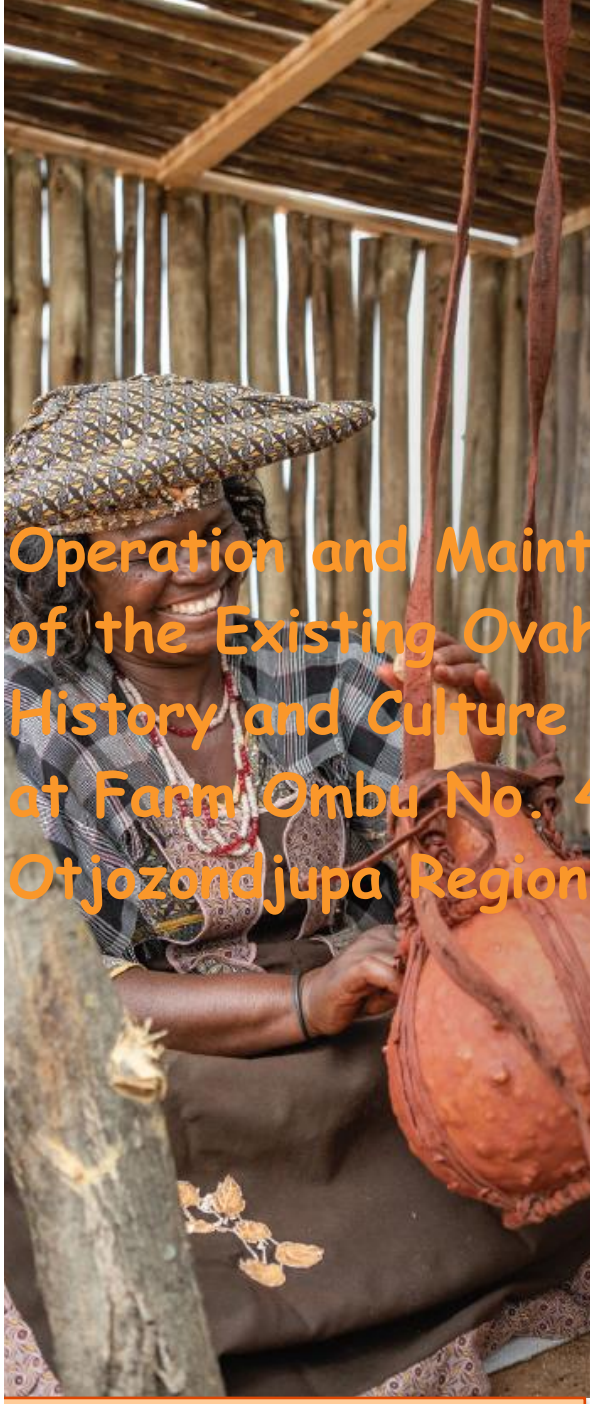
COMPREHENSIVE ENVIORNMENTAL MANAGEMENT PLAN



Operation and Maint of the Existing Ovah History and Culture at Farm Ombu No. 4 Otjozondjupa Region

APRIL 15

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Ombu Village

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DOCUMENT INFORMATION AND APPROVAL		
Title	Operation and Maintenance of the Existing Ovaherero Traditional (History and Culture) Village at Farm Ombu No. 487, Otjozondjupa Region	
ECC Application Reference number		
Location	Farm Tottenham-Oos No. 487 (on Portion Ombu)	
Activity	Activity 6.1: The construction of resorts, lodges, hotels or other tourism and hospitality facilities	
Proponent	Mr. Vetumbuavi Mungunda P. O. Box Windhoek Namibia, 9000	
Author:	Signature	Date
Mr. Vilho P. Mtuleni		02/03/2020
Reviewer:		
Mr. Isaskar Uahoo		05/03/2020
Approval – Client 2		
Mr. Vetumbuavi Mungunda		

Project Overview

The farm owner (Mr. Vetumbuavi Mungunda) of Farm Ombu have established a traditional Herero Village and Museum on the farm. The objective is to showcase the history, culture and norms of the Ovaherero people in a village set-up. The target audience for the establishment is the tourism industry, school children and the general public to be exposed to Namibian heritage.

While their operations stimulate diversification in the national economic and development activities, consequently creating employment opportunities and trickling benefits to the larger Namibian population, it poses the risks of unprecedented negative environmental impacts.

Potential impacts may vary in terms of scale (locality), magnitude and duration e.g. minor negative impacts in the form of dust and noise pollution especially during the handling (loading and off-loading) will be experienced.

To ensure that development activities are undertaken in an economic, social and environmental sound / sustainable manner, the Namibian Constitution and Environmental Management Act No. 7 of 2007 provides for an environmental assessment process. The purpose of the environmental assessment and therefore this report are to ensure compliance of the proposed operations with the environmental legislation in respect to managing potential impacts associated with Mr. Mungunda's Ovaherero Heritage Village operations:

- Identifying potential socio-economic and environmental impacts
- Proposing management measures to avoid, prevent and of mitigate these
- Compile an Environmental Management for compliance monitoring and reporting on the implementation of the Environmental Clearance Certificate conditions

Need for the Project

The proposed activity responds to Namibia's strategic vision 2030 and the NDP5 of creating a conducive environment within which its citizens prospers and contribute to the national development goals by creating employment opportunities. Overall, this activity contribute to the nation's efforts of elevating poverty amongst the rural citizens.

Critically, going ahead with the proposed activity creates potential for the following marginal net benefits:

- Contribution Taxes and Royalty
- Preservation of the Ovaherero people of Namibia's identity and cultural heritage
- Creates the most needed employment opportunities

Project Description

The Ombu Village showcases the current tradition and lifestyle of the Ovaherero People in a village setup. It is a traditional homestead comprising of 9 houses with distinctive original designs and building methods dating back to the 1860's. The Village seeks to document and preserve the heritage and culture of the Ovaherero People.

In addition, there is a museum that depicts the rich cultural history through displays, statues and artefacts. This is a village where people are going about their normal life and happy to share their culture with the visitors in a more organised manner.

The village is located on Farm Ombu (GPS Coordinates: S20°47.482 E016°42.704'), which is situated about 48km from Otjiwarongo and 122 from Okahandja on the B1. It is conveniently located half-way between Etosha National Park and Windhoek. We share an entrance with Okonjima Reserve. Enter the Okonjima Reserve and drive 14 km to the village. The road is clearly sign posted.

Need for an Environmental Impact Assessment

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. As a result, companies seek to manage these impacts as part of their ethical and sustainable business conduct. Similarly, identifying, avoiding, mitigating and managing impacts, is a necessary condition for Mr. Mungunda to undertake its operation in compliance with the environmental legislative requirements in Namibia.

Therefore, Mr. Mungunda appointed Moringa Enviro Consultants to conduct an environmental assessment and facilitate the process of obtaining and Environmental Clearance Certificate.

Approach to the EIA Process

The assessment process consisted of a site visit to the project location and consultation of neighboring farmers and relevant authorities. A comprehensive environmental management plan (EMP) was compiled and constitute the application for an Environmental Clearance Certificate submitted to the Ministry of Environment and Tourism (Office of Environmental Commissioner).

Overall Recommendation

Based on the findings of the specialist studies, which all recommend that the proposed project can proceed and should be authorized by the DEA, the proposed project is considered to have an overall low negative environmental impact and an overall moderate positive socio-economic impact (with the implementation of respective mitigation and enhancement measures).

AIDS	Acquired Immuno Deficiency Syndrome
BID	Background Information Document
BoN	Bank of Namibia
CA	Competent Authority
DEA	National Department of Environmental Affairs
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
GPS	Geographical Positioning System
HIV	Human Immuno Virus
I&APs	Interested and Affected Parties
NDP5	National Development Plan Five
PPP	Public Participation Process
SADC	Southern African Development Community

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1. INTRODUCTION

The Environmental Management Act No. 7 of 2007 (also referred to as the EMA) and its Regulations promulgated in the Government Gazette No. 4878 of 2012, stipulates that for each developmental activity, which is listed as those that may not be undertaken without obtaining and Environmental Clearance Certificate (ECC), an Environmental Assessment (EA) must be conducted.

Therefore, an environmental assessment must be conducted with an aim to identify, assess and ascertain potential environmental impacts that may arise as a result of undertaking the proposed operations. Hence, the environmental assessment is a process by which the potential impacts, whether positive or negative are predicted / identified, findings interpreted and communicating to interested and affected parties (I&APs) for inputs.

Additionally, this report presents findings of an environmental scoping process that evaluates the likely socio-economic and environmental effects the proposed operation, and further identifies suitable mitigation measures for avoiding or minimizing the predicted impacts.

1.1. PROJECT MOTIVATION (INCLUDING NEED AND DESIRABILITY)

The Namibian domestic economy was projected to contract by 1.7 percent in 2019 before recovering to positive growth of 0.8 percent and 1.2 percent in 2020 and 2021, respectively (BoN, 2019). The projected contraction in 2019 was in line with anticipated contractions in major sectors such as diamond mining and wholesale and retail trade as well as the prevailing drought, which had a negative impact on the agricultural sector.

The proposed activity responds to Namibia's strategic vision 2030 and the NDP5 of creating a conducive environment within which its citizens prospers and contribute to the national development goals by creating employment opportunities. Overall, this activity contribute to the nation's efforts of elevating poverty amongst the rural citizens.

Critically, going ahead with the proposed activity creates potential for the following marginal net benefits:

- Contribution Taxes and Royalty
- Preservation of the Ovaherero people of Namibia's identity and cultural heritage
- Creates the most needed employment opportunities

1.2. REQUIREMENTS FOR AN ENVIRONMENTAL IMPACT ASSESSMENT

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. As a result, companies seek to manage these impacts as part of their ethical and sustainable business conduct. Similarly, identifying, avoiding, mitigating and managing impacts, is a necessary condition for Mr. Mungunda to undertake their operations in compliance with the environmental legislative requirements in Namibia.

Mr. Mungunda appointed Moringa Enviro Consultants to conduct an environmental assessment and facilitate the process of obtaining and Environmental Clearance Certificate (see Table 1).

Table 1: *List of activities identified in the EIA Regulations which apply to the proposed projectS*

EMA 2007 Legislation	Description of activity	Relevance to this project
The Environmental Management Act No. 7 of 2007 (also referred to as the EMA) and its Regulations promulgated in the Government Gazette No. 4878 of 2012	Activity 6.1: The construction of resorts, lodges, hotels or other tourism and hospitality facilities	Operation of cultural village, tour guiding activities, camp site and maintenance of facilities

1.3. OBJECTIVES OF THE ENVIRONMENTAL SCOPING ASSESSMENT

In broad terms, the 2012 EMA EIA Regulations (GG 4878) stipulates that an EIA Process must be undertaken providing to determine the potential environmental impacts, mitigation and closure outcomes, as well as the residual risks of any listed activity. Therefore, based on these (EIA Regulations), the objectives of the EIA Process is to:

- determine the policy and legislative context within which the activity is located and note how the proposed activity complies with and responds to the policy and legislative context;
- describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- determine the nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and the degree to which these impacts (a) can be reversed; (b) may cause irreplaceable loss of resources, and (c) can be avoided, managed or mitigated; and
- identify suitable measures to avoid, manage or mitigate identified impacts;

2. PROJECT DESCRIPTION

This section provides an overview of the conceptual operational design and an overview of the sites and for the three established sites, camp site & Museum facilities at farm Ombu for the use of international & domestic tourist operations.

The project description (and design) used in this EIA Process assumes a worst-case scenario, where the maximum development footprint and requisite infrastructure is considered. Consequently, should any changes in the project design be affected; such changes will only serves to reduce the overall infrastructure requirement and/or development footprint.

2.1. PROJECT / OPERATIONS OVERVIEW

The Ombu Village showcases the current tradition and lifestyle of the Ovaherero People in a village setup. It is a traditional homestead comprising of 9 houses (**Figure 1**) with distinctive original designs and building methods dating back to the 1860's. The Village seeks to document and preserve the heritage and culture of the Ovaherero People.

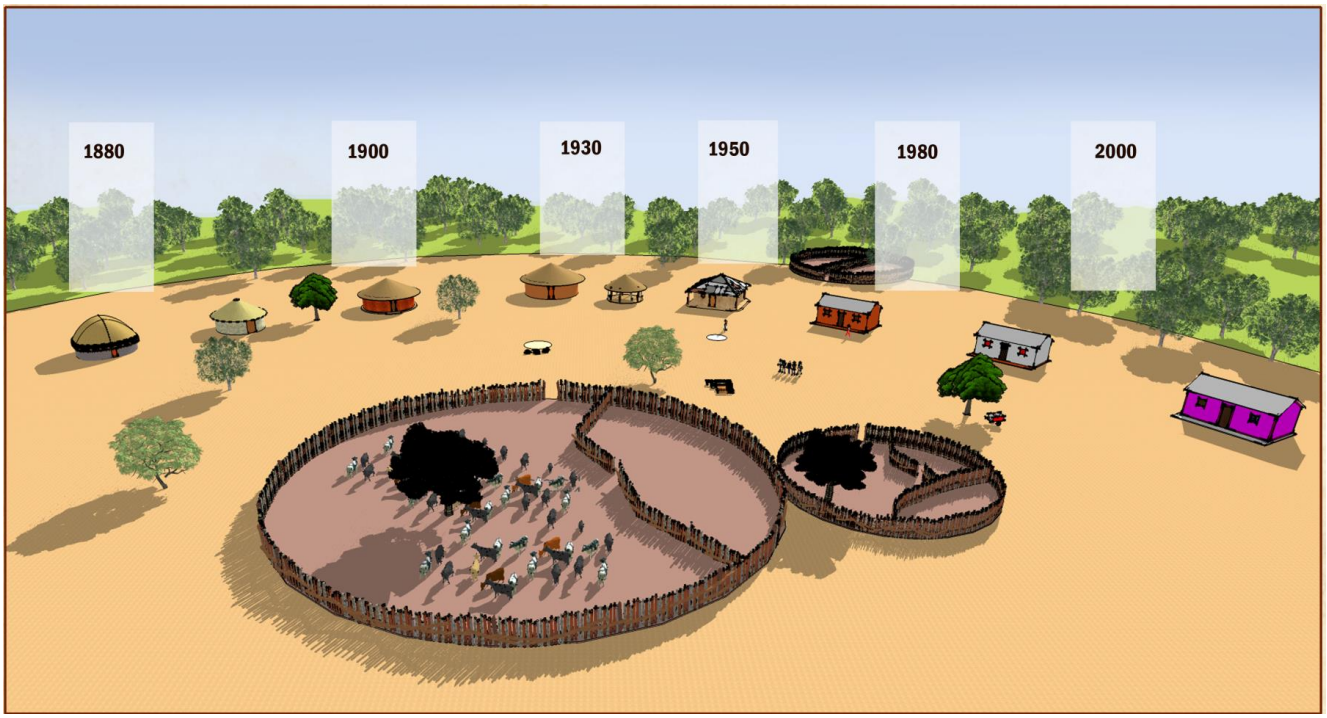

Figure 1: *Artist expression of the Village Layout depicting the different facilities*

In addition, there is a museum that depicts the rich cultural history through displays, statues and artefacts. This is a village where people are going about their normal life and happy to share their culture with the visitors in a more organised manner. The village further consist of the following (**Table 1**)

- Camping site
- Craft and Curio shop
- Administration and Ablution Facilities
- Kraals for cattle, goats and sheep

Table 1: *Description and illustration of key supporting infrastructure*

	Description of activity	Visual Illustration
	The museum portrays the documented and preserved a rich Ovaherero people's heritage of the, and is built next to the Cultural Village. The Ovaherero's cultural history is presented through displays, statues, audio-visual presentations and artefacts.	
	There are 5 campsites, located on a hill 500 meters above the Cultural Village and boast a spectacular view, ideal for sundowners. Each is has its own bathroom and a toilet with wood-heated shower and a hand-basin. Campsite	
	Ombu Cultural Village consist of a traditional homestead, comprising 9 houses with distinctive original designs and building methods dating back to 1880, and other periodic designs over the last 150 years.	
	Our curio shop offers a variety of Ovaherero traditional, handcrafted arts and crafts items which are bought from artisans in nearby villages. It further serves as catalyst for enabling local crafters, artists and communities to make a living and create support to small businesses.	

In addition to the available facilities, a series of guided tours are offered by friendly guides who ushers the guests through a generational oral storytelling, taking them on an interactive guided tour of the village, entering houses showing how the Ovaherero people live, collect and prepare food, their perfumes and costumes.

The guides explains different facets of the Ovaherero people including their belief system and customs, initiation ceremonies, marriage, economic system, construction of houses. Guests are also encouraged to touch, feel and taste during the tour, as well as ask questions to the villagers and guides.

The tour then moves to the Museum, which boasts permanent exhibitions of cultural artefacts, history and statues. The tour is rounded off by a visit to the curio shop, after which guests can go up to the upper storey balcony for a view of the village whilst enjoying a cup of tea / coffee or any preferred drink.

2.2. SITE SELECTION

The village is located on Farm Ombu (GPS Coordinates: S20°47.482 E016°42.704'), which is situated about 48km from Otjiwarongo and 122 from Okahandja on the B1 (**Figure 2**). It is conveniently located half-way between Etosha National Park and Windhoek. We share an entrance with Okonjima Reserve. Enter the Okonjima Reserve and drive 14 km to the village. The road is clearly sign posted.

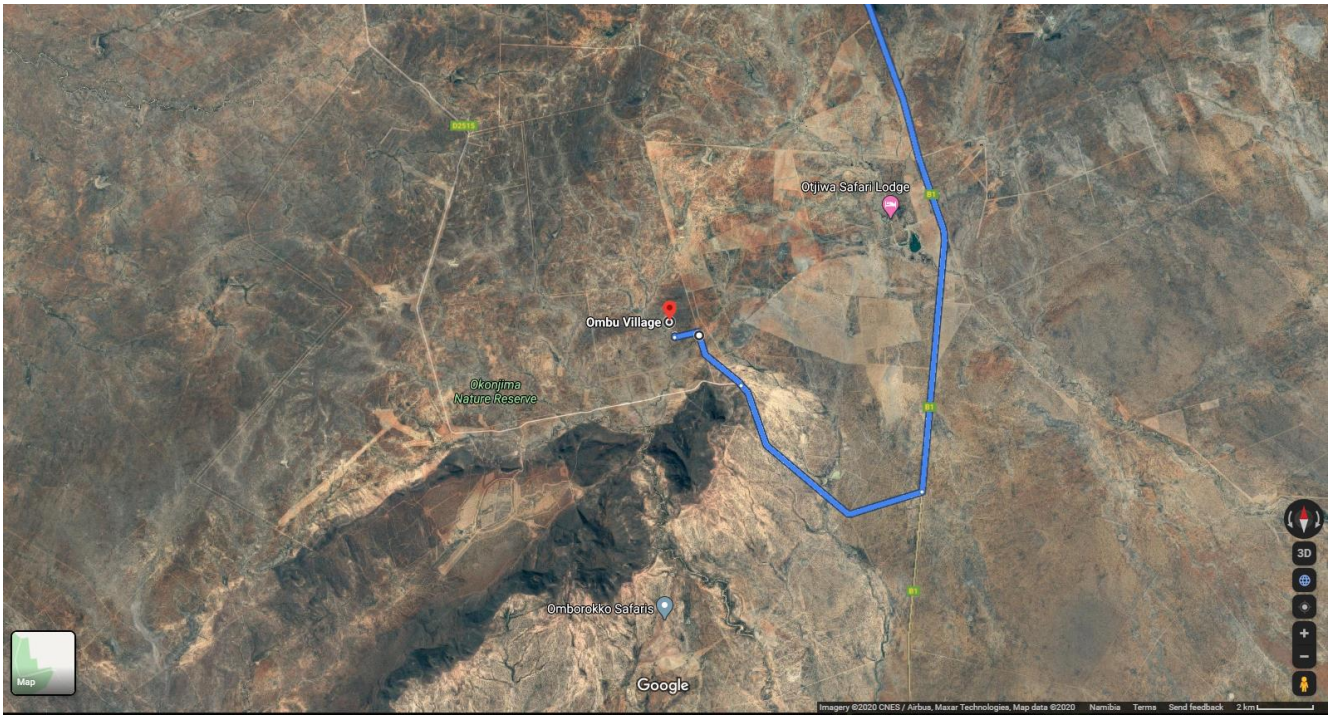

Figure 2: *A GoogleMap image indicating the locality of Ombu Cultural Village in proximity to the Okanjima Reserve*

2.3. UTILITY SERVICES – WATER AND POWER SUPPLY

Given the nature of the leisure experienced based on the ovaHerero cultural heritage, the camping facility are not powered with electricity. However the administrative building is connect to solar generated electricity (**Figure 3**), while water for sanitation is sourced from a borehole (yielding 2 to 12 m^3/h) and the sewer system consist of a localised (central septic system).

Figure 3: *Aerial view of the solar panels which powers the museum building and reception area*

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter of the Scoping Report provides an overview of the affected environment for the proposed most especially the three key operational sites (Cultural village, leaving Museum & Tented camp site) and other key receptors along the main routes across Namibia. The receiving environment is understood to include biophysical, socio-economic and heritage aspects which could be affected by the proposed development or which in turn might impact on the proposed development.

3.1 BIOPHYSICAL ENVIRONMENT

Namibia is characterized by four land type systems , the Namib, which runs along the entire west coast from the port town of Lüderitz, northwards into southern Angola; the Succulent Karoo which lies south of Lüderitz and extends across the Orange River into South Africa; the Nama Karoo which occurs immediately to the east of the previous two desert systems and covers most of the southern third of Namibia, tapering to a narrow belt from central Namibia northwards; and the Southern Kalahari which extends eastwards across to Botswana. However, the Trans-Zambezi route only crosses through three of these, namely the Namib Desert, Nama Karoo and the tree and shrub savannah.

3.1.1 Climatic Conditions

About 22% of Namibia's land is classified as desert (hyper-arid), 70% is classified as arid to semi-arid and the remaining 8% is classed as dry sub-humid (Mendelsohn et al. 2002). Most of the country receives an annual average of more than nine hours of sunlight per day. For the Namibian conditions the farm Ombu receives quite a lot of rain with an average of about 300 to 420 mm annually.

The area has a warm, semi-arid climate. Like most such climates, there is a significant contrast in temperature between night and day. November to April constitutes the Wet season (**Figure 3**). Rain is absent during the Dry season, which occurs in the winter months of May through October.

At Farm Ombu, windrose are characterized by variable inshore winds with the prominent ones blowing from the East North-East (ENE, see **Figure 4**) at annual average speeds of 10 – 30 km / h (Robertson et. al, 2012).

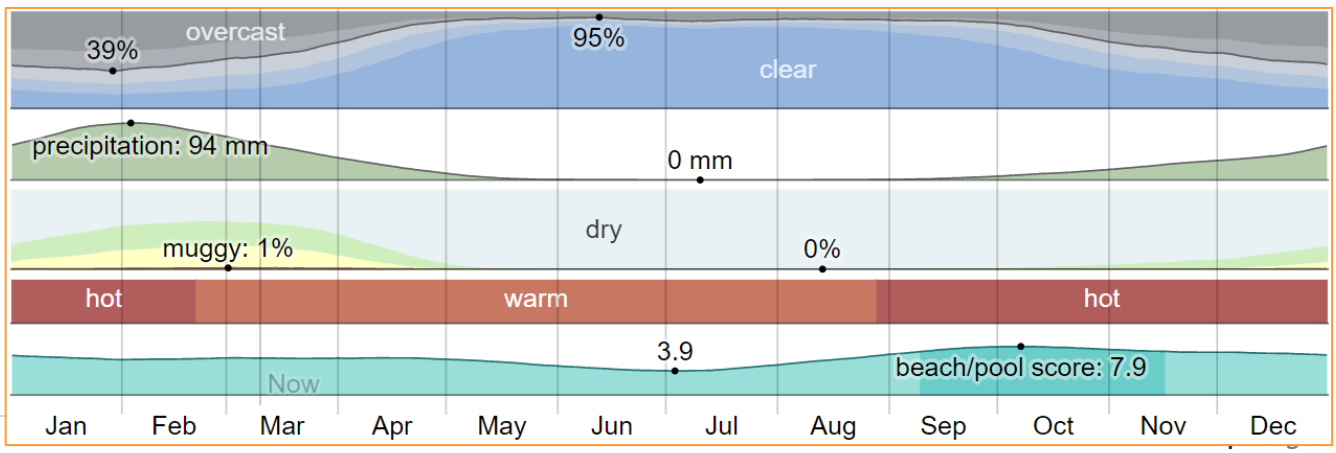

Figure 3: *Observed summary of climate data within the Otjozondjupa region within which Farm Ombu is situated*

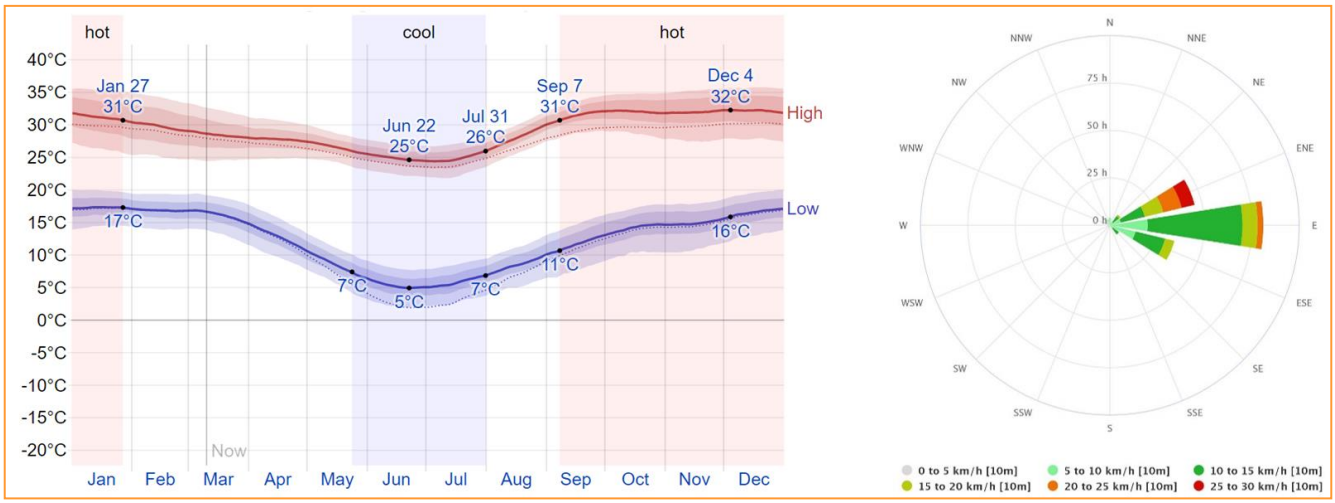

Figure 4: *Observed climate data for minimum and maximum annual average temperatures and Wind-Rise Direction*

3.1.2 *Geology*

A variety of geological setups consisting of the Damara Sequence, Swakop Group, and Karoo Super-group can be observed throughout central Namibia, along an East-to-West transect gradient (see **Figure 10**). The Damara orogen is made up of a 400 km-wide northeast-trending intracontinental arm and a north- south trending coastal arm (Williams, 1989).

In particular, Farm Ombu falls mainly within the Damara Orogenic Belt, it being the prominent geological feature of central Namibia, and it forms part of the network of Neoproterozoic orogenic belts that formed during the assembly of the supercontinent Gondwana about 550 million years ago.

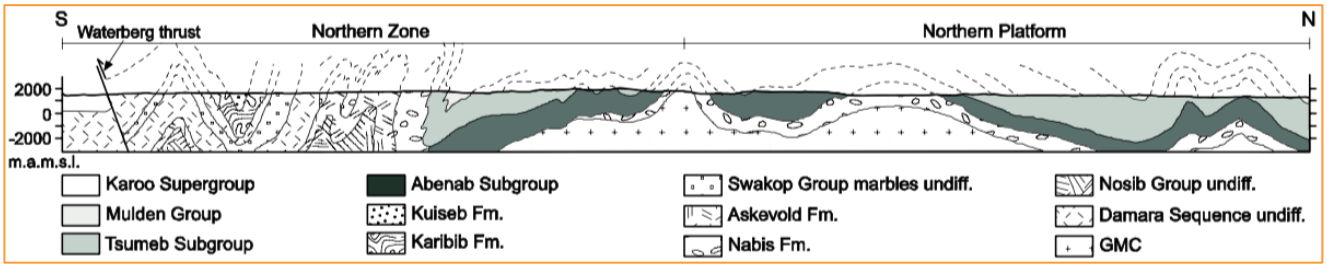

Figure 5: *Structural section across the Namibian geological formation across a west-to-east gradient*

3.1.3 *Terrestrial Ecology and Sensitivity*

Namibia's vegetation and biomes are classified into five major types. These are, the Namib Desert, Nama Karoo, Succulent Karoo and the Trees and Shrub savannah. These biomes fall within the project area and thus key receptors of environmental impact particularly in case of septic tanks capsizing resulting into potential runoff affluents.

Overall terrestrial diversity of plants and animals is highest in the north-eastern parts of Namibia (**Figure 6**, green map indicator), because of the higher rainfall and presence of wetlands and forest habitats that are not found elsewhere in the country (Barnard 1998).

Unlike the concentration of biodiversity in the north-east, the great majority of Namibia's endemic species are found in the dry western and north-western regions (**Figure 6**, brown map indicator) (Barnard 1998, Mendelsohn et al. 2002). The patterns of endemism reflect the importance of arid habitats in supporting unique and specially adapted species.

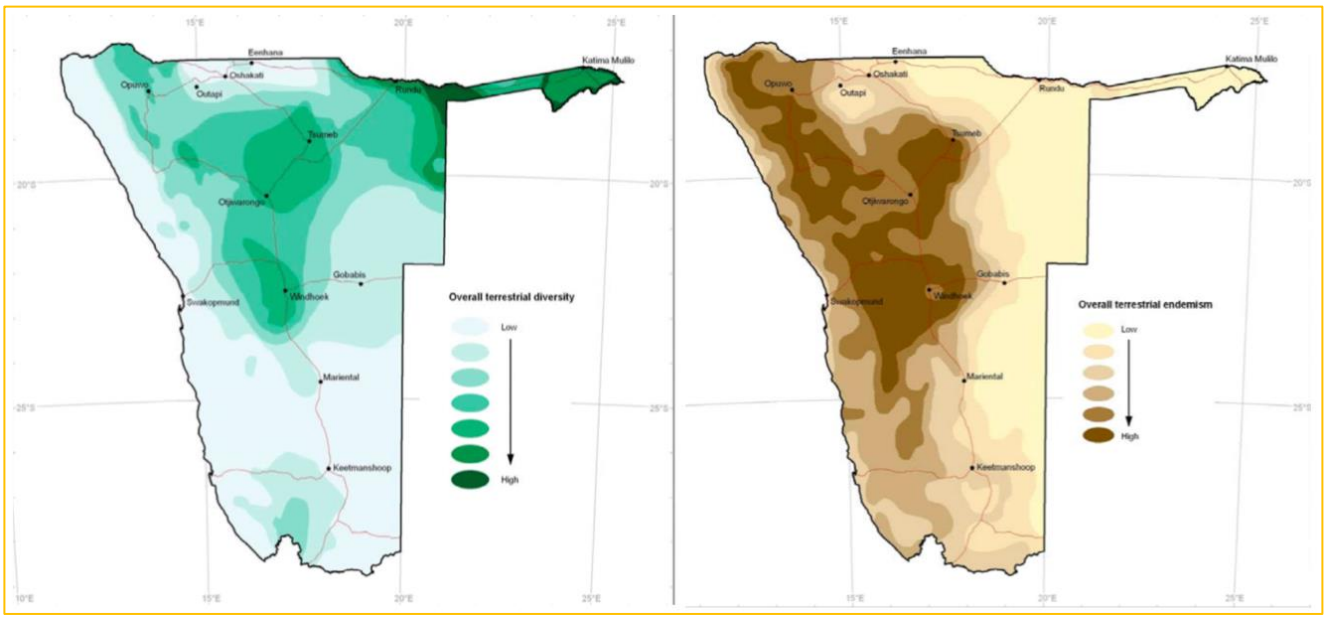

Figure 6: Shows a comparison of overall terrestrial species diversity (green) against overall endemism (brown), with the most endemism observed within operations route resulting in a "Red Flag" in terms of environmental risks.

Endemic species, particularly of birds, mammals and reptiles, are concentrated in the escarpment zone. In the Namib, endemics are associated with the dunes, rocky inselbergs and hills, and the sandy and gravel plains (Griffin 1998). In birds, the greatest diversity of southern African endemics is centred on the arid savannah and Karoo biomes and extends into the escarpment (Brown et al. 1998).

3.2 SOCIO-ECONOMICAL ENVIRONMENT

3.2.1 Demographic Profile

With a human population of about 2.4 million people, Namibia has one of the lowest population densities in the world, on average about 2.5 people per km^2. The population is unevenly distributed with about 35% living in towns and villages. Those potentially to be affected by this project lives in Okakaarar and Otjiwarongo.

3.2.2 Heritage Profile

Although there are currently no documented archaeological artefacts, the Ombu Cultural Village seeks to document and preserve the heritage and culture of the Ovaherero in the form of a living museum, reflecting on the past whilst informing the present. The Village consist of a traditional homestead, comprising 9 houses with distinctive original designs and building methods dating back to 1880, and other periodic designs over the last 150 years.

4. APPROACH TO EIA PROCESS AND PUBLIC PARTICIPATION

This chapter presents the approach to the compilation of a comprehensive environmental management plan for the Ombu Village operations and gives particular attention to the legal context and guidelines that apply to this EIA, the steps in the Public Participation component of the EMP (in accordance with the EMA No. 7 of 2007).

4.1 OVERVIEW OF APPROACH TO PREPARING THE EMP REPORT

The objectives of this EMP are noted in Section 1 of this Report and includes a summary of a rapid but comprehensive assessment the environmental impacts associated with operation for the Ombu Village, the overall conclusions and the recommendations. The EMP Report was availed for a 30-day I&AP and authority review period, as outlined in EMA Regulations of 2012.

However, no comments were raised during this period, hence no record of objection in respect to the continuation of the activity is presented. Instead, an email correspondence trail for evidence of consultation with possible I&AP is included in the EMP Report submitted to the DEA for decision-making.

As previously noted, the EMP Report includes a proposal of mitigation measures (Section 6 of this Report), which has been prepared in compliance with the relevant. Actions (preventative, mitigating and remedial) in the EMP are drawn based on the generic impact assessment criteria presented Sub-section 4.3 of this report.

4.2 LEGISLATION AND GUIDELINES PERTINENT TO THIS EIA

As the main source of legislation, the Namibian constitution makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws (those of relevant to this project are listed in Table 2) intended to protect the natural environment and to mitigate adverse environmental impacts.

Namibia's policies provide the framework to the applicable legislation. Whilst policies do not often carry the same legal recognition as official statutes, policies can be and are used in providing support to legal interpretation when deciding cases.

4.2.1 Environmental Management Act No. 7 of 2007

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.

The purpose of the Environmental Management Act is:

a) to ensure that people carefully consider the impact of developmental activities on the environment and in good time
b) to ensure that all interested or affected people have a chance to participate in environmental assessments
c) to ensure that the findings of environmental assessments are considered before any

4.2.2 Environmental Assessment Policy (1995)

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).

4.2.3 Other Relevant Legislation Applicable

Sustainable develop encourages an integrated approach to development activities. An EIA process, although regulated by MET, it is in alignment with a host of legislation that are relevant to a specific project. The list of relevant legislation applicable to establishing a lodge, cultural village and a leaving Museum

Table 2: *Relevant legislation and the applicability thereof*

Key Regulations / Policies	Relevant provision	Project Implication / Aspect
Forest Act, 2001 (Act No. 12 of 2001, Nature Conservation Ordinance 4 of 1975	Provision of the protection of various protected plant species. (Ministry of Agriculture, Water and Forestry (MAWF), Directorate of Forestry.	Although DOF has no jurisdiction within townlands, these provisions will be used as a guideline for conservation of vegetation.
Public Health Act (Act No. 36 of 1919	According to Section 119 "no person shall cause a nuisance or shall suffer exit on any land or premises owned by him or of which he is in charge any nuisance or other conditions to be injuries or dangerous to health"	The Client should ensure compliance with this legal requirement during the operations of the proposed project activities.
Labour Act (Act No. 11 of 2007)	Section 39-47 of this regulation details the minimum wage requirements and working conditions	The Client should ensure compliance with this legal requirement during the construction of the facilities.
National Heritage Act 27 of 2004	As per section 38 (1) "a person may apply to the National Heritage Council for a permit to carry out works or activities in relation to a protected place object"	Any heritage resources such as human remains discovered during construction requires a permit from the National Heritage Council.

4.3 APPROACH TO IMPACT ASSESSMENT

Potential environmental impacts were identified through both desktop literature review and consultation with I&APs, regulatory authorities, specialist and Enviro-Leap Consulting. In case of social impacts, the assessment focused on third parties only (third parties include members of the public and other local and regional institutions) and did not assess health and safety impacts on workers because the assumption was made that these aspects are separately regulated by health and safety legislation, policies and standards.

The impacts are discussed under issue headings in this section. The discussion and impact assessment for each sub-section covers the construction, operational, decommissioning and closure phases where relevant. This is indicated in the table at the beginning of each sub-section. Included in the table is a list of project activities/infrastructure that could cause the potential impact per farming phase. The activities/infrastructure that are summarized in this chapter, link to the description of the proposed project (see Section 6 of the EIA report).

Mitigation measures to address the identified impacts are discussed in this section and included in more detail in the EMP report that is attached in Appendix C. In most cases (unless otherwise stated), these mitigation measures have been taken into account in the assessment of the significance of the mitigated impacts only.

Table 6: *Criteria for Assessing Impacts*

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE		**Significance = consequence probability**
Definition of CONSEQUENCE		**Consequence is a function of severity, spatial extent and duration**
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often beviolated. Vigorous community action. Irreplaceable loss of resources.
	M	Moderate/measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favorable publicity.
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short-term
	M	Reversible overtime. Life of the project. Medium-term
	H	Permanent.Beyondclosure.Long-term.
Criteria for ranking the SPATIAL SCALE of Impacts	L	Localized-Within the site boundary.
	M	Fairly widespread–Beyond the site boundary. Local
	H	Widespread–Far beyond site boundary. Regional/national

Both the criteria used to assess the impacts and the method of determining the significance of the impacts is outlined in Table 5. This method complies with the method provided in the Namibian EIA Policy document and the draft EIA regulations. Part A provides the approach for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D. Both mitigated and unmitigated scenarios are considered for each impact.

PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long-term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short-term	L	Low	Low	Medium
SEVERITY = M					
DURATION	Long-term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short-term	L	Low	Medium	Medium
SEVERITY = H					
DURATION	Long-term	**H**	High	High	High
	Medium term	**M**	Medium	Medium	High
	Short-term	**L**	Medium	Medium	High
			L	M	H
			Localized Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/national
			SPATIAL SCALE		

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/Continuous	H	Medium	Medium	High
	Possible/frequent	M	Medium	Medium	High
	Unlikely/seldom	L	Low	Low	Medium
			L	M	H
			CONSEQUENCE		

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	**Decision guideline**
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M = medium and L = low and + denotes a positive impact.

5. ASSESSMENT OF ALTERNATIVES

This chapter in principle discusses the alternatives, in relation to a proposed activity, "as different means of meeting the general purpose and requirements of listed activity, which may include alternatives to the:

- Property on which or location where the activity is proposed to be undertaken;
- Type of activity to be undertaken;
- Design or layout of the activity;
- Technology to be used in the activity; or
- Operational aspects of the activity; and includes the option of not implementing the activity".

The following objectives apply to the consideration of alternatives during the Scoping Phase:

- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process; and
- Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment.

The EMP Report therefore provided a full description of the process followed to reach the proposed preferred activity, site and location within the site, including details of all the alternatives considered and the outcome of the site selection matrix.

5.1 NO-GO ALTERNATIVE

The no-go alternative assumes that the proposed project will not go ahead i.e. the Ombu Cultural Village operations in this respect is already an existing establishment with its activities in operation. Hence, in principle this alternative would entail that the development at Farm Ombu No. 487 relating to the ovaHerero History and Cultural exhibition and camping facility would not drive any environmental change and result in no environmental impacts on the site.

It could provide the *status quo* or baseline against which other alternatives are compared and would be considered throughout the report. However, unknowingly the construction of the Ombu Village activities on Farm Ombu No. 487 has already been completed and consideration for significant environmental impacts omitted. Therefore, environmental disturbance has occurred and the current status of the environment becomes the only baseline for future impact consideration.

Critically, implementing the 'no-go' alternative in this case is not applicable unless ensuring that an environmental clearance certificate is obtained and the operations continues. This is in light the consideration that discontinuing the operations may result in non-realization of the potential positive environmental, social and economic change in the area surrounding the proposed project site.

6. ENVIRONMENTAL IMPACTS MITIGATION

This chapter discusses possible environmental impacts associated with the operation of the Ombu Village and further proposes mitigation measures in an effort to ensure that preferably only the positive impact are achieved. The potential negative impacts are identified following the criteria presented in Section 4 of this report, and it is anticipated that these impacts may relate mainly to the following aspects:

- Noise and Air Pollution
- Generation and Storage of Waste
- Contamination of Groundwater
- Distortion of Cultural Heritage
- Socio-Economic (Health and Safety)

***Table 3**: Aspect - Noise and Air Quality Impacts*

Impact Event	**Disturbances to soils resulting in excessive dust in the atmosphere**					
Description	Trampling by both moving vehicles and people on the soils, especially on windy days may lead to generation of dust affecting air quality and visibility in the atmosphere.					
Nature	Noise nuisance and dust generation resulting in Noise and Air Pollution depending on the type of visitors (individual or group visits), age and social culture.					
Phase: Operational phase, during peak season when a large number of guests visits the site and when there are organized events, noise and dust pollution may occur.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
Not Applicable (construction completed)	- Dust generation by visiting vehicles (on peak seasons) - Noise may be produced by large crowds of visitors		Not foreseen		Not foreseen	
Severity	Low, given the remoteness of the Village location and proximity to other settlements					
Duration	Short-term, impacts may only occur during peak season					
Spatial Scale	Medium-to-Low, depending of wind speed and direction and proximity of receptors					
Probability	Low, impacts may only occur during peak season and on in unmitigated scenario					
Unmitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**M**	**H**	**L**	**M**
Mitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**L**
Mitigation Measure	Preventative measures in respect to dust generation may include strict enforcement of speed limits to 40 km / h (these may be reinforced through the use of signages). House rules makes for a good tool to regulate noise nuisance and can be attained through display of flyers in each tented camp of made know to the guests at admittance.					

***Table 4**: Aspect – Waste Generation, Handling and Storage*

Impact Event	**Litter and Potential groundwater contamination from effluent (sewer) waste**					
Description	A residual product produced by operating a tourism facility is the high probability for waste (domestic and effluent) generation, and if not properly managed it results in significant environmental impacts. Given the locality of the Ombu Cultural Village, if not properly managed domestic waste may contribute to both Wildlife and Livestock casualty emanating from ingestion of litter by animals.					
Nature	Domestic and Effluent nuisance resulting in from poor management of the respective waste material leading to litter, soils and groundwater contamination					
Phase: Operational phase, effluent and domestic waste is generated throughout the operational phase therefore an important aspect of environmental management, compliance and monitoring.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
- Not Applicable (construction completed)	- A lack of a waste management Plan - A lack of facilities (bins, removal equipment, disposal site) to complement the Plan - Maintenance and Upkeep of the facilities may also contribute to generation of building rubbles and other material		- As with maintenance and Upkeep of the facilities, building rubbles and other material may be generation during the decommissioning phase of the activities.		- No impacts are foreseen during the Post Closure	
Severity	High, use of septic tanks maybe prone to fracture risk resulting from geological activity in the region and may result in groundwater contamination					
Duration	Short-term, impacts may only occur as a result of natural hazard and or disaster					
Spatial Scale	Medium-to-Low, given that the effluent is managed through a centralized sewer system					
Probability	Low, impacts may only occur during a natural hazard and or disaster					
Unmitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	H	**L**	**M**	**H**	**L**	**H**
Mitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**M**	**L**	**H**
Mitigation Measure	It is recommended that a waste management plan, complemented by and a contingency plan and waste management facilities be developed and implemented. The Plan must encourage environmental awareness and sustainable waste management approaches which includes recycling and reuse of materials. At all costs burning and burying of waste material is discouraged as this may further contribute to air pollution, soils and groundwater contamination. Instead, where possible waste must be disposed off at a authorized waste disposal site, hence use of supply trips to transport waste to the closest town is highly encouraged.					

***Table 5**: Aspect – Distortion of Cultural Heritage*

Impact Event	**Litter and Potential groundwater contamination from effluent (sewer) waste**
Description	The tourism has a tendency of recurring visits by some of the guests, and the thus tours offered often requires update and revision of content in order to satisfy the guests. If not carefully managed through peer reviews / expert panels, the historical content and artefacts is prone to distortion and true value loss.
Nature	Over repetition of content during tours and display tend to become boring and guides instead inserts own content to please guests, if not monitored it can be detrimental.

Phase: Operational phase, especially during content building and revision, and to some extend either by tour guides choice or where staff turn-over is high.

Construction Phase	**Operational Phase**	**Decommissioning Phase**	**Post Closure**
- Not Applicable (construction completed)	- In case there is no system or tool in place to monitor and review the content present during tours, guides tend to unintentionally twist the content - Should there be a high staff turnover without adequate training of the new staff on the heritage content, gaps occurs	- Not applicable	- Not applicable

Severity	High, although the target audience may not have a vested interest in the preservation of the culture and heritage content they may misinterprete and misrepresent the facts of History and culture presented especially on social media.					
Duration	Medium to Long-term, impacts of wrong information can be very detrimental the further it spread					
Spatial Scale	Medium-to-High, the use of social media provides for information to spread beyond boarders and across different communities					
Probability	High, although it is often very difficult to detect					
Unmitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	H	**M**	**M**	**H**	**H**	**H**
Mitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**H**
Mitigation Measures	Having the necessary balance and checks system in place in respect to tour guides training material content and hosting of refresher training may significantly prevent content distortion from occurring. In addition, it is necessary to pass information materials through peer / expert review process to insure these are proof read and present the true and correct information. Equally training of new employees is crucial and by no chance must be undermined or presented on ad-hoc basis.					

***Table 6**: Aspect – Socio-Economic (Health and Safety)*

Impact Event	**Litter and Potential groundwater contamination from effluent (sewer) waste**					
Description	As a tourist destination the Ombu Cultural Village present the risk for health and safety hazards which may include transmission of infectious diseases such HIV/AIDS and others outbreaks.					
Nature	This may be detrimental if awareness and pre-cautionary measures are not employed					
Phase: Operational phase, the interaction of village staff with the guests puts them at both the risk of contracting and or transmitting (act as carriers)						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
- Not Applicable (construction completed)	- The hospitality sector (facilities) is often abused by some guests engaging in unsafe sexual affairs - If no awareness of supply of protection is rendered on HIV/AIDS, both the guests and staff may be at risk - Being a remote setup, other occupation hazards / accident may occur affecting potentially the staff as well as guests		- Occupational hazard and accidents may occur		- No impacts are foreseen during the Post Closure	
Severity	Low, the nature of activities conducted at the Cultural Village are not of high risk unless as may be influenced by natural hazards or disasters					
Duration	Short-term, impacts may be attended to by having a good health insurance for the guests and employees					
Spatial Scale	Low, highly local – unless during an outbreak of contagious diseases					
Probability	Low, impacts may only occur during accidents, natural hazard and or disaster					
Unmitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**M**	**L**	**H**
Mitigated Significance of Consequence	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**H**
Mitigation Measures	It is recommended that an on-site First Aid (Medical) facility or equipment be made readily available and with regular restocking with medical supplies, and where practical and possible the staff must be provided with a basic medical insurance. The site should have clear health and safety emergency procedure, with a demarcated and clearly marked emergency assembly point. For potential fire incidents, firefighting equipment and extinguisher must be safely and securely stored at easily accessible stores points.					

7. CONCLUSION AND RECOMMENDATIONS

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. As a result, companies seek to manage these impacts as part of their ethical and sustainable business conduct. Similarly, identifying, avoiding, mitigating and managing impacts, is a necessary condition for Mr. Mungunda to undertake its operation in compliance with the environmental legislative requirements in Namibia.

Potential impacts may vary in terms of scale (locality), magnitude and duration e.g. minor negative impacts in the form of visual intrusion, dust and noise pollution especially during the handling (loading and offloading will be experienced. Below is a summary of the likely positive impacts that have been assessed for the different phases of the existing sand mining project:

- Prevent / Reduce potential negative impacts on the environment and other sensitive receptors (nearby farms) through strict implementation of the EMP
- Raising awareness about the benefits of ecologically sustainable natural resource use (Likely impacts are high);
- Socio-economic development and capacity building through skills transfer and training from the garden that will be set up (Likely impacts are high);

The following is a summary of the likely negative impacts that have been assessed for the different phases of the existing sand mining project:

- Dust (Likely impacts are high but localized and can employ dust suppressing measures);
- Noise (Likely impacts are low as the site is far from residential areas);
- Ecological and biodiversity loss (Likely impacts are localized and low);
- Health and safety (Overall likely impacts are low with correct PPE);
- Solid and hazardous waste management (Likely impacts are low with a solid waste management plan and minimal hydrocarbon fuel use);
- Socio-economic (Likely negative impacts are low);

Based on the findings of the specialist studies, which all recommend that the proposed project can proceed and should be authorized by the DEA, the proposed project is considered to have an overall low negative environmental impact and an overall moderate positive socio-economic impact (with the implementation of respective mitigation and enhancement measures).

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