

**ENVIRONMENTAL IMPACT ASSESSMENT
FOR THE HARVESTING AND MANAGEMENT OF *PROSOPIS* SPECIES AT
THE GIBEON PILOT SITE IN HARDAP REGION**

FINAL SCOPING REPORT

CLIENT:

Ministry of Environment Forestry and Tourism



APRIL 2023



PROJECT INFORMATION

PROPONENT:	Ministry of Environment, Forestry and Tourism (Directorate of Forestry)
PROJECT TITLE:	Harvesting and Management of <i>Prosopis</i> Species at the Gibeon Pilot Site in Hardap Region, Namibia
PROJECT TYPE:	Environmental Impact Assessment Study
PROJECT LOCATION:	Gibeon, Hardap Region, Namibia
COMPETENT AUTHORITY:	Office of the Environmental Commissioner (Ministry of Environment and Tourism)
ENVIRONMENTAL ASSESSMENT PRACTITIONERS (EAPs)	Nevunduko Consulting Services Mr. Olavi Makuti Cell: +264 81 1405033 E-mail: olavi.makuti@gmail.com
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EXECUTIVE SUMMARY

Nevunduko Consulting Services (herein referred to as the consultant) has been appointed by The Ministry of Environment, Forestry and Tourism (herein referred to as the proponent) to act on their behalf in obtaining an Environmental Clearance Certificate (ECC) for the proposed harvesting and management of *Prosopis* species at the Gibeon Pilot Site. The Gibeon Pilot Site is located at Gibeon in the Hardap Region. The site at Gibeon covers an area of 400 ha. This site occurs along the riparian zone of the Fish River and its tributaries.

In terms of the Environmental Management Act No.7 of 2007 and the Environmental Impact Assessment (EIA) Regulations of 2012, the project triggers a listed activity that cannot be undertaken without an Environmental Clearance Certificate (ECC). An environmental clearance application will therefore be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for approval before the commencement of the *Prosopis* harvesting activities.

Project activities at the Gibeon Pilot Site will include the sustainable harvesting of *Prosopis* species and economic utilization of the harvested biomass. The sustainable utilization of the *Prosopis* vegetation is intended to enhance the flow of water in the Orange-Fish Basin where *Prosopis* is known to block water channels.

No impacts with a “*high*” significance rating are expected on this project. The few impacts that were rated “*medium*” before mitigation can be successfully reduced to “*low*” with the implementation of the mitigation measures recommended in the Environmental Management Plan (EMP).

The following potential impacts on the environment with a “*medium*” rating have been identified:

- Increased erosion
- Traffic disturbance
- Disruption of ecosystem services
- Loss of livelihood opportunities
- Health and safety hazards

- Waste generation
- Pollution from herbicides

The proposed project will result in many environmental and socio-economic benefits such as the improvement in aquifer recharge, economic benefits from the sale of *Prosopis* products, restoration of indigenous biodiversity and facilitation of water flow in the Fish River.

Nevunduko Consulting Services believes that a comprehensive assessment of the proposed project has been achieved and that the Environmental Clearance Certificate can be awarded.

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ABBREVIATIONS/ACRONYMS

DAPEES	Directorate of Agricultural Production, Extension and Engineering Services
DoF	Directorate of Forestry
DRFN	Desert Research Foundation of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
GEF	Global Environmental Facility
HIV	Human Immunodeficiency Virus
I&APs	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
NAMCOL	Namibia College of Open Learning
NAMWATER	Namibia Water Corporation
ORASECOM	Orange- Senqu River Commission
PPP	Public Participation Process
PPSC	<i>Prosopis</i> Project Steering Committee
SADC	Southern African Development Community
SAP	Strategic Action Programme
UNDP	United Nations Development Programme
VMP	Vegetation/Forest Management Plan

1. INTRODUCTION

1.1 BACKGROUND

The Ministry of Environment, Forestry and Tourism with financial support from the Orange- Senqu River Commission (ORASECOM) intends to support a project at the Gibeon Pilot Site that will include the sustainable harvesting of *Prosopis* species. Furthermore, the project will also advocate for the economic utilization of the harvested *Prosopis*. The sustainable utilization of the *Prosopis* vegetation is intended to enhance the flow of water in the Orange- Fish Basin where *Prosopis* is known to block water channels.

ORASECOM serve as the technical advisor of the Parties (four member states: Botswana, Kingdom of Lesotho, Namibia and South Africa) on matters relating to the development, utilization and conservation of the water resources of the Orange- Senqu River Basin. As part of its obligations, ORASECOM also from time to time avails resources and technical support to respective Governments to carry out projects aimed at promoting equitable and sustainable development of resources in the basin. This project, therefore, forms part of the support given by ORASECOM to member states.

ORASECOM, with support from United Nations Development Programme (UNDP), secured financial support from the Global Environmental Facility (GEF) to implement selected priority activities of the Strategic Action Programme (SAP). The UNDP-GEF project titled, Support to the Orange-Senqu River Strategic Action Programme (SAP) Implementation, the project will be implemented by UNDP and executed by ORASECOM.

It is against this background that the Proponent (Ministry of Environment, Forestry and Tourism) through ORASECOM has commissioned this EIA project to conform to the Namibia Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice 30 of 6 February 2012) and obtain Environmental Clearance Certificate (ECC) for the proposed project.

1.2 ACTIVITIES REQUIRING ENVIRONMENTAL CLEARANCE

According to the Environmental Management Act (No.7 of 2007) and the Environmental Impact Assessment Regulations the following activities may not be undertaken without an Environmental Clearance Certificate:

Forestry activities - The clearance of forest areas, deforestation, afforestation, timberharvesting or any other related activity that requires authorization in terms of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.

1.3 PROJECT MOTIVATION/RATIONALE

Prosopis is a native plant from South America that can range in size from a one to three-metershrub up to an eight-meter multi-stemmed tree with a spreading canopy. Various studies concluded that a German settler introduced *Prosopis* in Okahandja in 1897 for shade and fodder because of Namibia's aridity (Beisswanger *et al*, 2015).

Prosopis has highly adaptable roots that can utilize both surface and groundwater. Furthermore, *Prosopis* can fix atmospheric nitrogen in their root nodules and this makes themperform well in areas with soils that are not fertile. The plant also secretes allelochemicals that prevent the growth of surrounding plants, enabling it to outcompete indigenous vegetation(Beisswanger *et al*, 2015).

Because of the above-mentioned reasons, *Prosopis* has become the dominant vegetation species along Fish River in the study area and has resulted in the reduction of species diversity. There is therefore a strong need to control the proliferation of *Prosopis* in the Hardap Region and the broader Orange-Fish River basin by harvesting it and replacing it with indigenous vegetation. If it is not managed properly, *Prosopis* can double every five yearsas the population expands at a rate of 18% per annum (Strohbach, *et al*, 2015).

Prosopis can have detrimental effects on the water supply of this already arid part of the country. According to Beisswanger *et al*, 2015, a mature *Prosopis* tree can consume up to fifty litres of water per day. This can significantly affect the underground water resources and downstream flow. Strohbach, *et al*, 2015, further support this by indicating that because of the*Prosopis* encroachment

along the Fish River, about 18% of the water that is supposed to reach the lower part of the Fish River where the new Neckartal Dam is located is lost.

Although *Prosopis* causes ecological damage, it can be commercially utilized as biofuel, firewood, charcoal, timber, and fodder. The residents of affected communities such as Gibeon can harvest *Prosopis* to create new sources of income and alleviate the high unemployment rate experienced in the region. Many countries around the world have successfully implemented the commercial harvesting of *Prosopis*.

Therefore, the most logical choice for the management of *Prosopis* will be the harvesting of trees and the removal of saplings. This effort must be coupled with the revegetation of the area with indigenous vegetation species to reduce the risk of endangering the riverbank through erosion during flash floods and other ecological implications.

The proponent required the Environmental Assessment Practitioner to carry out this study as per the requirements of the *Environmental Management Act No.7 of 2007* and the *Environmental Assessment Regulations* (February 2012).

The EIA process will investigate if there are any potential significant biophysical and socio-economic impacts associated with the intended harvesting and management of *Prosopis* spp. At the Gibeon Pilot Site. Public participation is the cornerstone of the EIA process as this is the stage where Interested and Affected Parties (I&APs) are considered and involved in the decision-making process. The EIA process would therefore provide the I&APs with an opportunity to raise issues of concern and suggestions for enhanced benefits.

As such, the Proponent and Consultant have agreed to undertake the study in the following phases as provided for in Namibia's Environmental Management Act No.7 of 2007 and its Regulations.

1.3.1 PHASE I: PROJECT INITIATION & INTERNAL SCREENING

- Formulation of background information note
- Notification to the Ministry of Environment, Forestry and Tourism

(MEFT) of the proposed project through submission of the EIA application form and online registration

- Undertake site visits to identify environmental issues
- Identify key stakeholders, regulatory authorities and Interested and Affected Parties (IAP)

1.3.2 PHASE II – EIA AND ENVIRONMENTAL MANAGEMENT PLAN

- Notify other regulatory authorities as relevant as well as IAP (advertisement through newspaper, site notices, email etc.)
- Conduct stakeholder consultation meetings with other regulatory authorities and Interest and Affected Parties (IAP)
- Review technical reports produced for the *Prosopis* project
- Assess the potential environmental impacts of the project activities
- Compile the EIA report and EMP
- Circulate the EIA report and EMP to regulatory authorities and IAP for reviewing and comments
- Incorporate input and comments from the regulatory authorities and IAP
- Submit the final report to MEFT for their review and decision making

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONERS (EAPs)

As previously noted, Nevunduko Consulting Services was appointed by ORASECOM, the financiers of the Environmental Impact Assessment (EIA) with the Ministry of Environment, Forestry and Tourism (Directorate of Forestry) as the Project Proponent.

Nevunduko Consulting Services identified five Project Team Members who were principally responsible for conducting the EIA process. The team members and their responsibilities are indicated in the table below:

NAME	ROLE
1. Mr. Gabriel Hatutale	Overall Project Coordination
2. Mr. Olavi Makuti	Lead Environmental Assessment Practitioner
3. Mr. Shivute Nangula	Environmental Impact Assessment
4. Mr. Jericho Mulofwa	Specialist Biodiversity Assessment
5. Ms. Cecilia Ndunge	Environmental Impact Assessment and Stakeholder Engagement

2 DESCRIPTION OF THE PROPOSED PROJECT

2.1 PROJECT LOCATION

The project will be undertaken at the Gibeon pilot site that is located in the Hardap Region of Namibia as shown in the figure below. The site at Gibeon covers an area of 400 ha. This site occurs along the riparian zone of the Fish River and its tributaries (17.4600; -25.0705).

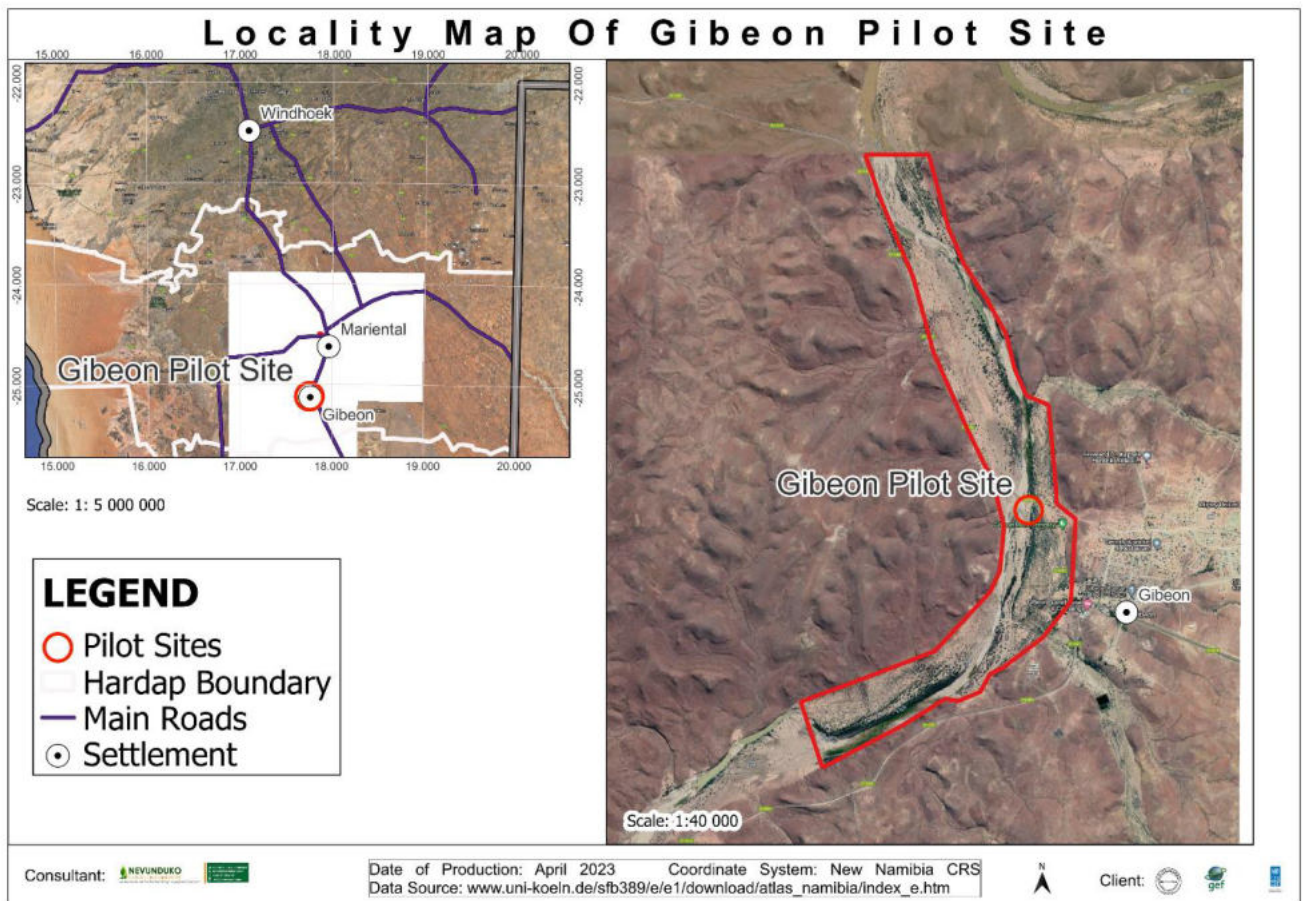


Figure 1: Location of Gibeon Pilot Site.

2.2 PROSOPIS HARVESTING

All *Prosopis* plants, including saplings, in the demarcated compartment will be removed. The pilot areas will be demarcated into compartments (operational land units). It is planned that the site will be demarcated into blocks or compartments of 100m x 100m which will translate to 1 ha per compartment. A 15m wide access road will be established at the site that will be used for the transportation of harvested materials, equipment and personnel. The access roads will serve as fire breaks for incidental fires, especially for the management of the revegetation.

This means the price quotes at the time of implementing this plan will be based on 1 ha harvested and the density (stocking) of the *Prosopis* and sizes of the trees being harvested.

2.2.1 HARVESTING METHODS

Many methods are available throughout the world with practical experiences from neighbouring South Africa. These include Mechanical, Manual combined with hand-operated machines, Chemical applications, Biological and fire. The choice is based on many factors particularly on the objective of harvesting and in most applications the use of more than one of these methods needs to be deployed for effective results.

In the case of the Gibeon Pilot area, the main objective of harvesting is to sustainably manage the *Prosopis* trees while promoting the regrowth and revegetation of indigenous tree species, which have been outcasted by *Prosopis*. To achieve this, the Project will use a combination of Manual with hand-operated machinery reinforced with the use of approved chemicals for killing the stumps.

However, the use of chemicals will be assessed and verified by this EIA process. Stumps are killed by either an approved chemical and saplings/regeneration are removed manually on an annual basis during the winter season, when the cambium tissue is not very much active or growing. The removal of coppices in winter ensures that not much coppicing takes place from the same areas.

2.3 MANAGEMENT OF NATURAL REGENERATION.

The project will use the natural approach method for regenerating the harvested areas. This will

start with ensuring that maximum care is taken to protect the indigenous trees found growing together with *Prosopis* during harvesting.

Secondly, the natural vegetation (wildlings) will be protected in either cluster or individually using spot fencing to ensure that they are not browsed or damaged by stray animals or humans. The protection will also include spot weeding to protect them from fire damage when it occurs.

Thirdly, the harvested areas will be directly seeded with indigenous tree seeds collected by the DoF and other interested parties who may want to sell to the project. The seeds will be treated with the appropriate chemicals to prevent them from being eaten up by rodents. The seeds will also be treated to remove seed dormancy to speed up the germination by the methods available such as boiling, scarifications or acidifications. The project will use both Manual and drones for broadcasting the seeds

2.4 PROJECT IMPLEMENTATION ARRANGEMENTS

The Ministry of Environment, Forestry and Tourism will be the Implementing Agency (IA). The Hardap Regional Council through the CDC will own the project at the Regional level in line with the Decentralization Policy. The Forestry Office at Mariental will implement the project with support from the line Ministries. The Mariental Forestry Office will also supervise and monitor the activities of SMEs doing the harvesting.

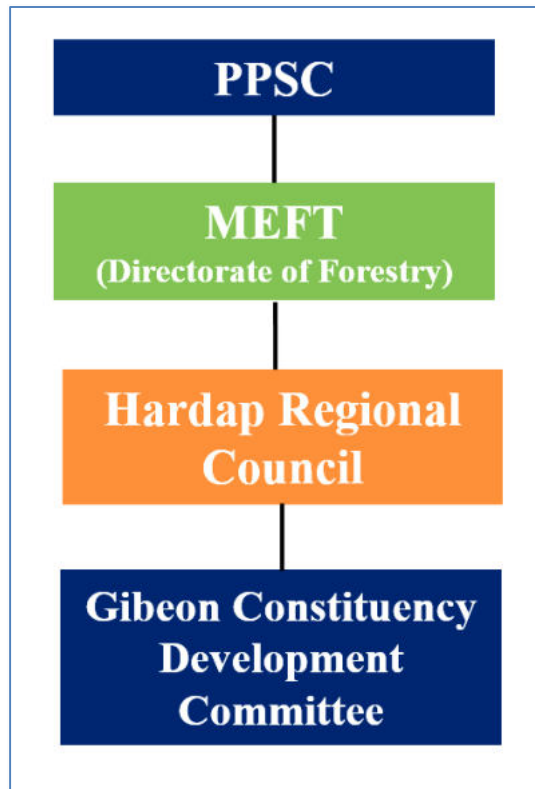


Figure 2: Project implementation organogram

Table 1: Key stakeholders, their roles, and responsibilities

STAKEHOLDER	ROLES AND RESPONSIBILITIES
<i>Prosopis</i> Project Steering Committee	<ul style="list-style-type: none"> Project executing Agency Development of ToR for recruiting SMEs. Development of appropriate <i>Prosopis</i> project Management guidelines Development of project-level monitoring and evaluation tools for the pilot sites. Collaborating with ORASECOM on VMP implementation Lobbying for financial support
Ministry of Environment, Forestry and Tourism	<ul style="list-style-type: none"> <i>Prosopis</i> Project Implementing Agency Ensuring VMP compliance with relevant laws and regulations during the implementation Enhancement of implementation capacity to ensure efficient and effective implementation of the plan. Facilitation of learning between and among key and local stakeholders. Promotion of knowledge management on best practices. Updating the VMP every after five years.
Hardap Regional Council	<ul style="list-style-type: none"> Monitoring of VMP implementation in the pilot site. Reporting and sharing experiences about the project in the HRDCC and Central Government.
MAWLR- Directorate of Land Reform	<ul style="list-style-type: none"> Adjudication and mapping of Land ownership in the pilot area. Training the Hardap Communal Land Board on the impact of <i>Prosopis</i> on Land distribution and management. Mapping of land affected by <i>Prosopis</i> encroachment in the Pilot area.

MAWLR- Directorate of Rural Water Supply and Sanitation	<ul style="list-style-type: none"> Data collection from the monitoring boreholes in the Pilot area. Ecological data on water quality and quantity in the Pilot area. Coordination of water-related activities in the Pilot area.
MAWLR- Engineering, Scientific and Extension Services	<ul style="list-style-type: none"> Advising on farming technologies to farmers in the Pilot area. Monitoring land degradation and soil erosion in the Pilot area. Advising farmers on the use of <i>Prosopis</i> as fodder.
MAWLR- Directorate of Veterinary Services	<ul style="list-style-type: none"> Regulating the movement of Livestock in the Pilot area. Monitoring the livestock numbers and the carrying capacity of grazing land in the Pilot area.
Ministry of Urban and Rural Development	<ul style="list-style-type: none"> Infrastructure development in the Pilot area. Communal Land adjudication by TA through Communal Land Board outside commercial farming areas in the Pilot area.

2.5 ANALYSIS OF PROJECT ALTERNATIVES

2.5.1 NO ACTION

The No Action Alternative concerning the proposed project implies that the status quo is maintained and nothing is done to address the detrimental effects of *Prosopis* in the study area. This means that all the challenges faced in terms of the ecological damage resulting from the proliferation of *Prosopis* will persist. This is an undesirable option for the project proponent, as it will affect the long-term sustainability of the Orange-Fish River basin.

2.5.2 ALTERNATIVE SITES

This option entails relocating the proposed project to a different site along the Fish River. This means that the project proponent has to look for a new site. It is worth noting that ORASECOM has already commissioned a Vegetation/Forest Management Plan for this specific site that will form the basis of this project and project funding has been secured accordingly. Since this project will be implemented on a pilot basis, the process of identifying and securing alternative sites has not been addressed. The identified project site has been selected for a number of reasons such as accessibility by the project beneficiaries. Therefore, relocating the project to a different site might lead to the failure of the initiative. Thus, no alternative site is required.

3 LEGAL REQUIREMENTS

This section provides an analysis of the policies and legislations that are relevant to the proposed harvesting and management of *Prosopis* at the Gibeon pilot site. This section aims to inform the proponent about the requirements to be fulfilled in undertaking the proposed project.

The table below lists the various environmental and developmental policies and legislations that have relevance to the project.

Table 2: Legal framework of the project.

LEGISLATION	PROVISION	REGULATORY AUTHORITY	APPLICATION TO THE PROJECT
The Constitution of the Republic of Namibia	Article 91 (c) and 95 (i) commit the state to actively promote and maintain the environmental welfare of all Namibians by promoting sustainable development	Government of the Republic of Namibia	The project should not pose a threat to the natural and human environment.
Environmental Management Act No.7 of 2007 and EIA Regulations (2012)	Provides a list of listed activities that may not be undertaken without environmental clearance	Ministry of Environment, Forestry and Tourism (Office of the Environmental Commissioner)	An Environmental Clearance will be required before the project Commences.
Water Act 54 of 1956	Control of disposal of sewage, the purification of effluent, the prevention of surface and groundwater pollution, and the sustainable use of water resources.	Ministry of Agriculture, Water and Land Reform (Department of Water Affairs)	Project activities should not pose a threat to water resources.
The Water Resources Act 11 of 2013	Control of disposal of sewage, the purification of effluent, the prevention of surface and groundwater pollution, and the sustainable use of water resources.	Ministry of Agriculture, Water and Land Reform	Project activities should not pose a threat to water resources.
Forestry Act No 12 of 2001	The Act affords protection to certain indigenous plant species.	Ministry of Environment, Forestry and Tourism (Directorate of	The provision of this Act must be observed during the harvesting of <i>Prosopis</i> spp.

		Forestry)	
Nature Conservation Ordinance no. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Ministry of Environment, Forestry and Tourism	Biodiversity at the project site must be protected as per the provisions of this ordinance.
Soil Conservation Act No 76 of 1969	Combating and preventing soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources	Ministry of Agriculture, Water and Land Reform	The proponent should ensure that soil erosion and soil pollution are avoided during the implementation of the project.
Atmospheric Pollution Prevention Ordinance No 45 of 1965	Part II - control of noxious or offensive gases, Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	Ministry of Health and Social Services	Atmospheric pollution should be minimised at all costs.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.	Ministry of Urban and Rural Development	The harvesting of <i>Prosopis</i> within a municipal/local authority area must comply with provisions of the Local Authorities Act.
The Labour Act of 1992	Employees are subject to the terms of the Labour Act. The act also contains the Health and Safety Regulations.	Ministry of Labour, Industrial Relation and Employment Creation.	Given the employment opportunities presented by <i>Prosopis</i> harvesting compliance with the labour law is essential.
Public and Environmental Health Act 1 of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; water and food	Ministry of Health and Social Services	Project activities should not pose a threat to public health.

	supplies; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979)		
National Heritage Act, 2004 (Act N0.27 of 2004)	This Act calls for the protection, conservation and registration of places and objects of heritage significance.	National Heritage Council of Namibia	Should any objects of heritage significance be found on the project site, the provisions of this Act must apply.
Atmospheric Pollution Prevention Ordinance (1976)	This Ordinance generally provides for the prevention of the pollution of the atmosphere. Part IV of this ordinance deals with dust control.	Ministry of Environment, Forestry and Tourism.	Atmospheric pollution should be minimized at all costs.
Plant Quarantine Act No.7 of 2008 & Plant Health Regulations	This Act and its Regulations provide for the preventing, monitoring, controlling and eradication of plant pests; to facilitate the movement of plants, plant products and other regulated articles within and into or out of Namibia.	Ministry of Agriculture, Water and Land Reform	The project must comply with the provisions of this Act and Regulation

4 DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 CLIMATE

The mean annual rainfall in this area ranges between 150 mm and 200 mm. The average maximum temperature is well above 36 °C in summer making the Hardap Region one of the hottest regions in the country. The average minimum temperature is below 2°C in winter. Evapotranspiration for this area ranges between 3,400 and 3,600 mm per annum (Mendelsohn, *et al.* 2002).

4.2 GEOLOGY AND SOILS

The Fish River catchment falls within the Nama Group in southern Namibia. This geological group consists of fluvial red sandstone as well as limestone with beds of lime and shales. The soils of the project site consist of shallow leptosols with very limited water-holding capacity, and can therefore only support limited vegetative growth (Mendelsohn, *et al.* 2002).

4.3 HYDROLOGY

The project site is located in the flood plains of the ephemeral Fish River. The Fish River forms part of the Orange-Fish River Basin. The area also supports important underground water resources.

Gibeon depends on groundwater, which is pumped from boreholes in the rocks of the Nama group within the Orange-Fish River Basin. The aquifer is found within the fractures and cavities of sandstones and limestone. Gibeon is supplied with water by Namwater through two strong boreholes, which each yield 80 m³/hour and is located at Orab, which is more than 50km from Gibeon. The water is pumped to a 1000 m³ concrete reservoir at Gibeon from where it gravitates to the village reticulation (Namwater, 2020).

The Gibeon Local Authority Area has several water fountains which can supply water to the Gibeon Village residents and able to support village development and expansion. Many of these water fountains are protected with concrete casings and are covered on top.

In the Orange-Fish River Basin, seven monitoring boreholes are scattered over an extensive area of about 120 000 km², in order to evaluate the groundwater levels. These boreholes are monitored by staff of the Department of Water Affairs. In areas invaded by alien invasive species i.e., *Prosopis*, such as Gibeon, monitoring groundwater levels is crucial, because alien invasive species use a lot of water.

4.4 BIODIVERSITY

The Orange-Fish River Basin supports various wildlife species such as kudu, springbok, gemsbok, leopard, warthog and steenbok. Common fish species in the Fish River include Largemouth yellow fish, Smallmouth yellow fish, African sharp-tooth catfish, Mudfish, Tilapia and Common carp. Orange River mouth is one of the richest wetlands in southern Africa concerning bird numbers. It is an important feeding area and stopover point for migrating birds.

In terms of flora, the Gibeon site falls within the northern Nama-Karoo biome along the Fish River. Vegetation is dominated by *Parkinsonia africana*, *Rhigozum trichotomum* and a variety of other dwarf shrub species, whilst *Stipagrostis* species dominates grasses (Mendelsohn, *et al.* 2002).

The Orange-Fish River Basin is home to a number of rare and threatened plant species. The biodiversity hotspots of plant endemism fall within the Succulent Karoo biome, a significant proportion of which falls within the /Ai-/Ais-Richtersveld and Sperrgebiet National Parks. The Orange River mouth falls within the Desert biome. It contains several endemic plant species. The environmental water demands at the mouth are met by water flowing from the Fish River and released from the Vanderkloof Dam (in South Africa) (ORASECOM Report, 005/2014)

The table below shows the tree species that were recorded at the Gibeon pilot site during the development of the Vegetation Management Plan.

Table 3: Vegetation species recorded at Gibeon

SCIENTIFIC NAME	COMMON NAME
<i>Vachellia karroo</i>	Sweet thorn
<i>Tamarix usneoides</i>	Wild tamarix
<i>Vachellia erioloba</i>	Camel thorn
<i>Ziziphus mucronata</i>	Buffalo thorn
<i>Euclea pseudebenus</i>	Ebony tree
<i>Lycium bosciifolium, Salsola</i> spp.	Limpopo honey-thorn
<i>Phoenix reclinata</i>	Wild Date palm
<i>Maerua schinzii</i>	Ringwood Bead-bean
<i>Rhygozum trichotomum</i>	Three thorn rigozum
<i>Parkinsonia africana</i>	Green hair tree
<i>Catophractes alexandri</i>	Trumpet thorn
<i>Pechuel loeschea</i>	Stink bush
<i>Phragmites Australia</i>	common reed
<i>Acacia mellifera</i>	Blackthorn
<i>Prosopis</i>	Not Indigenous and is targeted for removal

4.5 CURRENT STATUS OF *PROSOPIS* AT THE SITE

The site has multi-stemmed (mallees) *Prosopis* spp. and brush-packing *Prosopis* seedling recruitment arising from the previous de-bushing work done from 2014 to 2016 by the DRFN.

The riparian ecosystem around the Gibeon area is heavily infested with *Prosopis* which has significantly replaced the natural vegetation in the area. *Prosopis* is mostly confined to the riparian habitat along the Fish River at Gibeon where the highest density of *Prosopis* was recorded (Strohbach, *et al*, 2015).

Strohbach, *et al*, 2015, further observed that the ecological impacts of *Prosopis* on indigenous vegetation are very evident at Gibeon as various stunted or dead remains of trees such as *Acacia karroo* were found during their study. Even the indigenous tree species that are hardy and known

to have deep root systems such as *Acacia erioloba* are severely affected by the competition with *Prosopis* plants.

The impacts of *Prosopis* on indigenous vegetation at Gibeon are further exacerbated by the fact that *Prosopis* is allelopathic and can thus prevent seedlings of other species to establish. The only indigenous species that seems to be doing well under these circumstances is *Tamarix usneoides* (Strohbach, *et al*, 2015).



Picture 1: Matured *Prosopis* specimen at Gibeon

4.6 SOCIO-ECONOMIC SETTING

The Hardap Region covers an area of 109, 659 km² making it the third largest region in Namibia, with a low population density of 0.6 persons per square kilometre. The region has a population of about 84, 248 people (41,058 females and 43,190 males). The region is divided into six political constituencies, namely: Rehoboth Urban West; Rehoboth Urban East; Rehoboth Rural; Mariental Urban; Mariental Rural and Gibeon (Hardap Regional Council, 2018). The current land use is

dominated by small-stock farming (goats and sheep) as the area is more suitable for small-stock farming. Small-scale irrigated cropping with maize and some vegetables is also practiced (Mendelsohn *et al.*, 2002).

Based on the statistics from the Directorate of Veterinary Services (DVS), the Hardap Region has livestock populations as shown in the table below.

Table 3: Livestock populations in the Hardap Region, 2022

Animal Type	Animal Active
Cattle	291,725
Sheep	3,062,520
Goat	1,435,573
Sheep	6,602
Goat	21,345

The Namibia Statistical Agency in its 2022 report on the Census of Business Establishments in the Hardap Region indicates that Gibeon had 63 operational business establishments, which accounts for 4.6% of the total operational business establishments in the region. This could reflect the high unemployment rate in the constituency and the harvesting of *Prosopis* may increase job opportunities for the youth.

Gibeon is located in the Gibeon Constituency of the Hardap Region and is administered by the Gibeon Village Council. There are 700 ervens in Gibeon accommodating 560 households and a population of about 2,720 people (Namwater, 2020).

Gibeon is supplied with water by Namwater through two strong boreholes, which each yield 80 m³/hour and is located at Orab, which is more than 50 km from Gibeon. The water is pumped to a 1000 m³ concrete reservoir at Gibeon from where it gravitates to the village reticulation (Namwater, 2020).

The poverty levels in the Hardap Region are between 2.3 to 11.4 percent severely poor and 8.9 to

15.3 percent poor, which is the second lowest category of poverty incidence in the country (First Capital, 2018).

HIV prevalence in the Hardap Region is about 5-6%. This is one of the lowest prevalence rates in the country (PEPFAR, 2020).



Picture 2: Gibeon community

4.7 ARCHAEOLOGY

Gibeon is a historical place with various places and monuments of historical significance such as the one in the picture below. Care will be taken during the *Prosopis* harvesting not to disturb any historical site.

Should there be any further discovery of any archaeological artifacts or sites during the course of the project implementation, the National Heritage Council of Namibia should be informed immediately and all harvesting and revegetation activities must be halted. The National Heritage Council will assess the discovery and based on the findings of their assessment they will advise on

the way forward.



Picture 3: Historical fountain at Gibeon

5 PUBLIC PARTICIPATION PROCESS

5.1 OBJECTIVES OF PUBLIC CONSULTATION

The Public Participation Process is undertaken in response to the requirements of Regulation/Part 21 of the Environmental Management Act. Regulation 21 requires that a person who undertakes public participation as part of an environmental impact assessment process to obtain an ECC must do the public participation process.

Public participation is the cornerstone of the EIA process as this is the stage where Interested and Affected Parties are considered and involved in the decision-making process. Its key objective is to assist stakeholders to raise issues of concern and suggestions for enhanced benefits and to comment on the findings of the EIA.

5.2 PUBLIC PARTICIPATION DURING THE SCOPING PHASE

Nevunduko Consulting Services identified specific Interested and Affected Parties (I&APs, who were considered, interested in and/or affected by the proposed harvesting of *Prosopis* in the study area. The I&APs identified include applicable organs of the state and other interested members of the public. The other I&APs were also invited to register as such through the public notices discussed below.

Information to I&APs regarding the proposed project was disseminated through the following means:

5.2.1 Newspaper Notices

Newspaper notices were placed in the *Namibian Sun*, *Republikein* and *Allgemeine Zeitung* dated 19th and 27th of January 2023. The notices were placed once a week for two consecutive weeks as required by the EIA Regulations. The newspaper notices are attached as **Appendix E**. The newspaper notices stated that an application for an Environmental Clearance is to be submitted to the Environmental Commissioner, provided information on the nature of the activity and location, invited I&AP to register as such and provided contact details, details about the meeting and where

further information on the application or activity can be obtained.

5.2.2 Background Information Document (BID)

A BID was prepared for the proposed project (**Appendix D**). The BID was intended to provide information about the EIA being undertaken for the proposed project and provided: an overview of the project; a description of how the EIA was undertaken, an indication of how Interested and Affected Parties (I&AP) may become involved in the EIA process; and provided contact details of the person to whom I&APs may submit their comments.

The BID was circulated to all registered and identified I&AP. Proof of communication to stakeholders is attached as **Appendix F**.

5.2.3 Public Meeting

A public meeting took place on 27 January 2023 at the Gibeon Village Council Hall. The public meeting generally agreed that the proposed project is required to address environmental impacts associated with the *Prosopis* alien invasive plants and at the same time create socio-economic opportunities for the residents of Gibeon. However, the meeting participants also raised issues that might hamper the success of the project. The minutes of the public meeting are attached as **Appendix G**. The main concerns expressed by the stakeholders during the public meetings are summarized below:

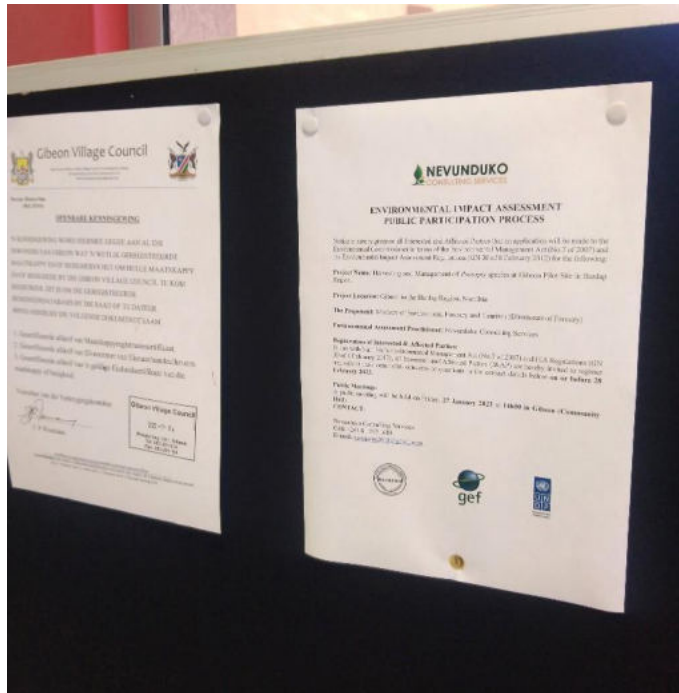
- They expressed the need for the development of awareness materials for the project such as posters.
- They wanted to know what happened to previous attempts to clear *Prosopis* at Gibeon.
- They believe that *Prosopis* plays a major role in providing fodder during drought. What alternatives will be available to the farmers if *Prosopis* is removed?
- They requested a series of stakeholder sensitization workshops before the project commence.
- They requested that no Chinese nationals should be allowed to participate in the project as they abuse Namibian workers.



Picture 4: Interested and Affected Parties attending public meeting at Gibeon

5.2.4 Fixed Notices

Notices containing information about the project were placed on the notice board at the Gibeon Village Council offices, shops, schools and other places frequented by members of the community.



Picture 5: Project Notice at the Gibeon Village Council Office Noticeboard

6 ENVIRONMENTAL IMPACT ASSESSMENT

6.1 METHOD OF ASSESSMENT

The significance of the identified impacts of the proposed harvesting and management of *Prosopis* at the Gibeon pilot site was assessed using the criteria discussed in table 4 below.

Table 4: Criteria used to determine the significance of impacts and their definitions.

CRITERIA	DESCRIPTION
NATURE	This criterion indicates whether the proposed activity has a positive or negative impact on the environment (environment comprises both socio-economic and biophysical aspects).
EXTENT	This criterion measures whether the impact will be site-specific; local (limited to within 15 km of the area); regional (limited to about 100 km radius); national (limited to within the borders of Namibia) or international (beyond Namibia's borders).
DURATION	This criterion looks at the lifetime of the impact, as being short (days, less than a month), medium (months, less than a year), long (years, less than 10 years), or permanent (more than 10 years).
INTENSITY	This criterion is used to determine whether the magnitude of the impact is destructive and whether it exceeds set standards, and is described as none (no impact); low (where the environmental functions are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease).
PROBABILITY	Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (a distinct possibility), highly probable (most likely) or definite (impact will happen regardless of prevention measures).
DEGREE OF CONFIDENCE IN PREDICTION	This is based on the availability of information and knowledge used to assess the impacts.

The significance of the potential impacts identified for this project is determined using a combination of the criteria discussed in the above table. The significance rating of impacts is described in the table below.

Table 5: Definition of the various significance ratings

SIGNIFICANCE RATING	CRITERIA
Low	Where the impact will have a negligible influence on the environment and no mitigations are required.
Medium	Where the impact could have an influence on the environment, which require some modifications on the proposed project design and/or alternative mitigation.
High	Where the impact could have a significant influence on the environment and, in the case of a negative impact, the activity causing it, should not be permitted.

6.2 POTENTIAL IMPACTS IDENTIFIED AND ASSESSED

6.2.1 NEGATIVE IMPACTS

6.2.1.1 Increased erosion

The complete eradication of *Prosopis* in areas where it is the dominant species might facilitate water and wind erosion as the indigenous vegetation will take some years to regenerate before it can play the role of stabilizing the riverbanks. This will result in unstable riverbanks and subsequent flooding. Even if *Prosopis* is not removed, it will still cause flooding as it blocks the river course and water spills from the riverbanks.

Table 6: Assessment of impacts associated with erosion.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

Any indigenous vegetation found under the canopy of *Prosopis* should not be disturbed to promote natural regeneration and in turn, promote soil conservation.

6.2.1.2 Traffic disturbance

The movement of vehicles to take harvesters to the site and collect the harvested biomass might cause disturbance to the environment.

Table 7: Assessment of impacts associated with traffic.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

Traffic must be confined to designated two-track roads. All the drivers observe a speed limit of not more than 40 km/h to avoid the generation of dust and disturbance of the substrate.

6.2.1.3 Disruption of ecosystem services

Natural regeneration may not provide the necessary ecosystem functions in the short term that *Prosopis* was providing. Ecosystem services offered by *Prosopis* includes:

- microclimate regulation
- improvement of soil fertility

- Habitat and food to various species
- income and livelihood diversification
- less costly feed ingredient for livestock

Table 8: Assessment of impacts associated with ecosystem services.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

Develop a program of *Prosopis* removal that ensures that the ecological services provided by *Prosopis* now are not completely disrupted. This pilot project will provide an opportunity to test whether it is feasible to partially eradicate *Prosopis* followed by aggressive revegetation with indigenous vegetation.

6.2.1.4 Loss of livelihood opportunities

Livelihood opportunities such as the collection of *Prosopis* pods for animal fodder and sale might be lost if *Prosopis* is completely eradicated. Therefore, strategies should be devised to diversify livelihoods and reduce dependency on *Prosopis*.

Table 9: Assessment of impacts associated with livelihood opportunities.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

Ensure that the residents of the project area that are dependent on *Prosopis* for their livelihoods are assisted to adopt alternative sources. The alternatives will include the harvesting of *Prosopis* to create new income sources by marketing and selling the plant as firewood and for other uses.

6.2.1.5 Reduced carbon sequestration capacity

Prosopis invasion can contribute to the capturing of CO₂ from the atmosphere, which is important for climate change mitigation and will assist Namibia to meet its climate change targets. It further can promote future alternative income generation through carbon trading schemes. Although it might take some time, indigenous vegetation can provide similar benefits on a sustainable basis if it is allowed to reclaim the areas currently invested by *Prosopis*.

Table 10: Assessment of impacts associated with carbon sequestration capacity.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Regional	Medium	Low	Probable	Medium	Low	Low

Mitigation:

The impact assessment process concluded that the sustainable harvesting of *Prosopis* would not negatively affect Namibia's efforts to combat climate change. The sustainable management of *Prosopis* and other alien invasive species will help to improve Namibia's adaptive capacity to climate change.

6.2.1.6 Safety and health hazards

Occupational health hazards are expected particularly in relation to the workers who will be harvesting the *Prosopis*. Workers will be exposed to dust, sun exposure, injuries from handling thorny *Prosopis* branches, attack by wild animals (e.g. snakebites) and dehydration during summer months.

Table 11: Assessment of impacts associated with health and safety.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

The workers that will be involved in the harvesting of *Prosopis* must be equipped with appropriate Personal Protective Equipment and they must be trained on potential occupational health and safety risks and how to mitigate them. Ensure that there is a safety representative who is equipped with a first aid kit at the harvesting site.

6.2.1.7 HIV/AIDS

Projects that bring many people together such as the proposed harvesting of *Prosopis*, create an environment where workers have the opportunity to interact with the local community, a significant risk is created for the development of social conditions and behaviours that contribute to the spread of HIV/AIDS.

Since HIV/AIDS is an issue of public health concern in Namibia, this project needs to raise awareness and educate workers that will be involved in the harvesting of *Prosopis* about HIV/AIDS to minimize the risk of exposure to or transmission of HIV/AIDS and to provide support in the workplace to those who are already infected or affected by this disease.

Mitigation:

- Hold HIV/AIDS Awareness sessions as part of the scheduled site meetings.
- Ensure that the workers have access to condoms and other forms of protection.
- Promote correct and persistent use of male and female condoms.
- Provide care and support for the infected and affected.

6.2.1.8 Waste generation

Various waste will be generated during the harvesting of *Prosopis*. This will include litter from the harvesters (mainly paper and plastics) and biomass that cannot be utilized for economic purposes (branches pruned from harvested stems). All these types of waste will have a negative impact on surrounding areas if not disposed of properly and regularly.

Table 12: Assessment of impacts associated with waste generation.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

The harvesters must be equipped with refuse bags where they will put all their litter.

The litterbags must be removed from the site and disposed of at an appropriate disposal site at the end of each working day.

Biomass waste must be gathered and shredded as animal fodder or allowed to dry away from the river course.

6.2.1.9 Pollution from herbicides

The use of unapproved herbicides can cause harm to the ecosystem and might pollute the valuable water resources of the Fish River. The project should therefore ensure that only approved herbicides are used in the eradication of *Prosopis*.

Table 13: Assessment of impacts associated with pollution from herbicides.

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation:

Only registered herbicides should be applied to the stumps immediately after harvesting, to prevent further regeneration of the vegetation. The PSC must ensure that all the herbicides procured for this project are approved for use in Namibia.

The following herbicides are recommended by the working for Water Programme for clearing the *Prosopis*

- Turbodor 29 mpa
- Astra 360 SL
- Confront *360 SL
- Gallon 480 EC

6.3 POSITIVE IMPACTS

6.3.1 Improved aquifer recharge

Prosopis has highly adaptable roots that can utilize both surface and groundwater. According to Beisswanger *et al*, 2015, a mature *Prosopis* tree can consume up to fifty litres of water per day. This can significantly affect the underground water resources and downstream flow. If it is not managed properly, *Prosopis* will contribute to the depletion of the aquifer in the areas because *Prosopis* can double every five years as the population expands at a rate of 18% per annum (Strohbach, *et al*, 2015). The removal of *Prosopis* is therefore critical for the long-term sustainability of the underground water resources in the area.

6.3.2 Economic benefits

The removal of *Prosopis* does not only help to restore local ecosystems it can also help the local communities achieve sustainable livelihoods by using the harvested biomass for economic gain. The economic potential of *Prosopis* biomass is good as it can be utilized commercially as biofuel, firewood, charcoal, timber, and fodder.

6.3.3 Restoration of indigenous biodiversity

The proliferation of *Prosopis* along the Fish River for many years has resulted in the displacement

of species-rich indigenous plant communities by a single species and the disruption of important ecosystem processes. This initiative will therefore help with the reduction of the *Prosopis* infestation and help to restore indigenous plant communities and associated fauna.

6.3.4 Improve aesthetic value

Invasive plant such as *Prosopis* affects the aesthetic quality of an area. Therefore, the removal of *Prosopis* and regeneration of indigenous vegetation will gradually improve the aesthetic value of the area over time.

6.3.5 Facilitation of water flow

Prosopis is known to block water flow in the Fish River. The removal of *Prosopis* will facilitate water flow in the river. Because of blockages by *Prosopis*, about 18% of the water is prevented from reaching the lower parts of the Fish River (*Prosopis*, Strohbach, *et al.*, 2015). The removal of *Prosopis* through this initiative will therefore provide basin-wide benefits and will contribute to the well-being of the whole system.

6.3.6 Job opportunities for locals

This project will provide some job opportunities to the locals who will be recruited to harvest the *Prosopis*. The opportunities will be available to everyone, as no skills are required to undertake this task. The recruitment of local people for temporary job opportunities should be prioritized to further enhance the positive impact of the project.

7 CONCLUSIONS AND RECOMMENDATIONS

It can be confidently concluded from this study that when it comes to the sustainable management of *Prosopis* there is no one-fit-all solution. A concerted effort from various stakeholders will be required to address this mammoth challenge. Furthermore, it is also worth noting that large-scale success will only be achieved if programs to sustainably manage *Prosopis* cover the whole basin.

This pilot project offers a great opportunity to perfect the approaches to tackling *Prosopis* along Fish-Orange River Basin. Sustainable management of *Prosopis* needs to be a long-term endeavour at a

basin level and it must be monitored permanently. A national program to eradicate *Prosopis* based on the various water basins should be initiated. This program should adopt some of the lessons learned from this pilot project.

The lack of follow-up programs is one of the major challenges faced by the various efforts to eradicate *Prosopis* in Namibia. Many studies reviewed during the scoping process indicated that once the initial removal of *Prosopis* is not followed up in the next season, the re-infestation is almost guaranteed. This is largely because *Prosopis* re-grow from stumps and massive numbers of seeds stored in the ground.

Most of the environmental impacts identified for this project have the potential to occur during the project implementation phase.

Given the relatively limited scale of the project (only covers a small part of the Fish River); the impacts are unlikely to be of significance. The key will be limiting the potential effects of completely removing *Prosopis* in areas where it is the dominant vegetation species that provides all the ecological services.

Nevunduko Consulting Services believes that a comprehensive assessment of the proposed project has been achieved and that the Environmental Clearance Certificate can be awarded.

8 REFERENCES

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9 APPENDICES

9.1 APPENDIX A: CVs OF ENVIRONMENTAL ASSESSMENT PRACTITIONERS

9.2 APPENDIX B: INTERESTED AND AFFECTED PARTIES REGISTER

Register of Interested and Affected Parties

Environmental Impact Assessment for the Harvesting and Management of *Prosopis* Species at the GibeonPilot Site in Hardap Region, Namibia

Name & Surname	Organization	Position	Telephone	E-mail
Mr. Pederius Tjihoreko	Gibeon Village Council	CEO	0818939640	ptjihoreko@gmail.com
Ms. S. Luipert	Hardap Regional Council	Regional Director of Planning	08172304454	simagoeieman@gmail.com
Ms. SN Sinvula	Directorate of Forestry	Directorate of Forestry	0812112111	sitwalanawa@yahoo.com
Mr R. Ngozu	DAPEES	DAPEES	0811477757	rngozu@yahoo.co.uk
PJ Esterhuizen	Hardap Regional Council	Hardap Regional Council	0813322631	theresiaessie@gmail.com
GDF Dauseib	Hardap Regional Council	Hardap Regional Council	0814499869	francoirdausab@gmail.com
Salaria Muheua	Directorate of Land Reform	Directorate of Land Reform	0812871775	salaria.muheua@mlr.gov.na
Christina Gertze	Resident	Resident	0818066804	N/A
Franciskus Gertze	Resident	Resident	0818066804	N/A
Raysed Booynes	Resident	Resident	0818066804	N/A
John Kooper	Resident	Resident	0813360657	N/A
Chris Grobler	Gemsbok Winkel	Gemsbok Winkel	0813289706	N/A

9.3 APPENDIX C: BACKGROUND INFORMATION DOCUMENT

EIA PROCESS

The harvesting of forestry products such as the proposed harvesting of *Prosopis* species is a listed activity as stated in Government Notice No.29, List of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007; Government Gazette No. 4878. The proposed project must therefore be subjected to an Environmental Impact Assessment to obtain an Environmental Clearance before the development commences.

The EIA will be carried out in the following phases as provided for in Namibia's Environmental Management Act No.7 of 2007 and its Regulations.

PHASE I: PROJECT INITIATION & INTERNAL SCREENING

- Formulation of background information note
- Notification to the Ministry of Environment, Forestry and Tourism (MEFT) of the proposed project through submission of the EIA application form and online registration
- Undertake site visits to identify environmental issues
- Identify key stakeholders, regulatory authorities and Interested and Affected Parties (IAP)

PHASE II – EIA AND ENVIRONMENTAL MANAGEMENT PLAN

- Notify other regulatory authorities as relevant as well as IAP (advertisement through newspapers, site notices, email etc)
- Conduct stakeholder consultation meetings with other regulatory authorities and Interested and Affected Parties (IAP)
- Review technical reports produced for the *Prosopis* project
- Assess the potential environmental impacts of the project activities
- Compile the EIA report and EMP
- Circulate the EIA report and EMP to regulatory authorities and IAP for reviewing and comments
- Incorporate input and comments from the regulatory authorities and IAP
 - Submit the final report to MEFT for their review and decision making

PUBLIC PARTICIPATION PROCESS

Your role as a stakeholder

The EIA process gives you an opportunity to:

- Review background information on the proposed project and provide comments;
- Find out more about the proposed project and the EIA process;
- Raise your issues and comments regarding the proposed project;
- Provide the Environmental Assessment Practitioner with additional information to be considered in the decision-making process;
- Review and comment on the reports to be produced during the EIA process; and
- Appeal the Environmental Clearance that may be issued if you have serious objections.

How can you be involved?

- By responding to the invitation for you to register as an Interested and Affected Party(I&AP);
- By mailing your comments to the EIA contact person (Contact details provided below);
- By contacting the EIA contact person telephonically; and
- By reviewing the draft reports and providing comments.

Whom should you contact to register as an Interested &Affected Party?

Please complete the attached registration and comments form and send it to EIA consultants.

ENVIRONMENTAL IMPACT ASSESSMENT

FOR THE HARVESTING AND MANAGEMENT OF *PROSOPIS* SPECIES AT GIBEON
PILOT SITE IN HARDAP REGION

REGISTRATION AND COMMENTS FORM

I request to be registered as an Interested and Affected Party for the proposed project. Please provide me with all relevant information regarding the project throughout the EIA process and invite me to all meetings. My particulars are as follows:

Name:

Telephone:

Organization:

Designation:

E-mail:

My interest in this project:

Comments and matters of concern:

Signature:

Date:

Please return this completed form to:

Nevunduko Consulting Services

Cell: +264 81 762 1688

E-mail: samasore2018@gmail.com

The form should reach the consultants on or before 30 March 2023.

9.4 APPENDIX D: PRESS NOTICES

THURSDAY 26 JANUARY 2023
Market Watch
Republiek Sun Allgemeine Zeitung

035 Regskennigings
Legal Notices



PUBLIC NOTICE FOR APPLICATION OF NEW ENVIRONMENTAL CLEARANCE CERTIFICATE – Exploration activities for Base & Rare metals, Industrial Minerals, Dimensions stones and Precious Metals on Exclusive Prospecting License (EPL) EPL 8786, Gobabis

District, Omaheke Region – Namibia

In accordance with the Environmental Management Act, 2007, (Act No. 7 of 2007) & the EIA Regulations 30 of 2012 mineral prospecting activities are a listed activity which may not be undertaken without a valid Environmental Clearance Certificate (ECC) issued by the Department of Environmental Affairs & Forestry (DEAF).

OMAVI Geotechnical & Environmental Services has been appointed to undertake an Environmental & Social Impact Assessment (ESIA) and prepare an Environmental Management Plan (EMP) to support the application for ECC.

Proponent: Olivia Iiveleni Shuuluka

Site Locality: EPL 8786 is located approx. 42km NW of Gobabis and about 18km N of Witvlei. A locality map is available on request from OMAVI.

Farms covered by the EPL include Paack Orunental 1031, Spanndau 149, Herzwökle 148, Max 145, Deville 146, Ongava Onusa 147, Okasandru 158, Gottesgabe 159, Sudan 69, Nudom 161, Wonderboom 301, Lee Enfield 303, Daheim 1032

In terms of the requirements of the EIA Regulations, all Interested & affected Parties (I&APs) must be provided with opportunities to participate in the ESIA process. I&APs are therefore, hereby invited to register & submit written comments/ concerns/ suggestions by close of business on **20 February 2023**. A Background Information Document is available to I&APs upon registration. Further communications regarding the ESIA process for this project will only be made with registered I&APs.

Tel: +264 81 478 6303
(SMSes or WhatsApp Texts preferred for record keeping purpose)

Email: info@omavi.com.na

LOSING CONTROL?



ENVIRONMENTAL IMPACT ASSESSMENT PUBLIC PARTICIPATION PROCESS

Notice is hereby given to all Interested and Affected Parties that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No.7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

Project Name: Harvesting and Management of the Invasive Alien Species; Prosopis including Revegetation at Gibeon Pilot Site in the Orange-Fish River Basin.

Project Location: Gibeon in the Hardap Region, Namibia

The Proponent: Ministry of Environment, Forestry and Tourism (Directorate of Forestry)

Environmental Assessment Practitioner: Nevunduko Consulting Services

Registration of Interested & Affected Parties: In line with Namibia's Environmental Management Act (No.7 of 2007) and EIA Regulations (GN 30 of 6 February 2012), all Interested and Affected Parties (I&AP) are hereby invited to register and submit their comments, concerns or questions to the contact details below on or before 28 February 2023.

Public Meeting: A public meeting will be held on Friday, 27 January 2023 at 14h00 in Gibeon (Gibeon Village Council Hall).

CONTACT:
Nevunduko Consulting Services
Cell: +264 811405033
E-mail: samasore2018@gmail.com





ENVIRONMENTAL IMPACT ASSESSMENT PUBLIC PARTICIPATION PROCESS

Notice is hereby given to all Interested and Affected Parties that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No.7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

Project Name: Harvesting and Management of Invasive Alien Species; Prosopis including Revegetation at Mariental Pilot Site in the Orange-Fish River Basin.

Project Location: Mariental in the Hardap Region, Namibia

The Proponent: Ministry of Environment, Forestry and Tourism (Directorate of Forestry)

Environmental Assessment Practitioner: Nevunduko Consulting Services

Registration of Interested & Affected Parties: In line with Namibia's Environmental Management Act (No.7 of 2007) and EIA Regulations (GN 30 of 6 February 2012), all Interested and Affected Parties (I&AP) are hereby invited to register and submit their comments, concerns or questions to the contact details below on or before 28 February 2023.

Public Meeting: A public meeting will be held on Saturday, 28 January 2023, 14h00 in Mariental (Tahli Guesthouse and Restaurant).

CONTACT:
Nevunduko Consulting Services
Cell: +264 811405033
E-mail: samasore2018@gmail.com





TENDER ENQUIRY NO. E008-ND-2023
INVITATION TO TENDER FOR THE PROVISION OF TRAINING SERVICES

- OVERVIEW**
Namdeb Diamond Corporation (Pty) Ltd (Namdeb) is a wholly owned subsidiary of Namdeb Holdings (Pty) Ltd, and performs land-based prospecting (exploration), mining and rehabilitation operations.
- SPECIFICATION OF THE SERVICES**
Namdeb hereby invites reputable and qualified service providers to submit tenders for the **Provision of Compliance Training Services** to Namdeb employees.

The Scope of the Services shall without limitation include the **Provision of Compliance Training** in the following categories:
- **Safe Practices**
- **Lifting Machines**
- **Surface Mobile Equipment**
- TENDER ENQUIRY DOCUMENT**
Interested parties may contact the following person to obtain a copy of the tender enquiry document:
Contact: Ms Renee Strauss
Email: renee.strauss@namdeb.com
Tel: +264 (63) 238502
- COMPULSORY SITE INSPECTION**
A compulsory virtual clarification meeting (as further detailed in the tender enquiry) shall be conducted on **Friday, 10th February 2023**.

Only Tenderers that attended the compulsory virtual clarification meeting shall be eligible to participate in the tender process.
- CLOSING DATE**
The closing date for the tender is **16h00 on Friday, 17th February 2023**, and tender submissions must only be delivered to the address as specified in the tender enquiry document.

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NEVUNDUKO CONSULTING SERVICES
ENVIRONMENTAL IMPACT ASSESSMENT
PUBLIC PARTICIPATION PROCESS

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Project Name: Harvesting and Management of Invasive Alien Species; Prosopis including Revegetation at Mariental Pilot Site in the Orange-Fish River Basin.

Project Location: Mariental in the Hardap Region, Namibia

The Proponent: Ministry of Environment, Forestry and Tourism (Directorate of Forestry)

Environmental Assessment Practitioner: Nevunduko Consulting Services

Registration of Interested & Affected Parties:

In line with Namibia's Environmental Management Act (No.7 of 2007) and EIA Regulations (GN 30 of 6 February 2012), all Interested and Affected Parties (I&AP) are hereby invited to register and submit their comments, concerns or questions to the contact details below on or before 28 February 2023.

Public Meeting:

A public meeting will be held on Saturday, 28 January 2023, 14h00 in Mariental (Persianer Hall).

CONTACT:

Nevunduko Consulting Services
Cell: +264 811405033
E-mail: samasore2018@gmail.com



NEVUNDUKO CONSULTING SERVICES
ENVIRONMENTAL IMPACT ASSESSMENT
PUBLIC PARTICIPATION PROCESS

Notice is hereby given to all Interested and Affected Parties that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No.7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

Project Name: Harvesting and Management of the Invasive Alien Species, Prosopis including Revegetation at Gibeon Pilot Site in the Orange-Fish River Basin.

Project Location: Gibeon in the Hardap Region, Namibia

The Proponent: Ministry of Environment, Forestry and Tourism (Directorate of Forestry)

Environmental Assessment Practitioner: Nevunduko Consulting Services

Registration of Interested & Affected Parties:

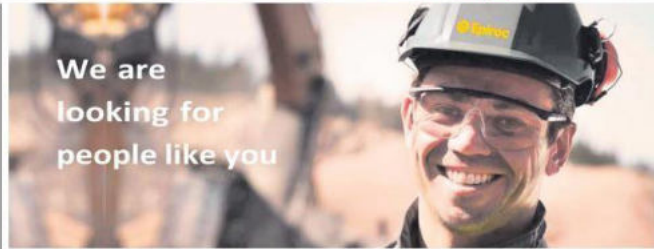
In line with Namibia's Environmental Management Act (No.7 of 2007) and EIA Regulations (GN 30 of 6 February 2012), all Interested and Affected Parties (I&AP) are hereby invited to register and submit their comments, concerns or questions to the contact details below on or before 28 February 2023.

Public Meeting:

A public meeting will be held on Friday, 27 January 2023 at 14h00 in Gibeon (Gibeon Village Council Hall).

CONTACT:

Nevunduko Consulting Services
Cell: +264 811405033
E-mail: samasore2018@gmail.com



We are
looking for
people like you

Are you in for a big challenge, like contributing to the success of a global company? If you are in for the challenge, we are looking for suitable candidates for the following positions that have arisen in our company.

Product Support Technicians X 2

Location: One Technician will be based in Windhoek and the other one in Rosh Pinah.

Main responsibilities

- Scheduled services to be performed on units in the market. Unplanned services to be performed on units in the market.
- Commissioning of new Capital Equipment in the market. Equipment audits.
- Rockdrill repairs in the workshop.

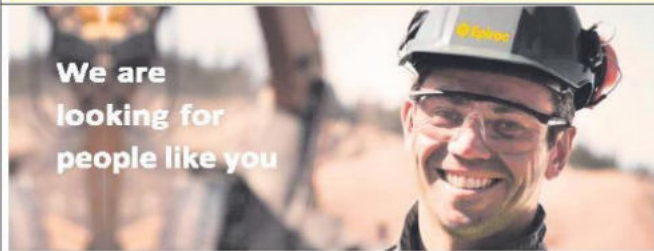
Skills and Experience required

- Technical qualification -Electrical and Mechanical. RCS experience
- Underground Rock Excavation experience will be an added advantage
- Problem solving and trouble shooting skills. Providing quality and professional customer service. Ability to work under pressure. Professional service reports.
- Valid driver license.

Applications should be sent to recruitment@epiroc.com and closing date is 25th January 2023.

United. Inspired.

epiroc.com



We are
looking for
people like you

Are you in for a big challenge, like contributing to the success of a global company? If you are in for the challenge, we are looking for suitable candidates for the following positions that have arisen in our company.

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Skills and Experience required

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- Underground Rock Excavation experience will be an added advantage
- Problem solving and trouble shooting skills. Providing quality and professional customer service. Ability to work under pressure. Professional service reports. Valid driver license.

Customer Care Representative

Location: Windhoek

Main tasks

- Assist as and when required with all aspects of General Customer Care and Consignment Warehouse Customer duties such as:
- Work closely with Warehouse / Customer Care Manager to Achieve and Align with regional KPI's and process regarding Consignment Warehouses
- Work closely / assist Warehouse / Customer Care Manager with managing consignment stock centrally and at Consignment Warehouse Customer sites, this includes replenishment of stock and working with the sales team with forecasting
- Carry out continuous stock-taking (Monthly & Yearly) and report any variance to management at Consignment Warehouses
- Work closely with Customers / Consignment Warehouse Customer and Sales team to ensure service deliveries and customer

9.5 APPENDIX E: PROOF OF STAKEHOLDER CONSULTATION

Gibeon *Prosopis* Harvesting EIA Documents

9.6 APPENDIX F: MINUTES OF PUBLIC MEETING



ENVIRONMENTAL IMPACT ASSESSMENT PUBLIC PARTICIPATION PROCESS

PUBLIC MEETING MINUTES

Subject: EIA for the Harvesting and Management of *Prosopis* at Gibeon Pilot Site.

Venue: Gibeon Village Council Hall

Date: 27 January 2023

Time: 14h00

Attendees: Olavi Makuti & Wycliffe Naabasa (Nevunduko Consulting Services) and Interested & Affected Parties (see attached register)

Introduction

The team from Nevunduko introduced themselves and welcomed all attendees to the meeting. Mr. Naabasa gave an overview of the purpose of the meeting and the previous work that Nevunduko has undertaken in Gibeon regarding this project. He also gave information on how the meeting will be conducted and that English will be the language used in the presentation but translation into Afrikaans will be available should it be required by the attendees.

Overview of Proposed Project

Nevunduko team indicated that the project will be a five-year initiative that will be financially and technically supported by The Orange- Senqu River Commission (ORASECOM). ORASECOM, with support from United Nations Development Programme (UNDP), managed to secure further financial support from Global Environmental Facility (GEF) to implement the project.

Activities for the five-year project at the sites will include the sustainable harvesting of *Prosopis* species, together with revegetation of the sites with preferred indigenous plants. Furthermore, the project will also advocate for the economic utilization of the harvested *Prosopis*. Details about the specific project activities are as follows:

***Prosopis* Harvesting**

All *Prosopis* plants, including saplings, in the demarcated compartment will be removed. The pilot areas will be demarcated into compartments (operational land units) with well-cleared cutlines. The cutlines will be 15m wide and will serve as access roads within the pilot site for the transportation of harvested biomass, equipment and personnel. It is planned that the site will be demarcated into blocks or compartments of 500m x 300m which will translate to 15 ha per compartment.

- *Harvesting methods:* mechanical method combined with labour and chemical applications will be used in the harvesting of *Prosopis*. However, the use of chemicals will be assessed and verified by this EIA process.
- *Harvesting Groups:* Local companies will be recruited to do the harvesting.
- *Harvesting Practices:* Harvesting will be done at less than 30cm above the ground. The de-bushing of *Prosopis* should be done before the flowering period or well-timed before the seeds become ripe enough for germination. The de-bushing operation will start from the compartments outside the river line towards the river line to avoid the debris from choking the waterway.

Revegetation with indigenous species

With the support of the Directorate of Forestry, a nursery will be established at the pilot site to supply indigenous seedlings that will be planted to replace the harvested *Prosopis* plants. The planted seedlings will be fenced off individually to protect the planted seedlings from stray animals and humans. The areas revegetated will be protected from fire during fire-danger seasons through the maintenance of fire cutlines as described in the previous section above. The planted seeds will have to be watered for at least 4 years during the dry periods of the year. The use of seeds for broadcasting in the field is discouraged because of the low survival rate. Planting will be preceded by training provided by the Directorate of Forestry to the planting teams.

Issues Identified

Mr. Makuti then described some of the potential impacts associated with the proposed activity to the audience. The following potential impacts were listed:

Positive:

Replenishment of the aquifer.

Economic benefits from selling the harvested biomass.

Restoration of indigenous vegetation in the area.

Facilitation of water flow in the river course.

Negative:

- **Ecological impacts:** *Prosopis* trees currently serve as a habitat and source of food for many wildlife species. The removal of *Prosopis* massively might affect the ecological integrity of surrounding ecosystems.
- The use of chemicals for killing *Prosopis* stumps in the river basin may have an unprecedented negative impact on fauna and flora.
- **Soil erosion:** The removal of *Prosopis* vegetation along the riverbanks may cause soil erosion and land degradation, especially in areas where it is the dominant vegetation species.

Questions and Comments

After the presentation by the project team, the meeting participants were allowed to ask questions and raise any issues of concern. The table below provides a summary of the questions asked and responses provided by the project team.

ISSUES RAISED	RESPONSE FROM EIA CONSULTANTS
<p><u>Purpose and scope of the project:</u></p> <ul style="list-style-type: none"> • What is the reason for the removal of <i>Prosopis</i>? • A poster should be developed by the project team to inform the residents about the <i>Prosopis</i> and how it is bad for the environment. • What area will be covered by the project? 	<ul style="list-style-type: none"> • <i>Prosopis</i> causes many detrimental impacts such as the depletion of water resources, out-competing indigenous vegetation, blocking water flow and many other impacts. • Noted and will be recommended to the project implementation team. • The site at Gibeon covers an area of 400 ha.
<p><u>Socio-economic:</u></p> <ul style="list-style-type: none"> • A similar project was undertaken by another organization at Gibeon a few years ago that provided job opportunities for the youth. Why was this project stopped? • <i>Prosopis</i> provides fodder to livestock, especially during drought. If <i>Prosopis</i> is removed from the environment, what are the alternative sources of fodder for the local farmers? • No Chinese nationals should be allowed to participate in the project as they abuse Namibian workers. 	<ul style="list-style-type: none"> • There was a project that assisted the <i>Prosopis</i> Firewood business, a Gibeon community group. The project was implemented with support from the Desert Research Foundation of Namibia. • The scoping report will address this issue and various mitigation measures will be recommended. • It will be recorded in the report as such.

<ul style="list-style-type: none"> • Messages should be sent to the participants through the contact details provided in the attendance register when the project commences. This is because the political leadership in the area do not communicate information on time. • Before the project commences there should be a series of stakeholder sensitization workshops to allow all members of the community to comprehend the project. • Members of the community who attended the meeting should be allowed to benefit from project opportunities first. • Owners of surrounding farmland must be informed about the project as they might prevent the project from accessing the <i>Prosopis</i> located on their farms. 	<ul style="list-style-type: none"> • Noted. Efforts will be made to communicate with the participants. • It will be recommended as such. • Noted and will be recommended as such. • Noted and will be recommended as such.
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Conclusion

Mr. Naabasa thanked the participants for making time to attend the meeting and promised that the Nevunduko team will do its best to ensure that all issues raised in the meeting will be addressed and recorded as such in the Environmental Impact Assessment Report. He also indicated that once the Draft Scoping Report is ready it would be circulated to all that have registered as Interested and Affected Parties for their input. He then officially closed the meeting.

The meeting adjourned at 16h00

Meeting attendance Register:



**ENVIRONMENTAL IMPACT ASSESSMENT
PUBLIC PARTICIPATION PROCESS**

Type of Activity: Stakeholder Consultation
Consultation Date: 27/01/2023
Pilot Area: Gibeon

ATTENDANCE REGISTER

Fist Name	Surname	Institution	Contact	Email	Signature
Olavi Nakuti	Nakuti	Consultant	0811405033		
Christina	Gertze	Resident	0818066804		
Franciskus	Gertze	Resident	0818066804		
Raymond	Baaynes	Resident	0819066804		
John	Koopo	Resident	0815360657	grabbiegrobler@jmak.com	
CHRIS GROBLER Wycliffe	GROBLER Naabasa	GENSIBOK WINKEL, Consultant	0813289706 081 2056340		