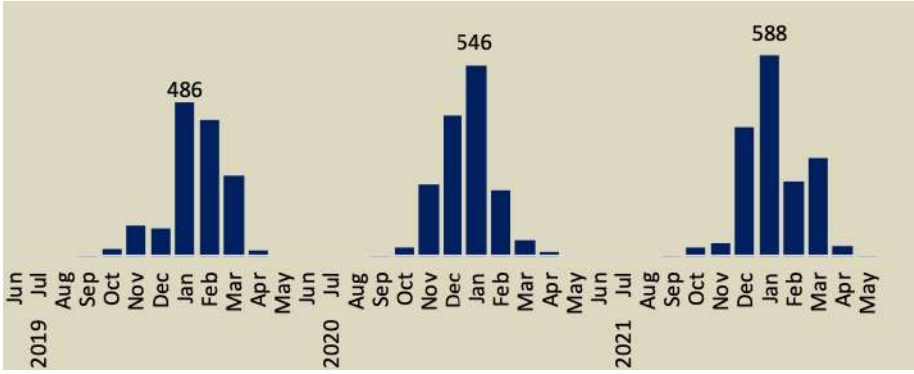

Figure 7. Rainfall trends in Salambala Conservancy (Source: NACSO)

The Zambezi region's climatic condition is influenced by the Zambezi River, that of tropical nature with warm to hot temperatures. The warmest temperatures are from September to March, and the coldest between May to August. The dry season fall between April and October while the wet season is falls between November and March. The region is known to experience frequent flooding.

According to Mendelsohn et al 2002, the average summer temperature is 20ºC while during winter the average temperature is 5 ºC and the average maximum and minimum annual temperature is 35 ºC and 19 ºC respectively.

7.5 Biodiversity

7.5.1 Flora

Zambezi region is the most densely vegetated region in Namibia. Due to its tropical nature, the areas has a tropical forest covered by thick bush, shrubs mature trees which are predominantly Rose Wood and various species of Acacia trees and tall glass in the floodplain while non-flooded areas have trees of mopane *(Colophospermum mopane),* burkea-terminalia *(Terminalia sericea),* Camelthorn Tree (on the left) and Giant Crowfoot, Mahogany and Makalani Trees .

Figure 8. Makalani and Natal Mahogany (on the left) and Camelthorn Tree and Giant Crowfoot (on the right) on 13 February 2024 (*Source: Red-Dune Consulting 2024*).

7.5.2 Fauna

The conservancy is home to a diversity of keystone wildlife species, the conservancy is home to elephants, buffalos, crocodiles, hippopotamus, zebras, lechwe, blue wildebeest, kudu, impala, waterbuck, reedbuck, lions, leopards and various fish species in the Chobe River.

7.6 Surface Water

The primary surface water in Namibia is found in dams in Ephemeral Rivers and Perennial Rivers which have a potential of 200 Mm^3 and 1,105Mm^3 per annum respectively. The Ephemeral Rivers in the interior flow during the raining season, where western flowing rivers drains into the Atlantic Ocean, Fish River drains into Orange River, Cuvelai system, which is not a defined River system but rather Iishanas or flood plain drains into Etosha Pan and partially contribute to Kavango, Kwando and Zambezi River.

Perennial River, which has permanent flow are all found on the border of the country. Zambezi in the northeast has a mean annual flow of 40,000 Mm^3, its flow per second, 180Mm^3, is about twice the overall Dams capacity in Namibia at 100Mm^3. The Kwando / Linyati / Chobe has an annual

flow of 10,000Mm^3, Kunene 5,500Mm^3 and Orange River with 11,000Mm^3 flow. Salambala Conservancy mostly depends on the Chobe River for surface water.

7.7 Ground Water

Namibia highly relies on ground water. About 50-60% water is ground water which has a potential yield of 360Mm^3. Geologically, the main aquifers are the Karst, Otjwarongo, Omaruru Delta (OMDEL), Lower Kuiseb, Windhoek, Stampriet, Koichab and Ohangwena II. Groundwater quality in much of the Zambezi Region is generally good, especially within 5-20 km from the rivers, which recharge the aquifers.

7.8 Land use

The conservancy is zone into various uses which includes **(Fig 9);**

1) Settlement & Cropping Area

2b) Multiple Use: Hunting Priority

3c) Exclusive Wildlife: Tourism

3d) Exclusive Wildlife: No Disturbance

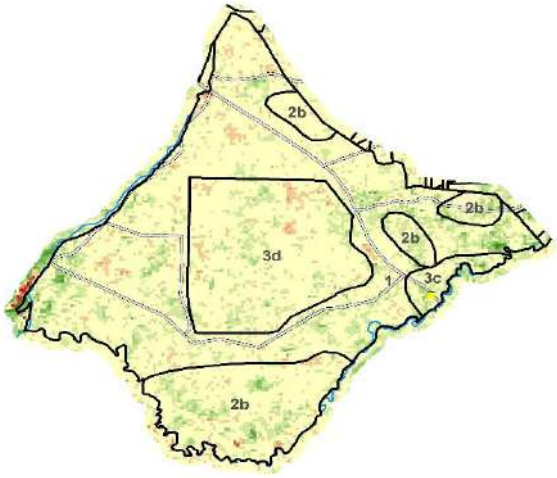

Figure 9. Conservancy Zones (Source: NACSO, 2022)

8 THE NEED AND DESIRABILITY OF THE PROJECT

The project is in line with the CBNRM programme toward reducing HWC-WC and contributing to conservation incentives and poverty reduction. In addition, the project contributes to the aim and objective of the Integrated Water Resource Management (IWRM) for Namibia which aims to

achieve a sustainable water resources management regime, contributing to social equity, economic efficiency, and environmental sustainability.

9 POLICY AND LEGAL FRAMEWORK

Namibia has devised relevant policies, regulatory frameworks and institutions to ensure the conservation, sustainable use, access and benefit sharing of natural resources, biodiversity and ecosystems in line with international conventions and national legislation. The country is also party to several international treaties, conventions and multilateral agreements, and takes part in various international standards such as UNDP's SES, reviews and processes that are relevant to sustainable management of resources; access to basic rights including a clean environment.

Table 3. Policy and Legal Framework

Legislation	Relevant authority	Applicability
The Namibia Constitution	**Government Republic of Namibia**	The Namibian constitution is the supreme law of the country and makes provision for environmental protection and sustainable development.
Environmental Management Act No. 7 of 2007	**Ministry of Environment, Forestry and Tourism**	The environmental management act No.7 of 2007 aims to promote the sustainable use of natural resources and provides the framework for the environmental and social impact assessment, demands precaution and mitigation of activities that may have negative impacts on the environment and provision for incidental matters. Furthermore, the act provides a list of activities that may not be undertaken without an environmental clearance certificate.

Legislation	Relevant authority	Applicability
Environmental Assessment Policy (1995)	**Ministry of Environment, Forestry and Tourism**	The Environmental Assessment Policy for Sustainable development and Environmental Conservation emphasize the importance of environmental assessments as a key tool towards implementing integrated environmental management. Sets an obligation to Namibians to prioritize the protection of ecosystems and related ecological processes. The policy subjects all developments to environmental assessment and provides guideline for the Environmental Assessment. The policy advocates that Environmental Assessment take due consideration of all potential impacts and mitigations measures should be incorporated in the project design and planning stages (as early as possible).
Pollution Control and Waste Management Bill (in preparation)	**MEFT, MHSS and others**	The Pollution Control and Waste Management Bill, intents to regulate and prevent the discharge of pollutants into the air and water as well as providing for general waste management.
Public Health Act (Act No. 36 of 1919)	**Ministry of Health and Social Services**	The Public Health Act aims to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.

Legislation	Relevant authority	Applicability
Water Resources Management Act (Act No. 11 of 2013)	**Ministry of Agriculture, Water and Land Reform**	This Act provides a framework for managing water resources based on the principles of integrated water resources management. It provides for the management, development, protection, conservation, and use of water resources. Therefore, water abstraction should satisfy the provisions of the water act (water abstraction / borehole permit should be applied from the respective ministry).
Water Act No, 54 of 1956	**Ministry of Agriculture, Water and Land Reform**	This act states that, all water resources belong to the State. It prevents pollution and promotes the sustainable utilization of the resource. To protect these resources, this act requires that permits are obtained when activities involve the following: (a) Discharge of contaminated into water sources such as pipe, sewer, canal, sea outfall and (b) Disposal of water in a manner that may cause detrimental impact on the water resources
Soil Conservation Act No. 76 of 1969	**Ministry of Agriculture, Water and Land Reform**	This act promotes the conservation of soil, prevention of soil erosion. Prevent soil salinification.
National Heritage Act No. 27 of 2004	**Ministry of Urban and Rural Development**	The Act makes provision for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Part V Section 46 of the Act prohibits removal, damage, alteration or excavation

Legislation	Relevant authority	Applicability
		of heritage sites or remains, while Section 48 sets out the procedure for application and granting of permits.
Regional Councils Act, 1992 (Act No. 22 of 1992)	**Ministry of Urban and Rural Development**	The Regional Councils Act legislates the establishment of Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to initiate, supervise, manage and evaluate regional development.

10 PUBLIC CONSULTATION

Section 21 of the EIA Regulation requires the undertaking of an Environmental Impact Assessment (EIA) to follows a robust and comprehensive public consultation. This is an important process, because it gives members of the public, especially the Interested and Affected Parties to comment or raise concerns that may affect their socio-economic or general environment because of the project. Further, it solicits crucial local knowledge that the Environmental Assessment Practitioner may not have.

The Public Participation Process (PPP) was focused on members of the conservancy. While competent and or regulatory authority such as Ministry of Environment Forestry and Tourism (MEFT), Ministry of Agriculture Water and Land Reform (MAWLR), where consulted during the project development phase for application for the ECC.

10.1 Mahundu Village Consultation

A community meeting for Mahundu Village was held on 13 February 2024 at Mahundu Primary School ***(Figure 10).***

Figure 10. Community Meeting at Mahundu Village, on 13 February 2024 (Source: Red-Dune Consulting 2024).

- The meeting was attended by 25 people, 12 women and 13 men including an area facilitator from Integrated Rural Development and Nature Conservation (IRDNC) and a consulting team of Red Dune Consulting **(see appendix A).**
- Mr. Libanda Fabian, the Manager of the conservancy presented the background of the project and the meeting objectives. He informed the meeting that the proposed development of water points is a result of the conservancy request to be assisted in dealing with the challenge of HWC involving crocodiles. He assured the meeting that, the proposed water development is a community project and no land will be required to be allocated to an individual or an institution.
- Red-Dune presented the meeting objectives, particularly the requirement of the Environmental Social Safeguards (ESS) as outlined in the project's Environmental Social Management Plan (ESMP).
- The meeting was informed that, the proposed water point will be developed with funding from Community Conservancy Fund of Namibia (CCFN) which received funding from the KfW development bank to support communal conservancies to mitigate issues of Human Wild Conflict (HWC).
- KfW require that the money is spent wisely and accounted for to the benefit of the communities and ensure that project implementing agencies observe the highest standard of Environmental and Social Safeguard (ESS) which aims to ensure that the project is environmental and social sustainability.
- The meeting was informed that, the ESS requirement does not be support projects if amongst many red-flags, if it involves:
    - Displacement of people
    - Destroying heritage sites
    - Damaging critical biodiversity habitat
    - Causing conflict within the communities
- Furthermore, the meeting was informed that, the proposed site must not be on an occupied land.
- The meeting was further informed that the protection of the environment is provided for under the Environmental Management Act (Act No. 7 of 2007) (EMA) and its Environmental Impact Assessment Regulation 2012 where EMA has listed Water Resource Developments activities,

such as drilling of boreholes not to be undertaken without an Environmental Clearance Certificate (ECC).

- To obtain an ECC, a Social and Environmental Impact Assessment has to be undertaken, which is one of the core components of the consultation.
- Lastly the meeting was informed that, a consent letter is one of the requisites for the project to be implemented. This consent letter, called 'Free Prior Informed Consent' (FPIC) represent the community in understanding and agreeing to the proposed water development project. The FPIC was explained to the project as follows;
    - **FREE** refers to a consent given voluntarily and absent of coercion, intimidation or manipulation.
    - **PRIOR** means consent is sought sufficiently in advance of any authorization or commencement of activities
    - **INFORMED** means that community was well informed about the project and they know all information about the project.
    - **CONSENT** refers to the collective decision made by the rights-holders and reached through the customary decision-making processes of the affected peoples or communities.
- Free Prior Informed Consent was verbally obtained from the meeting by show of hands (**see figure 11**) and a FPIC letter was drafted in the presence of the community, read and signed by the Induna (village headman) (**see appendix A).**

Figure 11. Consent to the project

- The community further enquired the following;
    - Will the borehole be only meant for animals or people as well?
        - Red-Dune informed the meeting that the borehole was going to have a trough for animals and a tap for the people.
    - Recommended the boreholes to be near household to ensure security of associated infrastructure especially solar panels.
        - This is not necessary as the borehole will be equipped with a fence to prevent theft and destruction by elephants
    - The Induna urged for speed implementation of the project, due to high loss of livestock to crocodiles, especially during the dry season.

- The meeting adjourned with a prayer, and a site assessment with the community was undertaken.

10.1.1 Site Assessment

- A site location for the drilling of the borehole and placement of water troughs had already been selected by the community prior to the community engagement.
- **Location:** The site where the borehole will be drilled is located at the centre point of the village. It is currently an open space with no human settlements or crop fields on it. GPS Coordinates 274° Longitude 17, 97916667 E, 24,47250000 S
- **Surrounding Land Use**: Primary school situated 250 m in the Northern direction, homesteads, crash pan and electrical power lines (**Fig 12).**

Figure 12. Selected Borehole Drilling Site, Mahundu Village on 13 February 2024 (Source: Red-Dune Consulting 2024).

The site where the troughs will be constructed is situated at an approximate distance of 200 m southeast from the borehole site. The trough site is located where the current crash pan is, and the people in the area are already accustomed to having cattle in and around the crash pan (**see Figure 13**).

Figure 13. Surround area of the Trough site at Mahundu Village on 13 February 2024 (Source: Red-Dune Consulting, 2024).

Vegetation: There are no native or indigenous plants on both sites; however, the area is surrounded by Makalani, Natal Mahogany and some Grewia Cross berry trees, which will provide excellent shade for livestock (**see Figure 14**).

Figure 14. Makalani (on the left) and Natal Mahogany (on the right) Trees at Mahundu Village on 13 February 2024 (Source: Red-Dune Consulting 2024).

10.2 Ioma Village consultation

A community meeting for Ioma Village was held on 13 February 2024 at the Khuta area (Tradition Court) of Ioma village (**see Figure 15**).

Figure 15. Community Meeting at Ioma Khuta, Ioma Village on 14 February 2024 (Source: Red-Dune Consulting 2024).

- The meeting was attended by 32 people, 16 women (see appendix B).
- A similar approach of presentation was presented by the Conservancy Manager and Red Dunes as indicated above.
- After presentation, the community welcomed the project, however, the borehole site was not identified. The community requested Red-Dune to come back on 17th February 2024 while identifying the boreholes site.
- The community raised concern of solar panel theft which took place at Ioma (**see Figure 16**), and recommended that the proposed fence should be anti-theft.

Figure 16. Stolen solar panels for a borehole at Ioma on 17 February 2024 (Source: Red-Dune Consulting 2024).

10.3 Site Assessment

On Saturday 17th February 2024, Red-Dune undertook site assessment at Ioma. The identified site is in an open are free of vegetation, and only had glass cover **(Fig 17)**.The areas is accessible by a village road. Site access will not require clearing of trees, unless tree branches that protrude in the roads could be trimmed.

Figure 17. Ioma borehole site assessment 17th February 2024 (Source: Red-Dune Consulting 2024).

11 NGOMA VILLAGE CONSULTATION

The meeting at Ngoma village was held on 14th February 2024 **(Figure 18)**.

Figure 18. Community Meeting at Ngoma Sub-Khuta, Ngoma Village on Thursday, 14 February 2024 (Source: Red-Dune Consulting, 2024).

- The meeting was attended by 54 people, 25 women (see appendix C).
- A similar approach of presentation was presented by the Conservancy Manager and Red Dunes as indicated above.
- After presentation, the community welcomed the project.
- Like Mahundu and Ioma, the community raised concern of solar panel theft and recommended that the proposed fence should be anti-theft.
- A site had already been selected by the community prior to the community engagement.

11.1 Ngoma Village Site Assessment

Location: The site where the borehole will be drilled is located at the center of the livestock kraals and grazing areas GPS 106° 17,89305556 S, 24,70861111 E **(Figure 19)**. It is currently an open space with no human settlements or crop fields on it. The trough site selected will be situated at a distance of 150 meters South East from the borehole site, GPS 142 ° Longitude SE 17°53`34" and latitude S 24°42`33"E

Figure 19. Selected Borehole Drilling Site, Ngoma Village on 14 February 2024 (Source: Red-Dune Consulting, 2024).

Surrounding land use: Homesteads situated at a distance of approximately 500 meters, mainly used for grazing.

Vegetation: There are no native or indigenous plants on both sites; however, the area is surrounded by Date, Camel thorn, Terminalia and Giant Crowfoot trees and none are endemic to the site **(Figure 20)**.

Figure 20. Camelthorn Tree (on the left) and Giant Crowfoot (on the right), Ngoma Village on Wednesday, 14 February 2024 (Source: Red-Dune Consulting, 2024).

12 IMPACT ASSESSMENT

12.1 Impact Identification

Potential impact were identified in accordance to the key Environmental Social Indicators (ESI)[10] and using literature review, site assessment and public participation process and experience for Red-Dune Consulting.

12.1.1 Air Environment

Project activities that have potential of creating dust emission such as uncoordinated driving and drilling could deteriorate surrounding air quality from fugitive dust. Excess dust during work could be a health hazard to workers and the surrounding communities.

12.1.2 Noise Environment

Movement of heavy trucks and drill rigs, and drilling activities could produce excessive noise which could be noise nuisance to communities and hearing hazards to workers. Additionally, noise maybe generated from playing loud music or unnecessary hooting and revving of vehicles.

12.1.3 Water Environment

Drilling of boreholes has the potential of polluting underground water resources through oil spills. Additionally, poor underground water management could lead to over-abstraction what may deteriorate ground water.

[10] Guidance Note UNDP Social and Environmental Standards Social and Environmental Assessment and Management July 2022

12.1.4 Biodiversity Environment

Poorly-informed or executed project activities could damage critical habitats and change landscape suitability for threatened species. This could be as a result of clearing of area to make provision for project activities which may lead to destruction fauna habitats.

12.1.5 Land Environment

Land degradation could happen if the movement of heavy vehicle in an area is not coordinated. Furthermore, project activities could produce pollution such as household and industrial, both solid and liquid which could pollute the land environment.

12.1.6 Employees And Community Health and Safety Environment

Occupational health and safety at workplace is a critical component to promote the welfare of the employees and public. The employment opportunities will create new social relationship which has the potential spreading diseases such as HIV-AIDS and workers as susceptible to vector diseases such as malaria. The bush working environment makes workers to be prone to venomous insect and snake bites which may lead to fatalities. Other health risk include workers exposure to excessive noise and dust and injuries.

12.1.7 Heritage and Archaeology Resources

Although this is part of the social environmental, due to its uniqueness and importance, a chance find will be developed. This impacts links to the project risk of activities to potentially damage critical habitats.

12.1.8 Dangerous good

Handling of fuel and lubricants at project sites could casus oil spill and pollute the environment.

12.2 Impact Assessment

12.2.1 Criterial for impact assessment

The criteria used to assess the impacts and the method of determining their significance is outlined below. This process conforms with international best practices and the Environmental Impact Assessment Regulations of Environmental Management Act, 2007 (Government Gazette No. 4878) EIA regulations.

12.2.1.1 Impact Type

Following the impact determination, the impacts are classified into two categories; positive and negative impacts.

Table 4. Impact Type

Impact type	**0**	No Impact
	+VE	Positive
	-VE	Negative

12.2.1.2 Probability of occurrence

All potential impacts are analysed to determine their likelihood of occurrences after proposed mitigation measures / residual effect after applying the developed mitigation measures.

Table 5. Likelihood occurrence

Likelihood occurrence	1	Improbable (Low likelihood)
	2	Low probability
	3	Probable (Likely to occur)
	4	Highly Probable (Most likely)
	5	Definite (Impact will occur irrespective of the applied mitigation measure)

12.2.1.3 Confidence level

The level of confidence residual effect[11] predictions which depends on the degree of uncertainty associated with the basis of understanding project interaction with the environment, available data/information, and the effectiveness of proposed mitigation. The confidence is determined under three levels Low, Medium and High (**Table 6**). When the uncertainty associated with the residual effect prediction increases, the level of confidence in the prediction becomes lower.

For example, the confidence level of uncertainty residual effect of noise, dust, vegetation disturbances and land degradation impacts by construction activities is high. However, the confidence level of uncertainty residual effect of drilling activities on the impact to heritage / archaeological resources is lower (thus a chance find is often developed as a precaution to mitigate the impact).

Table 6. Confidence level

Confidence level	L	1	Low	The uncertainty residual effect maybe well understood, but the impact severity is not known. Precautional approach mitigation measures based on literatures / world best practises are developed to reduce the impact significance to low levels.
	M	2	Medium	The uncertainty residual effect is partially understood with available information and practical mitigation measures with monitoring program to reduce the impact significance to low levels.
	H	3	High	The uncertainty residual effect is well understood and practical mitigation measures are developed to mitigate the impact significance to low levels.

[11] Residual impacts refer to those environmental effects predicted to remain after the application of mitigation outlined

12.2.1.4 Impact Significance

The residual effect prediction of the impact were rated under 5 categories; negligible=1, Low=2, Medium=3, High=4 and Severe=5.

Table 7. Risk Rating

1	**Negligible** (Based on the available information, the potential impact is found to not have a significant impact)	N
2	**Low** (The presence of the impact's magnitude is expected to be temporal or localized, that may not require alteration to the operation of the project	L
3	**Medium** (This impact is probable, limited in scale, expected to be of short term / temporary, can be avoided, managed and or mitigated with simple mitigation measures.	M
4	**High** (The impact is definite, mostly predictable, temporal, can be local, regional or national and in long term and reversible. These are impacts that may affect human rights, lands, natural resources, traditional livelihood, critical ecosystem services. The severity of these impact are more limited than sever impacts.	H
5	**Severe** (The impact is definite, it has significant adverse impacts on human population and or / the environment which are of large-scale magnitude and or spatial extend such as large geographic area, large number of people or transboundary nature. The impact duration is long term, permanent and often irreversible. Impacts include displacement of human, destruction of critical ecological systems and or cultural and heritage sites etc. The impact could have a no-go implication unless the project is re-designed or proper mitigation can practically be applied.	S

12.2.1.5 Duration of Impacts

Under this criteria, the impact is analysed based on the time at which the impact will last. During construction, most of the impact are immediate and short term.

Table 8. Impact duration

Duration	1	Immediate
	2	Short-term (0-5 years)
	3	Medium-term (5-15 years)
	4	Long-term (more than 15 years)
	5	Permanent

12.2.1.6 Geographical Scale

The impact is further analysed based on its geographical scale or spatial extend. For example, noise pollution from drilling activities will be site specific. Positive impacts such as potential government revenue through taxes and levies will be national, and employment will mainly be regional.

Table 9. Geographical extend of impact

Scale	1	Site specific
	2	Local
	3	Regional
	4	National
	5	International

12.2.1.7 Risk Assessment

The impact significance was determined using a risk matrix **(Table 10 below).** A five-by-five matrix was used where the impact severity was categorised and assigned scores from 1 to 5 as follows: Improbable=1, Low=2, Medium=3, High=4 and Severe=5. Similarly, the likelihood was assigned scores as follows; improbable=1, Low Likely=2, Probable=3, High Probability=4, Definite=5. The impact rating was determined by multiplying the impact severity and likelihood.

Table 10. Risk assessment matrix[12]

LIKELIHOOD						
	5 Definite	5 Low	10 Medium	15 High	20 Severe	25 Severe
	4 High Probability	4 Low	8 Medium	12 High	16 High	20 Severe
	3 Probable	3 Low	6 Medium	9 Medium	12 High	15 High
	2 Low	2 Low	4 Low	6 Medium	8 Medium	10 Medium
	1 Improbable	1 Negligible	2 Low	3 Low	4 Low	5 Low
		1 Negligible	**2 Minor**	**3 Medium**	**4 High**	**5 Severe**
		IMPACT SEVERITY / CONSEQUENCE				
		Negligible	Low	Medium	High	Severe

12.3 Mitigation Hierarchy

Best practises call for mitigation measures to follow a mitigation hierarchy that favours (i) avoidance of potential adverse impacts, and where avoidance is not possible, then (ii) minimization and reduction; where adverse residual impacts remain, then (iii) mitigation measures need to be applied, and, as a last resort, (iv) measures to offset impacts that cannot be appropriately mitigated. According to EIS regulations, the objectives mitigations are to;

- Find environmental ways of doing thing
- Promote environmental benefits of the project
- Avoid, Minimise or remedy negative impacts and
- Ensure that residual negative impacts are within acceptable levels,

Further, during consideration of the mitigation measure, the following mitigation hierarchy was followed;

- Avoid the negative impact through preventative means,
- Minimise the negative impacts to acceptable low levels and,
- If the above two are not possible, remedy or compensate the impact.

[12] Risk Management Guideline for the BC Public Sector (Province of British Columbia Risk Management Branch and Government Security Office 2012)

12.4 Potential Negative Impacts of the Project

- Noise pollution from heavy machinery and drilling
- Soil disturbance / land degradation
- Loss of habitat and biodiversity from site preparations and occupation
- Air pollution from vehicle emission and dust emission from drilling activities
- Health and Safety risk
- Risk of pollution from generated domestic solid wastes
- Risk of contamination of ground water from oil, grease and lubricants from heavy vehicles, and drilling activities.
- Poaching

12.5 Potential Positive Impact of the project

- Reduced HWC
- Direct and indirect creation of employment opportunities
- Knowledge and technology transfer.

12.6 Planning Phase: Impact Assessment

To ensure that the project is accepted by the public and avoid possible conflicts, the Zambezi regional council, traditional authorities and affected communities were consulted.

12.7 Siting Phase: Impact Assessment

Typically, before drilling of a borehole, a site assessment undertaken to determine the optimum location for drilling a process called siting of a borehole. This process involve analysis of geohydrology property of the area using two main conventional methods; (i) electrical resistivity

and (ii) ground conductivity. These method use Frequency Domain Electromagnetic (FDM) operated by a highly trained geohydrologist.

During this phase, there will be no evasive activities that could cause harm to the physical environment. To ensure social cohesion with the siting team, it will be required for the locals, particularly the traditional authorities to be informed about the presence of the siting team in the area. This activities is usually undertaken by two people, who will carry hand held FDM. The sited location will be pinned for marking purposes.

12.8 Drilling Phase:

Drilling is the major evasive and core environmental threat. This phase involves mobilization and moving of drilling equipment to the drilling site, construction of boreholes protective fence and solar panel platforms. Where necessary, setting up campsite at the drill site with supporting infrastructures such as ablution facilities, household solid waste and other solid waste. During this phase, occupation health and safety risk such as injuries emanating from operating equipment, insect (Mosquito) and snake bites as well as potential oil pollution. Table 11 below outline assessment of potential impacts and proposed mitigation measures during drilling phase.

Table 11. Social Environment: Impact Assessment

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
Employment / Socio-Economic advancement of local	Possible exclusion of locals community from job opportunities. Unfair compensation of workers. It is not anticipated that a significant number of employment will be created during drilling	1. Ensure that all general work is reserved for local people unless in circumstances where specialized skills are required. 2. Fair compensation and labour	+ve	2	2	4	Regional	Life of project	n/a	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		practice as per Namibian Labour Laws must be followed 3. Ensure skill transfer to the locals 4. Use local supplier for good and service where possible									

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
Health and Safety for employees and general public	Job opportunities leads to new social relationship which often spread disease, particularly pandemic such as HIV and AIDS and substance abuse. Hiring off unlicenced employees to operate vehicles and special machinery pose safety risk to themselves, co-workers and public. Additionally, employees are subject to dust and noise pollution as well as other occupational health and safety issues	1. Provide awareness to the employees on dangers of HIV/AIDS, alcohol and drug abuse 2. Provide condoms on site 3. Develop a safety plan 4. Ensure that every employee goes through an induction course about safety to train employees on health and safety. 5. All drivers must be in possession of appropriate driver's licenses	-ve	2	2	4	Site Specific and Local	Project Duration	n/a	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		6. Adequate safety signs must be put at designated places. 7. Provide safe wears such as, overalls, safety boots, safety eyeglasses, Hand gloves and hard hat etc to employees 8. Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m3 for respiratory dust and 15mg/m3 for total dust. 9. Employees must NOT be exposed to									

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		noise levels above the required -85dB (A) limit over a period of 8 hours. 10. Abide by the Occupational Health and Safety and Labour Act of Namibia and other statutory requirement such as International Labour Practise (ILO) 11. Ensure adequate first aid kit on site taking into consideration, insect and snake bites									

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		12. Supervisors must undergo an occupational health and first aid course, 13. Supply clean drinking water to the site, such as portable water tank; 14. Used gendered mobile toilets 15. Provide insect repellent, mosquito nets and if necessary immunization to prevent deadly diseases such as malaria.									
Heritage and Archaeology	Potential unearthing of archaeological material	1. Employee must be trained on the	-ve	2	2	4	Site Speci	Const ructio	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
	or damaging heritage resources	possible find of heritage and archaeological material in the area; 2. Implement a chance find and steps to be taken for heritage and archaeological material finding (Heritage (rock painting and drawings), human remains or artefacts) are unearthed 3. Stopping the activity									

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		immediately i. Informing the operational manager or supervisor ii. Cordoned of the area with a danger tape and manager to take appropriated pictures. iii. Manager/supervisor must report the finding to the following competent authorities, National Heritage									

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
		Council of Namibia (061 244 375) National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).									

Table 12. Bio-Physical Environment: Impacts Assessment

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
Biodiversity: Flora	Destruction of trees	1. Avoid cutting down mature and protected plant species. 2. Ensure that access roads are rehabilitated after use to enhance revegetation	-ve	2	2	4	Site Specific	Construction / Drilling	R	Low	High
Biodiversity: Fauna	Destruction of animal habitats such as bird nests, poaching, stealing of livestock	1. Do not kill animal, unless such animals pose eminent danger to humans 2. There must be ZERO tolerance to poaching to ensure this, no weapon and traps are allowed on site;	-ve	2	2	4	Regional	Construction / Drilling	R	Low	High
Surface and Ground Water Pollution	Heavy vehicle and machinery may pollute water sources from leakages of oils,	1. Fuelling of heavy vehicle on site must be well coordinated at designated places, 2. Stationary vehicles must be provided with drip tray to capture	-ve	2	2	4	Site Specific	Construction / Drilling	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
	hydraulic fluids, lubricants and greases. These pollutants may reach underground water through seepage. Further surface water may be polluted from surface run off soils that is polluted.	oil, lubricants and hydraulic fluids leakages 3. All vehicle and machinery must be well service to avoid leakages 4. Provide and train on oil spill emergency response 5. Servicing of vehicles and machinery must take place at designate places									
Waste Generation	General household pollution and littering such as used oil cans drums, metals,	1. Provide skip bins to collect waste and be disposed of at an approved disposal site 2. Provide labelled household waste drums for household solid waste. 3. Do not burry waste on site	-ve	2	2	4	Site Specific	Life of project	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
	and household solid and liquid waste	4. Excavate a small biodegradable waste site that would be dump filled at the end of the project, alternatively, provide mobile toilets that will be disposed at an approved site and ensure separate ablution facilities for men and women. 5. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site 6. Maintain good housekeeping on site. 7. Do not burry waste on site									
Dust Pollution	Land clearing, digging, excavation of trenches, drilling,	1. Movement of heavy vehicles must strictly be restricted on site.	-ve	2	2	4	Local and Site Specific	Immediate	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
	movement of vehicles and heavy machinery in site, transportation of material to site, will create fugitive dust which could be a nuisance to the surrounding.	2. Adhere to the minimum speed limit of 30 or 40km/hour when on farm roads. 3. On site where soil is loosened by vehicle movement, apply dust a suppression method such as water spraying. 4. During drilling, use water to suppress the dust									
Land degradation and pollution	Uncoordinated movement of heavy vehicles and uncoordinated land clearing could lead to soil erosion. Possible	1. Movement of heavy vehicles must be coordinated and restricted to be on access roads 2. Normally, public gravel roads are meant for light vehicles drilling vehicles have the potential to damage the access roads. Hence proper road maintenance must be	-ve	2	2	4	Site Specific	Life of project	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
	spill and leakages of fuel and lubricants from vehicle and machinery could pollute the soil and eventually the ground water resource.	implemented to ensure that the roads are left on good state 3. Fuelling of heavy vehicles on site must be well coordinated at designated places 4. Servicing of vehicles and machinery must take place at designated sites 5. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluid leakages 6. All vehicles and machinery must be well serviced to avoid leakages 7. Provide and train on oil spill emergency response.									

12.9 Operational Phase:

The main activities during the operational phase of the borehole is water abstraction which, if not well monitored could lead to over abstraction and consequently to deteriorating of water quality and potential impacts on vegetation from deepening of water table. The borehole could also cause social conflict whereby community in the surrounding area could claim ownership of the borehole and may prevent other communities from using the borehole. Table 13 below outlines the potential impacts during the operational phase and proposed mitigation measures.

Table 13. Operational Phase Impact Assessment

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
Reduced Human Wild-Life Conflict	The borehole operation will ensure domestic animals do not drink directly from the river.	1. Animal owners / herders should ensure that animals are made to drink from water points to prevent crocodile attack.	+ve	2	2	4	Site Specific	Life of project	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
Increase in community water supply	Besides reducing HWC, the borehole will also make water readily available for household use by the community	1. Aid in increasing water point in the village 2. Reduced distance travel by people to water points 3. Sustainable supply of water during drought	+ve	2	2	4	Site Specific	Life of project	R	Low	High
Over abstraction of underground water	High and unsustainable water abstraction which could affect ground water quality	1. Do not abstract more than what is recommended by the permit 2. Where possible, install automatic measuring gauge to monitor abstraction 3. Monitor water level periodically 3. Carry out periodic pumping yield to assess aquifer sustainability 4. Undertake systematic water quality assessment	-ve	2	2	4	Local	Life of project	R	Low	High
Risk of water infrastructure	Elephant are notorious known for damaging water	1. Construct an elephant proof fence around the borehole and its supporting infrastructures	-ve	2	2	4	Local	Life of	R	Low	High

Project-Environment Interaction	Description	Mitigation Measures	Impact type	Likelihood occurrence	Severity	Impact Rating	Geographical Extend	Duration	Reversibility (R)	Significance	Confidence Level
destruction buy elephants	points in search for drinking water	2. Build high and thick enough walls that will prevent elephants access to the water tank and solar infrastructures.									
Conflict of water use buy villagers	Claim of ownership of water point / borehole by some community members	1. Raise awareness of the indented purpose of the borehole 2. Ensure no one is made to be entitled to owning or have controlling power on who should use the borehole	-ve	2	2	4	Local	Life of project	R	Low	High
Theft of borehole infrastructures	There are reported cases where boreholes infrastructure such as solar panel are stolen	1. Construct theft proof fence to protect solar panels	-ve	2	2	4	Local	Life of project	R	Low	High

13 GRIEVANCE PROCEDURE

The Grievance Procedures will be a process to facilitate for an easy and smooth process in which stakeholders are able to submit their complaints about the project activities or its consequences i) free of charge ii) without fear of retribution iii) anonymously and iv) user friendly channels.

It is important to emphasise that the Grievance Procedure will not address HWC incidents per se, because those are not caused by the Project. Grievances that are eligible are, for instance, cases where a party is disadvantaged as a result of a Project activity, or as a result of negligence on the part of the Project to follow its procedures thoroughly or fairly. Complainants may be by actual or potential beneficiaries of the Project, or any members of the public.

In generally, the grievances process will follow six (6) Grievance Redress Mechanism (GRM) value chain, namely; i) Receive and log grievance, ii) Acknowledge grievance, iii) Assess and Investigate iv) Grievance Resolution, iiv) Sign-off on grievance and iiiv) Monitor and continuously evaluate the effectiveness of the GRM.

Grievances will be addressed through the channels in the institutional structure presented below, in an efficient, effective and consistent manner.

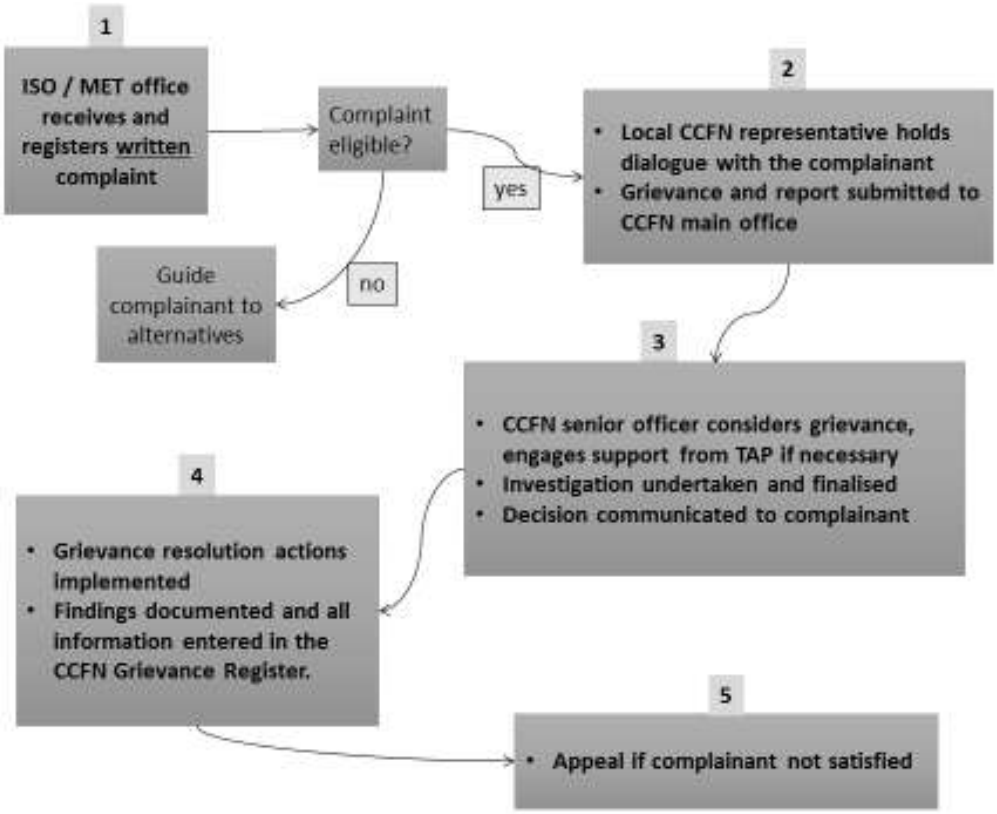

Figure 21. GRM flow chart (Source: ESMF_ Poverty Oriented Support to Community Conservation in Namibia)

The eligibility of the grievance will be assessed at the level where it is first received, at a local MEFT / ISO office (Step 1) and the following actions / steps will be undertaken. The grievance will be discussed with the complainant, with the objective of understanding the problem and giving the complainant a fair hearing (Step 2). The local CCFN representative will submit the grievance, and any notes of their own, to the CCFN head office for higher-level input to the issue (Step 2). The CCFN senior officer will investigate the substance of the grievance (Step 3). If necessary, assistance may be sought from the TAP. Further dialogue with the complainant and others affected by the grievance might also be necessary. The CCFN senior officer will compile a written report on the grievance and communicate the outcome to the complainant.
Any actions necessary to resolve the grievance will be implemented by the relevant parties, under the direction of the CCFN (Step 4). Resolution of the grievance will be documented and entered into the Grievance Register. Under normal conditions, a grievance will be resolved, and redress actions commenced within 30 days of receiving a complaint. A complainant is permitted to appeal against the decision by the CCFN, to the CCFN CEO (Step 5). In such a

case the CEO must present the grievance and the CCFN decision to the Board, for reconsideration.

14 DECOMMISSIONING AND REHABILITATION PLAN

Decommissioning is normally the reverse of construction where all installed equipment / structure must be removed. Supply of water to the community is aimed to be a life-long intervention unless of a pressing issue that would necessitate decommissioning. Aging equipment that requires replacement should be done by qualified Namibians to ensure smooth operation and constant water supply.

15 CONCLUSION AND RECOMMENDATIONS

15.1 Conclusion

With the available information, the following conclusions were made:

1. The area is known to have high yield aquifer.
2. Over-abstraction of water has been not been reported in the area.
3. The area receives the highest rainfall in the country which increases potential of recharge.
4. HWC is critical in the area, and water is the main contributing factor.

15.2 Recommendations

- It is recommended to the approving authority for the issuance of the ECC.
- Ensure intermittent testing of water quality and obtain necessary fitness approval.

16 ANNEX 1. GROUNDWATER MONITORING PLAN

The purpose of the groundwater monitoring plan is to make sure that suitable procedures are in place to monitor and evaluate the response of the aquifer and the surrounding environment to the abstraction process. Furthermore, the plan is aimed to control the impacts of groundwater abstraction and contaminant loads, and monitoring aquifer response and quality. The proposed procedures shall also serve as an early warning system for over-abstraction.

16.1 Groundwater Quality

It is essential that the quality of groundwater abstracted is monitored on a realistically regular basis, to serve as an early warning of quality changes that may occur due to the abstraction; natural causes; or pollution. Undertake intermittent water quality testing.

16.2 Groundwater Level Measurements

The level of groundwater in the aquifer will serve to inform the water quantity vs the rate of abstraction. This will be critical given low to no recharge due to lower rainfall in the area. This provision is provided for in the monitoring sheet for water meter readings provided by the MAWLR to the borehole operator. It is therefore important that hydrological baseline information of water level is recorded to ensure time-variant collection of data. This type of monitoring becomes effective proof of errors when MAWLR also carries out periodic inspections.

17 REFERENCES

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CES & LCE (1994): Feasibility Study for the Development of Water Supply for the Area between Katima Mulilo and Kongola in the Eastern Caprivi. – Prepared for KfW & DWA, Volume 5: Groundwater Investigation; Windhoek.

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Hamutoko J. T. (2013). Estimation of Groundwater Vulnerability to Pollution based on DRASTIC and BTU method in the upper Cuvelai-Etosha basin. Windhoek, Namibia

Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2009. Atlas of Namibia. 3rd ed. Cape Town: Sunbird Publishers.

Tordif E. (2009). Notes on Hydrogeology Training for Ministry of Agriculture, Water and Forestry, Department of Water Affairs and Forestry. Windhoek, Namibia

18 APPENDICES

18.1 Appendix A Consent letter Mahundu Village

13 February 2024

To Whom It May Concern:

Dear Sir | Madam

Subject: Free prior informed Consent for the drilling of Water point in Communal Conservancies of Zambezi Region - Salambala Conservancy: Mahundu Village.

The above Subject bears reference,

I Michael Sibeso, in my Capacity as the Induna for Mahundu Sub-Khuta in Salambala Conservancy fully understand the above mentioned project and its benefit to our community. The proposed project does not interfere with our traditional norms and Culture. We welcome it and encourage adequate consultation during the implementation of project activities.

This letter to serve as a Free Prior Informed Consent for the project

Yours Sincerely.

Michael Sibeso (Induna)
081 2518791
Mahundu Sub-Khuta
Salambala Conservancy

MAHUNDU SUB KUTA
P O. KATIMA MULILO
NAMIBIA

18.1.1 Attendance Register: Mahundu Village

MEFT

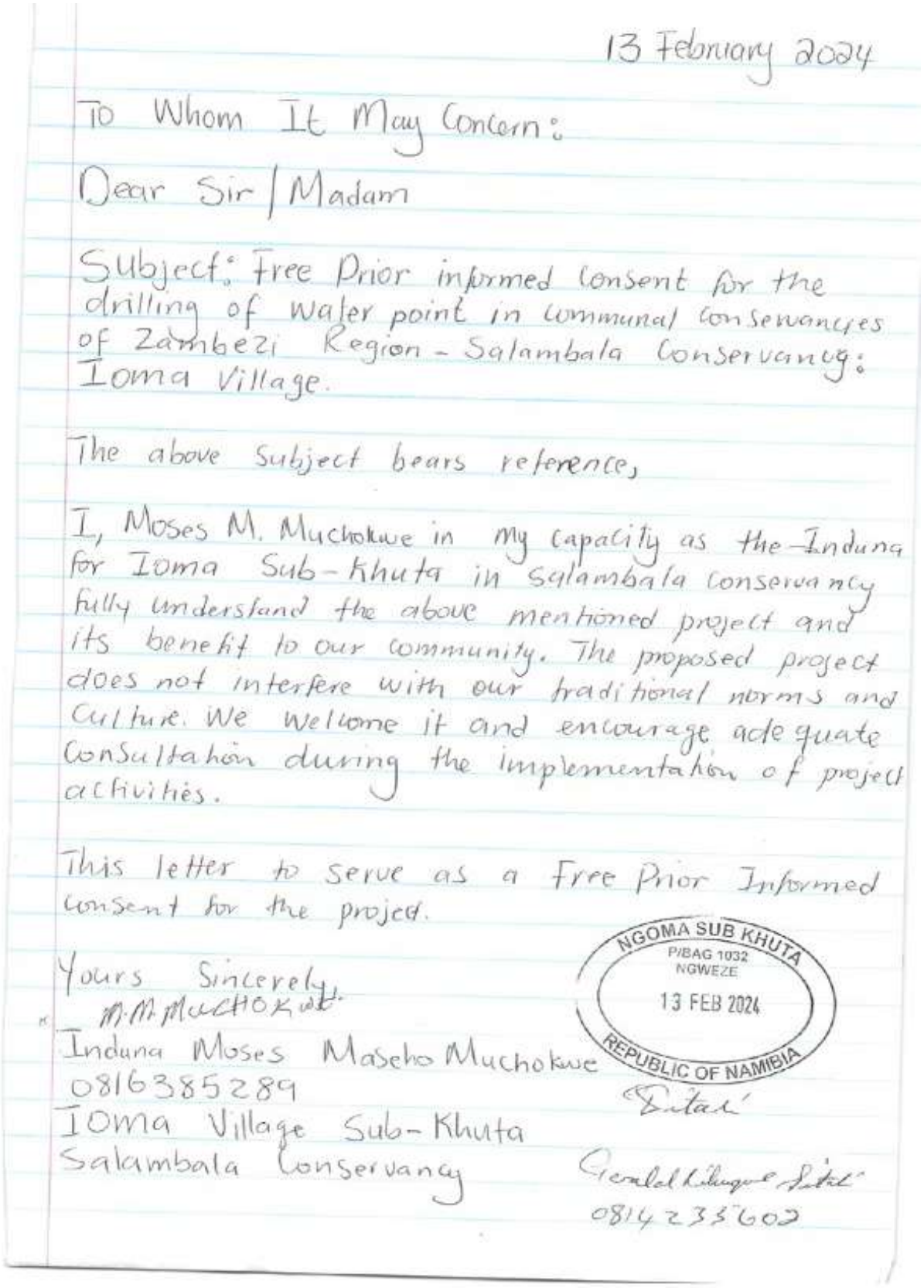
STAKEHOLDER CONSULTATION FOR ENVIRONMENTAL SCOPING STUDY AND DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT PLAN(s) FOR THE DRILLING OF WATER POINT IN COMMUNAL CONSERVANCIES OF ZAMBEZI AND KAVANGO WEST REGION."

Place: Mahundu Primary School (Salambala Conservancy)
Date: 13/02/24
Time: 11:12

No	Name	Gender	Organization	Position	Cell:	Email	Signature
1	Sigrid Nyumba	Female	Red Dunes	Consultant	0816528829	sigridnyamba@gmail.com	[signature]
2	Nangula Amutenya	F	Red Dunes	Consultant	0812024059	nangula.a@gmail.com	NAmutenya
3	[illegible]	M	Red Dune	Contact	0811477889	reddunes28@gmail.com	[signature]
4	Sydney Mwananawa	M	IRDNC	facilitator	0817712659	simulasydney2o@gmail.com	[signature]
5	Thalubengwe JAME	M	Salambala	Field officer	0812920820	Thalubengwe@gmail.com	[signature]
6	Nalisa Victor	M	Mahundu JP	Principal	0814331145	victornalisa@yahoo.com	[signature]
7	Simasiku Beaven	M	Salambala	REP	0813876930		[signature]
8	Muyoba Joy	M	Salambala	TEACHER	0813953337	[illegible]@gmail.com	Muyoba
9	Mabuta C	F	Mahundu		0812499233		cMabuta
10	Matengu J	F	〃				MJN
11	Munyando Doreen	F	〃		0814127724		M.D.
12	Rosemary M	F	〃		0813909130		R.M.

13	Likilami Anna	F	"		0818299085		A L
14	Sabuta Lobu	F	"				[illegible]
15	Nkunyu margie	F	"		0813217266		[illegible]
16	Nkawa Rosemary	F	"		0814369155		[illegible]
17	Mulongwe Sonnety	F	"		08180015		Sm.
18	Mushe ophine	F	"		0813876938		MNO
19	Robert kaziyo	M	"		0815543953		[illegible]
20	Mufalali Simasiku	M	"		0814297166		[illegible]
21	Charles kumupo	M	"				C.K.
22	Nyaka mabuta	M	"				[illegible]
23	kakonga J	M	"		0816243734		J.KK
24	Muyoba Joy	M	"				[illegible]
25	Sankwasa B	M	"				S.B
26	Ngongwe R	M	"				N.R.
27	Libande F	M	"		0818447262		[illegible]
28	Michael Sibeso	M	"	Induna	0812518791		[illegible]

18.2 Appendix B Consent letter: Ioma Village



13 February 2024

To Whom It May Concern:

Dear Sir/Madam

Subject: Free Prior informed consent for the drilling of water point in communal conservancies of Zambezi Region - Salambala Conservancy: Ioma Village.

The above subject bears reference,

I, Moses M. Muchokwe in my capacity as the Induna for Ioma Sub-Khuta in Salambala conservancy fully understand the above mentioned project and its benefit to our community. The proposed project does not interfere with our traditional norms and culture. We welcome it and encourage adequate consultation during the implementation of project activities.

This letter to serve as a Free Prior Informed consent for the project.

NGOMA SUB KHUTA
P/BAG 1032
NGWEZE
13 FEB 2024
REPUBLIC OF NAMIBIA

Yours Sincerely
M.M. Muchokwe

Induna Moses Maseho Muchokwe
0816385289
IOma Village Sub-Khuta
Salambala Conservancy

Gerald Likuyu Sitali
0814235602

18.2.1 Attendance Register Ioma Village

MEFT

STAKEHOLDER CONSULTATION FOR ENVIRONMENTAL SCOPING STUDY AND DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT PLAN(s) FOR THE DRILLING OF WATER POINT IN COMMUNAL CONSERVANCIES OF ZAMBEZI AND KAVANGO WEST REGION."

Place: Ioma Khuta (Salambala Conservancy)

Date: 13 February 2024

Time: 14:30

No	Name	Gender	Organization	Position	Cell	Email	Signature
1	Sigrid Nyambe	F	Red Dunes	Consultant	0816528629	sigridnyambe@gmail.com	[signature]
2	Nangula Amutenya	F	Red Dunes	Consultant	0812024059	nangula.a@gmail.com	[signature]
3	Thalubengwe James	M	Salambala	F.O	0812920825	JThalubengwe@gmail	[signature]
4	Tjeinge Murangu	M	Red Dunes	Consultant	0811477889	reddunes18@gmail.com	[signature]
5	Sydney Mwanawa	M	IRDNC	Facilitator	0817712609	simulasydney@gmail.com	[signature]
6	Mendai memory	F	Ioma	–	0813628071	–	[signature]
7	Linanga B.	F	Ioma	–	–	–	L.B
8	Maba N	F	Ioma	–	–	–	M.A.N
9	Mwale Simasiku	F	Ioma	–	0812367218	–	[signature]
10	Mathe Jennifer	F	Ioma	–	–		m.f
11	Madubeto Josephine	F	Ioma	–	–		m.J
12	Sitengu Emillie	F	Ioma	–	–		S.E

13	Malambo Alice	F	Ioma	-	0814470698	aliamalambo310@gmail	Hmalambo
14	Agnes Mautla	F	Ioma	-	-	-	A.M
15	Annita Jantie	f	Ioma	-	-	-	A.J
16	Agnes Nteema	F	Ioma	—	—	—	A.Nteema
17	Margret Madubela	F	Ioma	—	-	—	M.M
18	Katuwaezi NA	F	Ioma	—	0813174410	—	K.A.N
19	Betty Sizimbo	F	Ioma	—	—		B.S
20	Maureen Madubela	F	Ioma	—	0815989520		MMc.
21	Kaneba White	M	Ioma	—	0817407200	—	[illegible]
22	Malambo B S	M	Ioma	—	0812853774		[illegible]
23	Mawaya P	M	Ioma	—	081		P
24	Katumbani O	M	Ioma	—	081		O
25	NANDU M.	M	Ioma	—	081756700		
26	Sibungo [illegible]	M	Iuuo	—	0812915716		[illegible]
27	Mbanda George	M	Iruvi	-	0815571251		[illegible]
28	Nguluwa Mbecha	M	Ioma	—	0814880227		CNM
29							

30	Mabubako	M	Ioma	-	0817624725	-	[illegible]
31	Sivula	M	Ioma	—	+		[illegible]
32	CYLILOW	M	IOMA	—	0818035647	— —	[illegible]
33	Boyed	M	IOMA	—	0812341064	lifasib53@gmail.com	[illegible]
34	Mawaya	M	Ioma	—	0816140137	—	[illegible]
35	MATE	M	IOMA		—	—	[illegible]
36	Mundai	M	Ioma	—	0817211002	—	[illegible]
37	MATHE L	M	IOMA	—	0818332791	—	[illegible]
38	SANICIE RL	M	IOMA	—	0812336905	—	[illegible]
39	Mazula MB	M	IOMA	-	0817151728	—	[illegible]
40	Libanda	M	Salambala	—	0818147262	—	[illegible]
41	Moses Mcebo Muchokwe	M	Ioma Induna	Induna	081 638 5281	—	M.M. Muchokwe
42							
43							
44							
45							

18.2.2 Consent letter of Ngoma Village

14 February 2024

To Whom It May Concern

Dear Sir / Madam

Subject: Free prior informed consent for the drilling of water point in communal conservancies of Zambezi Region - Salambala Conservancy: Ngoma Village.

The above subject bears reference,

I, George Kawaile Ndopu in My capacity as the Induna for Ngoma Sub-Khuta in Salambala Conservancy fully understand the above mentioned project and its benefit to our community. The proposed project does not interfere with our traditional norms and culture. We welcome it and encourage adequate consultation during the implementation of project activities.

This letter to serve as a Free Prior Informed Consent for the project.

NGOMA SUB KHUTA
P/BAG 1032
NGWEZE
14 FEB 2024
REPUBLIC OF NAMIBIA

Yours Sincerely,

Ndopu

0813460502 / 0813947254

Induna George Kawaile Ndopu
Ngoma Village Sub-Khuta
Salambala Conservancy

Gerald Silungwe Sitali
0814235602

18.2.3 Attendance Register Ngoma Village

MEFT

STAKEHOLDER CONSULTATION FOR ENVIRONMENTAL SCOPING STUDY AND DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT PLAN(s) FOR THE DRILLING OF WATER POINT IN COMMUNAL CONSERVANCIES OF ZAMBEZI AND KAVANGO WEST REGION."

Place: Ngoma Khuta (Salambala Conservancy)
Date: 14 Feb 2024
Time: 10:30

No	Name	Gender	Organization	Position	Cell	Email	Signature
1	George Ndopu	M	N/A	InduNA	0813460502	N/A	G.Ndopu
2	Melvin Nasule	M	N/A.	Chair VDC.	0815493887	N/A	M. Nasule
3	Masule Robert	M	N/A	Ranger	0812734806	N/A	MRS
4	Chika Mabu	M	N/A	VIC CHAIRPERSON WORKER. C	0812787484	N/A	[illegible]
5	Masule Alfred	M	N/A		0813259232	N/A	Masule
6	Lipuo Justin	M	Ngoma Community Police Chairperson	Youth ambassador	0817884776	LipuoJustin@gmail.com	[illegible]
7	Lipuo Khumbi	M	N/A		0812517890	[illegible]	[illegible]
8	Mwananyambe Sonny	M	~~Rep~~ N/A	Rep	0813947254	N/A	[illegible]
9	Bolunou David	M	N/A				[illegible]
10	Muteleo Silumbu	M	N/A	N/A	0814902531	silumbumuteleo@gmail	[illegible]
11	Mwananyambe	M	N/A	N/A	0813249883	N/A	[illegible]
12	Sibanga MM	M	N/A	N/A	0814456137	N/A	SMM

13	Sibange Nitide	M	N/A	0814465125	[illegible]	N/A	S.m
14	Balengu charle	M	N/A	VDC	0814292336	Balenguchavle@gmail.com	[illegible]
15	Mayanga	F	N/A		0813039355	N/A	Hmuga
16	Chelezo	f	N/A			N/A	C.G.r.l.
17	Kuyaka	F	N/A			N/A	[illegible]
18	Seuni Muhabat	M	N/A	~~0817504923~~		N/A	[illegible]
19	Masule Jeoffre	M	N/A	X		N/A	[illegible]
20	Sankandi mwalle	F	N/A	X		N/A	Sankandi M
21	miss Sezuni	f	N/A			N/A	m Sezuni
22	Likando A K.	F	N/A	X	0814252538	N/A	L.A.K.
23	Simasiku m	M	N/A	X		N/A	S.m
24	mafwila susen	F	member	V.D.C	0817525851	N/A	[illegible]
25	Sibonge R.S	M	N/A	—	—	—	R.S [illegible]
26	Mulela M M	M	N/A	—	—	—	[illegible]
27	matengu P.	F	N/A	—	0813491871	—	mP.
28	Lipuo nchabo	F	N/A	—	0814989313	Lipuo.conchabo@gmail.com	L.n.
29							

30	mutende wa m.	F	n/A	—	0813944968	n/A	m.m
31	Julia Kachilobwa	F	n/A	—	0816706233	n/A	J.K.
32	Kaliki Kafuka	F	N/A	—	0814810293	n/A	K.K.
33	Swaniso R.	F	n/A	—	—	n/A	S.R.
34	mundala c.	F	n/A	—	081799408	n/A	m.c.
35	mahundu n.	F	n/A	—	0813333945	n/A	m.n.
36	inonge Simula	F	n/A	—	—	n/A	S.A.
37	tawana J	F	n/A	—	0813341793	n/A	J.
38	masilan m.	F	n/A	—	—	n/A	m.m
39	manyando L.	F	n/A	—	—	n/A	m.L.
40	Ntomwa Kashwe	F	N/A	—	0813534927	N/A	N.K
41	mayanga chaze	F	N/A	—	—	n/A	MC
42	Rosemary Libolamo	F	N/A	—	0814880261	N/A	R.L.
43	Simasiku K	F	N/A	—	0813844538	N/A	S.K
44	mutonga maryum	F	N/A	—	—	N/A	m.M
45	Sankandi Manga	F	N/A	—	0816160071	nicolinsankandi@gmail.com	Sankandi

46	Pariso Maria	F	N/A	N/A	0817158012	N/A	[signature]
47	Kalonda mankole	F	N/A	N/A	0814456010	N/A	K.N.B
48	Lubasi . NDOPU	M	N/A		0813548726	N/A	[signature]
49	[illegible]	M					
50	[illegible]	M.K.	N/A				
51	mulemwa. mabuku	F	N/A		081[illegible]1554	N/A	m.m.Y
52	Aanjula Amutenya	F	Red Dunes	0812024059	Consultant	namutenya@mail.com	[signature]
53	Sigrid Nyambe	F	Red Dunes	0816588229	Consultant	sigridnyambe@gmail.com	[signature]
54	Sitali Silva	M	N A	081273 0011	—	N/A	[signature]
55	JOHN Muilelì	M	N/A	081760597[illegible]	—	N/A	Jm
56	Simasiku Kachana	F	N/A	081646208[illegible]	—	N/A	S.K
57	mulatehi S	M	N/A	0814310313	—	N/A	m.S.
58	Libanda P	M	N/A	0 818447[illegible]	-	N/A	[signature]
59	Gerald Sitali	M	[illegible]	Induna	0814233607	—	[signature]
60							