





ECC-096-239-REP-03-D

ENVIRONMENTAL SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NAKAMBALE ADVENTURE LODGE, OSHIKOTO REGION

PREPARED FOR



AUGUST 2019

PO BOX 91193 Windhoek Namibia Environmental Compliance Consultancy CC CC/2013/11404



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EXECUTIVE SUMMARY

Southern Cross Adventure Lodges (Pty) Ltd propose to undertake construction activities for the development of Nakambale Adventure Lodge in Oshikoto Region. The proposed development comprises a 15 en-suite, 5 self-catering units and 5 camping units lodge. The area has significant sustainable tourism potential which will expose tourists to the cultural experience in north central Namibia which is currently underutilised. The proposed development will also generate income for the indigenous community and open-up economic opportunities within the region. Agreements have been signed, finances are in place and contractors have been appointed for the lodge construction. The newly formed venture is designed to further spread financial, social and environmental benefits that eco-tourism can bring to previously marginalized communities.

The planned project triggers Listed Activities in terms of the Environmental Management Act, 2007 (Act No. 7 of 2007) and Regulations (2011), therefore, an Environmental Clearance Certificate is required. As part of the Environmental Clearance Certificate application, an environmental impact assessment has been undertaken which satisfies the requirements of the Environmental Management Act, 2007. This Environmental Scoping Report and Environmental Management Plan shall be submitted as part of the application for the Environmental Clearance.

The assessment has been carried out for the construction and operations of the Nakambale Adventure Lodge. The proposed development comprises of powerline, water pipeline, water storage tanks, guest accommodation and entertainment areas (swimming pool).

The planned development is located in an area that has a fairly sparse vegetation cover, dominated by *Colophospermum mopane* (Mopane trees) on higher ground, and sparsely open grassy drainage depressions lined by scattered *Hyphaene petersiana* (Makalani Palm tree).

The site and extent of the lodge infrastructure were selected so as to minimise the environmental footprint, minimise the distance to sources of water and electricity and use existing infrastructure as far as possible.

This environmental impact assessment (EIA) has been undertaken in terms of the requirements of the Environmental Management Act 7 of 2007 and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, 2007 (referred to herein as the EIA Regulations). The EIA was undertaken using a methodology developed by Environmental Compliance Consultancy which is based on the International Finance Corporation (IFC) standard for impact assessments. Through the scoping process, a review of the site and surrounding environment was completed by undertaking desktop reviews and verification of site data.

Due to the nature and scale of the project no significant impacts were identified during the scoping phase. Measures to mitigate and manage potential impacts on the environment during the construction and operational phases are outlined in the Environmental Management Plan (EMP).

This assessment has assessed, potential, likely and identified impacts, through the process it was determined that the likely effects were not deemed significant due to the magnitude of change from the baseline environment, the duration of potential impacts and the reversibility of effects. On this basis, it is the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.



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DEFINITIONS AND ABBREVIATIONS

ALARP	As Low As Reasonably Practicable
DEA	Directorate of Environmental Affairs
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ELCIN	Evangelical Lutheran Church in Namibia
IFC	International Finance Corporation
MET	Ministry of Environment and Tourism



1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

The purpose of this report is to present the findings of the Environmental Impact Assessment (EIA) for the proposed project. The proposed project is to undertake development activities for the Nakambale Adventure Lodge, which is described in detail throughout the report. This EIA has been undertaken in terms of the requirements of the Environmental Management Act, 2007 and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, 2007 (referred to herein as the EIA Regulations). This scoping report plus impact assessment and appendices will be submitted to the Directorate of Environmental Affairs (DEA) at the Ministry of Environment and Tourism (MET) for review as part of the applications for environmental clearance certificate.

This report has been prepared by Environmental Compliance Consultancy (ECC). ECC's terms of reference for the assessment is strictly to address potential effects, whether positive or negative and their relative significance, explore alternatives for technical recommendations and identify appropriate mitigation measures for the proposed project.

This report provides information to the public and stakeholders to aid in the decision-making process for the proposed project. The objectives are to:

- Provide a description of the proposed activity and the site on which the activity is to be undertaken, and the location of the activity on the site
- Provide a description of the environment that may be affected by the activity
- Identify the laws and guidelines that have been considered in the assessment and preparation of this report
- Provide details of the public consultation process
- Describe the need and desirability of the activity
- Provide a high level of environmental and social impact assessment on feasible alternatives that were considered, and
- Report the assessment findings, identifying the significance of effects.

An Environmental Management Plan (EMP) (Appendix A) has been developed to mitigate and manage potential impacts identified during the environmental assessment process. An EMP provides the management framework for planning and implementation of exploration activities. It provides operational standards and operating arrangements to ensure that the potential impacts of exploration activities are mitigated, prevented and minimised as far as reasonably practicable, furthermore the EMP ensures that statutory requirements and legal obligations are fulfilled.

1.2 BACKGROUND OF THE PROPOSED PROJECT

Southern Cross Adventure Lodges (Pty) Ltd propose to undertake construction activities for the development of Nakambale Adventure Lodge in Oshikoto Region. The proposed development is a 15 en-suite, 5 self-catering units and 5 camping units lodge. The area has significant sustainable tourism potential and expose tourists to the cultural experience in northern-central Namibia (see Figure 1).

The proposed development will also generate income for the indigenous community. Agreements have been signed, finances are in place and contractors have been appointed for the lodge construction. The newly formed venture is designed to further spread financial, social and environmental benefits that eco-tourism can bring to previously marginalized communities.

Activities of the lodge will include; hiking/nature walks, lodging, cultural interactions with communities, swimming pool, and camping.





FIGURE 1 - LOCALITY MAP OF NAKAMBALE ADVENTURE LODGE



1.3 ENVIRONMENTAL REQUIREMENTS

The Environmental Management Act No.7 of 2007 stipulates that an environmental clearance certificate is required to undertake listed activities in terms of the Act and its regulations. As such an environmental impact assessment (EIA) of the proposed project is required, and subsequent assessment report (this document) submitted as part of the Environmental Clearance Certificate application. Listed activities triggered by the proposed project in terms of the Environmental Management Act, 2007 and its regulations are as follows:

TABLE 1 - LISTED ACTIVITIES AND RELEVANCE TO THE PROPOSED DEVELOPMENT

LISTED ACTIVITY	EIA SCREENING FINDING
ENERGY GENERATION, TRANSMISSION AND STORAGE	A NamPower line will be installed to provide
ACTIVITIES	electricity at the lodge site.
1 (b) The transmission and supply of electricity	
WASTE MANAGEMENT, TREATMENT, HANDLING AND	Household waste shall be generated during,
DISPOSAL ACTIVITIES	construction and operations, which shall be
(2.1) The construction of facilities for waste sites, treatment of	collected and removed from the site for reused,
waste and disposal of waste.	recycling or final disposal at an appropriate
(2.3) The import, processing, use and recycling, temporary	facility.
storage, transit or export of waste	
TOURISM DEVELOPMENT ACTIVITIES	The planned project is the construction of a lodge
(6) The construction of resorts, lodges, hotels or other tourism	for tourism purpose.
and hospitality facilities	
WATER RESOURCE DEVELOPMENTS	Whilst the proposed project is not a dedicated
8.6) Construction of industrial and domestic waste water	facility for waste management, treatment or
treatment plants and related pipeline systems	disposal, sewerage waste shall be produced on
	site and will require treatment prior to discharge.
	A sewerage treatment facility shall be installed.
MINING AND QUARRYING ACTIVITIES	Minimal sand removal is required for
(3.2) Other forms of mining or extraction of any natural	construction activities. The sand will be sourced
resources whether regulated by law or not.	from an approved existing borrow pit.
FORESTRY ACTIVITIES	Minimal vegetation clearance is required in order
(4) The clearance of forest areas, deforestation, forestation,	to allow the construction of the proposed
timber harvesting or any other related activity that requires	project. Specially protected plant species will not
authorisation in term of the Forest Act, 2001 (Act No. 12 of	be cleared without approval from the competent
2001) or any other law.	authority.

The potential environmental and social effects are anticipated to be of minor significance, and those that may occur shall be contained on the proposed lodge site and they will be managed as per the environmental management plan of this project.

1.4 The Proponent of the Proposed Project

The proponent of the project is Southern Cross Adventure Lodges (Pty) Ltd are set out in Table 1 below.

TABLE 2 - PROPONENT DETAILS

CONTACT	POSTAL ADDRESS	EMAIL ADDRESS	TELEPHONE	WEBSITE
Jochen Beckert	P O Box 5633 Windhoek	jochen@absoluttours.com	+264 61 308 675	www.absoluttours.com



1.5 ENVIRONMENTAL CONSULTANCY

ECC, a Namibian consultancy (registration number Close Corporation 2013/11401), has prepared this scoping report and impact assessment on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa, in both the public and private sectors. ECC is independent of the proponent and has no vested or financial interest in the proposed project, except for fair remuneration for professional services rendered. The CVs of the authors of this report are contained in Appendix E.

All compliance and regulatory requirements regarding this EIA report should be forwarded by email or posted to the following address:

Environmental Compliance Consultancy PO BOX 91193 Klein Windhoek, Namibia Tel: +264 81 669 7608 Email: info@eccenvironmental.com

1.6 REPORT STRUCTURE

The scoping report plus impact assessment is structured as per the contents set out in Table 2.

TABLE 3 - STRUCTURE OF THE REPORT

SECTION	TITLE	CONTENT
-	Executive Summary	Executive summary of the EIA
-	Acronyms	A list of acronyms used throughout the report
1	Introduction	This chapter introduces the EIA and provides background information
		on the proponent
2	Regulatory Framework	This chapter describes the Namibian, international and relevant
		environmental regulatory framework applicable to the project
3	Methodology and approach to the EIA	Provides the assessment methodology applied to the EIA
4	Project Description	Technical description of the project
		This chapter considers alterative options for the project that allow the
		objectives of the project to be met detailing the reasons for the
		selection and rejection of options
5	Description of the	This chapter describes the existing environment through the analysis of
	environmental and social	the baseline data regarding the existing natural and socio-economic
	baseline	environment
6	Assessment of findings and	This chapter predicts the potential environmental and social impacts
	Mitigation	arising from the project, the assessment of impacts including residual impact
		This chapter also outlines the proposed management strategies for
		monitoring commitments to ensure the actual and potential impacts on
		the environment are minimised to "As Low As Reasonably Practicable"
		(ALARP) this informs the EMP
7	Environmental Management	This chapter provides a short description of the EMP used to take pro-
	Plan	active action by addressing potential problems before they occur and
		outline mitigation measures for each impact



SECTION	TITLE	CONTENT
8	Conclusions	Details the next steps for the EIA
	References	A list of reference used for this report
	Appendix	 Appendix A: Environmental Management Plan Appendix B: Non-Technical Summary Appendix C: List of plant species Appendix D: Evidence of Public Consultation, Site notice, Newspaper adverts Appendix E: ECC CVs



2 REGULATORY FRAMEWORK

The Constitution of the Republic of Namibia, 1990 clearly defines the nation's position in relation to sustainable development and environmental management. The Constitution says that the State shall actively promote and maintain the welfare of the people by adopting policies aimed at the following:

"Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future;"

The Constitution of the Republic of Namibia Article 95 (I)

This chapter outlines the regulatory framework applicable to the proposed project. TABLE 4 - LEGAL COMPLIANCE provides a list of applicable legislation and the relevance to the project.

TABLE 4 - LEGAL COMPLIANCE

NATIONAL		
REGULATORY	SUMMARY	APPLICABILITY TO THE PROJECT
REGIME		
Environmental	The Act aim to promote sustainable	This Environmental Scoping Report (and
Management Act,	management of the environment and the	EMP) documents the findings of the
2007 (Act No. 7 of	use of natural resources by establishing	environmental assessment undertaken for
2007) and its	principles for decision-making on matters	the proposed project, which will form part of
regulations,	affecting the environment.	the environmental clearance application.
including the	It sets the principles of environmental	The assessment and report have been
Environmental	management as well as the functions and	undertaken in line with the requirements
Impact Assessment	powers of the Minister. The Act requires	under the Act and its regulations.
Regulation, 2007	certain activities to obtain an environmental	
(No. 30 of 2011)	clearance certificate prior to project	
	development. The Act states an EIA may be	
	undertaken and submitted as part of the	
	environmental clearance certificate	
	application.	
	The MET is responsible for the protection	
	and management of Namibia's natural	
	environment. The Department of	
	Environmental Affairs under the MET is	
	responsible for the administration of the EIA	
	process.	
Water Act, 1956	This Act provides for "the control,	The Act stipulates obligations to prevent
	conservation and use of water for domestic,	pollution of water. The EMP sets out
	agricultural, urban and industrial purposes;	measures to avoid polluting the water
	to make provision for the control, in certain	environment.
	respect and for the control of certain	Measures to minimise potential
	activities on or in water in certain areas".	groundwater and surface water pollution are
	The Ministry of Agriculture Water and	contained in the EMP.
	Forestry Department of Water Affairs is	Should the project abstract of water from
	responsible for the administration of the	surface and or underground water sources,
	Water Act.	an application should be submitted to the
		Minister of Agriculture Water and Forestry.



NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
	The Minister may issue a Permit in terms of the regulations 5 and 9 of the government notice R1278 of 23 July 1971 as promulgated under section 30 (2) of the Water Act no. 54 of 1956, as amended.	
Soil Conservation Act No.76 of 1969	Makes provision for the prevention and control of soil erosion and the protection, improvement and the conservation, improvement and manner of use of the soil and vegetation.	Whilst minimum vegetation disturbance will occur on site during construction, there is potential to remove some and disturb soil. The construction methods and final design have been considered in the design of the planned project to be undertaken within site boundaries. Measures in the EMP set out methods to avoid soil erosion.
National Heritage Act, No. 27 of 2004.	The Act provides provision of the protection and conservation of places and objects with heritage significance. Section 55 compels companies to report any archaeological findings to the National Heritage Council after which a heritage permit needs to be issued	There is potential for heritage objects to be found on site, therefore the stipulations in the Act have been taken into consideration and are incorporated into the EMP. Section 55 compels companies to report any archaeological findings to the National Heritage Council after which a permit needs to be issued before the find can be disturbed.

2.1 NATIONAL POLICIES

TABLE 5 – NATIONAL POLICIES AND APPLICABILITY TO THE PROJECT

NATIONAL		
REGULATORY	SUMMARY	APPLICABILITY TO THE PROJECT
REGIME		
Vision 2030	Vision 2030 sets out the nation's development programmes and strategies to achieve its national objectives. It sets out eight themes to realise the country's long-term vision.	The planned project shall meet the objectives of Vision 2030 and shall contribute to the overall development of the country while building capacity in the local communities.
	Vision 2030 states that the overall goal of the vision is to improve the quality of life of the Namibian people to a level in line with the developed world.	
Fifth National Development Plan (NDP5)	The NDP5 is the fifth in the series of seven five- year national development plans that outline the objectives and aspiration of Namibia's long-term vision as expressed in Vision 2030. The NDP5 is structure on five pillars: economic progression, social transformation, environmental sustainability and good governance. Under the	The planned project supports meeting the objectives of the NDP5 through creating opportunities for ecotourism.



NATIONAL		
REGULATORY	SUMMARY	APPLICABILITY TO THE PROJECT
REGIME		
	social transformation pillar is the goal of improved education. A desired outcome of NDP5 is to have a diversified and competitive tourism sector with increased number of tourists from 1.4 million in 2015 to 1.8 million.	
The Environmental Assessment Policy	Approved by Cabinet in 1994, the Policy obliges Namibia to place a high priority on maintaining ecosystems and related ecological processes, and to uphold maximum biological diversity. The Policy recognises that environmental assessments are a key tool towards implementing integrated environmental management. The policy has also gained legislative support by the EMA.	Part of the planned projects vision is to maintain the ecosystems found on the planned site in order to integrate the facilities into the natural environment. An environmental assessment has also been undertaken as required under the EMA. The findings of which are presented in this report.

2.2 ENVIRONMENTAL POLICY

Southern Cross Adventures Lodges personnel are committed to environmental management principles and to conduct all construction activities in such a way as to minimize the adversely impact upon the natural environment, to ensure the compliance with all applicable laws and to aim for continuous improvements. This will be achieved through the understanding by all personnel of the Southern Cross Adventure Lodges' Environmental Management System (EMS) and their role in it, coupled with effective monitoring and control systems.

The EMS will be audited on a regular basis to assess compliance. The target will be reviewed and updated where necessary in order to align to the requirements of the International Environmental Management Standard ISO 14001.

2.3 PERMITS

Environmental permits may be needed in order to carry out operations of the lodge. Eco awards Namibia is an alliance of private sector and government organisation that runs a sustainable tourism certification programme. It is a mark of distinction for accommodation establishments that are planned and managed according to eco-friendly principles. The Self-assessment is included in Appendix F. Details of the permits and awards are included in TABLE 6.

TABLE 6 - PERMITS AND LICENSES

PERMIT	RELEVANT AUTHORITY	VALIDITY/DURATION
Waste Treatment Plant	Ministry of Water, Agriculture and Forestry	Permit dependent
Water Abstraction Permit	Ministry of Water, Agriculture and Forestry	Permit dependent
Eco Awards	Namibia Tourism Board	Application Dependent



3 METHODOLOGY AND APPROACH TO THE EIA

3.1 PURPOSE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The EIA process in Namibia is governed and controlled by the Environmental Management, 2007 and the EIA Regulations 30 of 2012, which is administered by the Office of the Environmental Commissioner through the Department of Environmental Affairs (DEA) of the MET.

An EIA is a process of identifying, predicting, evaluating and mitigating the potential impacts of a proposed project on the natural and human environment. The aim of the scoping assessment and EIA process and subsequent report are to apply the principles of environmental management to proposed activities, reduce the negative and increase the positive impacts arising from a proposed project, provide an opportunity for the public to consider the environmental impacts of a proposed project through meaningful consultation, and to provide a vehicle to present the findings of the assessment process to competent authorities for decision making.

3.2 THE ASSESSMENT PROCESS

The EIA methodology applied to this EIA has been developed using the International Finance Corporation (IFC) standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012); Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 25 years of combined EIA experience. The process followed through the basic assessment is illustrated in FIGURE 2 - ECC SCOPING PROCESS and detailed further in the following sections.





FIGURE 2 - ECC SCOPING PROCESS



3.1 METHODOLOGY FOR THE IMPACT ASSESSMENT

ECCs methodology for environmental impact assessments is adopted and based on models for environmental and social impact assessments set out by the International Finance Corporation (IFC) principal 1 'Assessment and management of environmental and social risks and impacts. Furthermore, this impact assessment was undertaken for Nakambale Adventure Lodge in accordance with Namibian legal requirements.

This impact assessment is a formal process in which the effects of certain types of development on the biophysical, social and economic environments are identified, assessed and reported, so that the effects can be taken into account when considering whether to grant development consent or to provide financial support.

Desktop studies on the national database are undertaken as part of the scoping stage to get information of the current status of the receiving environment. This provides a baseline where changes that occur as a result of the proposed project can be measured.

The environmental and social topics that may be affected by the proposed project are described in this section. The baseline focuses on receptors which could be affected by the proposed project.

3.2 SCREENING OF THE PROPOSED PROJECT

The first stages of the EIA process are to register the project with the Competent Authority and undertake a screening exercise. The screening exercise determines whether the proposed project is considered as a Listed Activity in terms of the Environmental Management Act, 2007 and associated Regulations, and if significant impacts may arise. During this process, the location, scale and duration of project activities are considered against the receiving environment to determine the approach to the EIA.

3.3 SCOPING OF THE ENVIRONMENTAL ASSESSMENT

The purpose of the scoping stage in the EIA process is to identify the scope of assessment, undertake a highlevel assessment to identify potential impacts, and confirm if further investigation is required to assign the severity of potential significant effects and allocate appropriate mitigation.

This report presents the findings of the scoping phase and high-level assessment and confirms that no further investigation is required. This conclusion is presented in Section 6.

3.4 BASELINE STUDIES

Baseline studies are undertaken as part of the scoping stage which involves collecting all pertinent information from the current status of the receiving environment. This provides a baseline against which changes that occur as a result of the proposed project can be measured.

For the proposed project, baseline information was obtained through a desk-top study, focussing on environmental receptors that could be affected by the proposed project and verified through site data. The baseline studies are presented in Section 4.

3.5 IMPACT PREDICATION AND EVALUATION

Impact prediction and evaluation involves predicting the possible changes to the environment as a result of the development/project. The recognized methodology was applied to determine the magnitude of impact and whether or not the impact was considered significant and thus warrant further investigation. The findings of the assessment are presented in section 6.



3.6 EIA DETERMINATION OF SIGNIFICANCE

The evaluation and prediction of the environmental and social impacts require the assessment of the project characteristics against the baseline characteristics, ensuring all potentially significant impacts are identified and assessed.

The significance of an impact is determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the proposed project, the nature and characteristics of the impact, and the magnitude of potential change. The magnitude of change (the impact) is the identifiable changes to the existing environment which may be direct or indirect; temporary/short term, long-term or permanent; and either beneficial or adverse. These are described as follows and thresholds are provided in Table 7, 8, and 9

- The **sensitivity and value of a receptor** is determined by identifying how sensitive and vulnerable a receptor is to change, and the importance of the receptor (internationally, nationally, regionally and locally).
- The **nature and characteristics of the impact** is determined through consideration of the frequency, duration, reversibility and probability of the impact occurring.
- The **magnitude of change** measures the scale or extent of the change from the baseline condition, irrespective of the value. The magnitude of change may alter over time, therefore temporal variation is considered (short- term, medium-term; long-term, reversible, irreversible or permanent).

SENSITIVITY AND VALUE	DESCRIPTION
High	Of value, importance or rarity on an international and national scale, and with very limited potential
	for substitution; and/or very sensitive to change or has little capacity to accommodate a change.
Medium	Of value, importance or rarity on a regional scale, and with limited potential for substitution; and/or
	moderate sensitivity to change, or moderate capacity to accommodate a change.
Low	Of value, importance or rarity on a local scale; and/or not particularly sensitive to change or has
	considerable capacity to accommodate a change.

TABLE 7 - SENSITIVITY AND VALUE OF RECEPTOR

TABLE 8 - NATURE OF IMPACT

NATURE	DESCRIPTION
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive
	change.
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new
	undesirable factor.
Direct	Impacts causing an impact through direct interaction between a planned project activity and the
	receiving environment/receptors.
Indirect	Impacts that result from other activities that are encouraged to happen as a result / consequence
	of the Project. Associated with the project and may occur at a later time or wider area
Extent / Geographic Scale	
On-site	Impacts that are limited to the boundaries of the proposed project site
Local	Impacts that occur in the local area of influence, including around the proposed site and within the
	wider community



Regional	Impacts that affect a receptor that is regionally important by virtue of scale, designation, quality or rarity.
National	Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.
International	Impacts that affect a receptor that is internationally important by virtue of scale, designation, quality or rarity.
Duration	
Short-term	Impacts that are likely to last for the duration of the activity causing the impact and are recoverable
Medium- term	Impacts that are likely to continue after the activity causing the impact and are recoverable
Long-term	Impacts that are likely to last far beyond the end of the activity causing the damage but are recoverable over time
Reversibility	
Permanent /Irreversible	Impacts which are not reversible and are permanent
Temporary / Reversible	Impacts are reversible and recoverable in the future
Likelihood	
Certain	The impact is likely to occur
Likely	The impact is likely to occur under most circumstances
Unlikely	The impact is unlikely to occur

TABLE 9 - MAGNITUDE OF CHANGE

MAGNITUDE OF CHANGE	DESCRIPTION
Major	Loss of resource, and quality and integrity of resource; severe damage to key characteristics, features or elements; or Large-scale or major improvement of resources quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	Loss of resource, but not adversely affecting its integrity; partial loss of/damage to key characteristics, features or elements; or Benefit to, or addition of, key characteristics, features or elements; improvements of attribute quality.
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (or maybe more) key characteristic, feature or element; or Minor benefit to, or addition of, one (or maybe more) key characteristic, feature or element; some beneficial effect on attribute quality or a reduced risk of a negative effect occurring.
Negligible	Very minor loss or detrimental alteration to one (or maybe more) characteristic, feature or element; or Very minor benefit to, or positive addition of, one (or maybe more) characteristic, feature or element.

The level of certainty has also been applied to the assessment to demonstrate how certain the assessment conclusions are and where there is potential for misinterpretation or a requirement to identify further mitigation measures, thereby adopting a precautionary approach. Where there is a low degree of certainty, monitoring and management measures can be implemented to determine if the impacts are worse than predicted and support the identification of additional mitigation measures through the life time of the proposed project. Table 7 provides the levels of certainty applied to the assessment, as well as a description.



TABLE 10- LEVEL OF CERTAINTY

LEVEL OF CERTAINTY	DESCRIPTION
	 Likely changes are well understood
	 Design/information/data used to determine impacts is very comprehensive
High	 Interactions are well understood and documented
	 Predictions are modelled, and maps based on interpretations are supported by a large
	volume of data, and
	 Design/information/data has very comprehensive spatial coverage or resolution.
	 Likely changes are understood
	- Design/information/data used to determine impacts include a moderate level of detail
Medium	 Interactions are understood with some documented evidence
	 Predictions are modelled but not yet validated and/or calibrated, and
	 Mapped outputs are supported by a moderate spatial coverage or resolution.
	 Interactions are currently poorly understood and not documented.
Low	 Predictions are not modelled, and the assessment is based on expert interpretation
	using little or no quantitative data.
	- Design is not fully developed, or information has poor spatial coverage or resolution.

The significance of impacts has been derived using professional judgment and applying the identified thresholds for receptor sensitivity and magnitude of change (as discussed above) and guided by the matrix presented in Figure 8. The matrix is applicable for impacts that are either positive or negative. The distinction and description of significance and whether the impact is positive, or negative is provided in Table 4.

TABLE 11 -- GUIDE TO SIGNIFICANCE RATINGS



Magnitude of Change



Significance is not defined in the Namibian EIA Regulations, however the Draft Procedure and Guidance for EIA and EMP states that the significance of a predicted impact depends upon its context and intensity. Accordingly, definitions for each level of significance has been provided in TABLE 12. These definitions were used to check the conclusions of the assessment of receptor sensitivity, nature of impact and magnitude of impact was appropriate.

TABLE 12- SIGNIFICANCE DESCRIPTION

SIGNIFICANCE OF IMPACT	DESCRIPTION
Major (negative)	Impacts are considered to be key factors in the decision-making process that may have an impact of major significance, or large magnitude impacts occur to highly valued/sensitive resource/receptors. Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
Moderate (negative)	Impacts are considered within acceptable limits and standards. Impacts are long-term, but reversible and/or have regional significance. These are generally (but not exclusively) associated with sites and features of national importance and resources/features that are unique and which, if lost, cannot be replaced or relocated.
Minor (negative)	Impacts are considered to be important factors but are unlikely to be key decision-making factors. The impact will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value. Impacts are considered to be short-term, reversible and/or localized in extent.
Low (negative)	Impacts are considered to be local factors that are unlikely to be critical to decision- making.
Low – Major (Beneficial)	Impacts are considered to be beneficial to the environment and society:

To ensure the beneficial impacts are brought out in the assessment, green has been applied to ensure the different type of impact is clear. The description for each level of significance presented in Table 9 was also followed when determining the level of significance for a beneficial impact.

The significance of impacts has been derived using professional judgment and applying the identified thresholds for receptor sensitivity and magnitude of change, as well as the definition for significance. It most instances, moderate and major adverse impacts are considered as significant, and however, there may be some instances where impacts are lower than this but are considered to be significant. The following thresholds were therefore used to double check the assessment of significance had been applied appropriately; a significant impact would meet at least one of the following criteria:

- It exceeds widely recognized levels of acceptable change
- It threatens or enhances the viability or integrity of a receptor or receptor group of concern, and



 It is likely to be material to the ultimate decision about whether or not the environmental clearance certificate is granted.

3.7 EIA CONSULTATION

Public participation and consultation are a requirement in terms of in section 21 of the Environmental Management Act No.7 of 2007 and its regulations for a project that requires an Environmental Clearance Certificate. Consultation is a compulsory and critical component in the EIA process, aimed at achieving transparent decision-making, and can provide many benefits.

A key aim of the consultation process is to inform stakeholders and interested and affected parties (I&AP) about the proposed project. The methods undertaken for the proposed project are detailed as follows, which are in line with the requirements of the EIA regulations.

3.7.1 NEWSPAPER ADVERTISEMENTS

Notices regarding the proposed project and associated activities were circulated in two newspapers namely the 'Namibian' on the 16thJuly and 23rd July 2019 and in the 'Informante' on the 18th and 25th of July 2019. The purpose of this was to commence the consultation process and enable I&APs to register an interest with the project. The adverts can be found in Appendix C.

3.7.2 Non-Technical Summary

The Non-Technical Summary (NTS) presents a high-level description of the proposed project; sets out the EIA process and when and how consultation is undertaken. The contact details for further enquiries are made available to all registered I&APS and the NTS can be found in Appendix B.

3.7.3 SITE NOTICES

A site notice ensures neighbouring properties and stakeholders are made aware of the proposed project. The notice was set up at the boundary of the site as illustrated in Appendix C.

3.7.4 Consultation Feedback

No issues or concerns were raised by the I&APs during consultation period.



4 **PROJECT DESCRIPTION**

4.1 NEED FOR THE PROPOSED PROJECT

Namibia is among the prime tourist destinations in Africa and home to a large number of wildlife species found nowhere else in the world. Nearly 20% of employments in the country are directly or indirectly related to the tourism industry. The sector contributes to about 14.5% of the country's GDP and more than one million tourists flock the country's national parks and other tourist destinations each year. Lodges and hotels have increased to cater to the new emerging interests as well as accommodate tourists from all over the world.

As a renowned ecotourism destination, Namibia's economy is heavily reliant on its extensive tourism industry. Especially with the current environmental issues within the country such as the impact of drought and climate change together with economic crisis, the proposed development has a potential to improve the living standards condition of the community at the local and regional levels.

Consequently, the development of the Nakambale Adventure Lodge will provide a unique cultural tourism in conjunction with the existing museum. As a result, the propose project will attract tourists to the region thereby presenting opportunities for development and other potential investors, whilst exposing tourists to a full cultural experience of the Ovambo tribes, which is currently underutilised. The need to expand the tourism sector and ensure sustainability in the sector is highlighted in Namibia's 5th National Development Plan.

4.2 ALTERNATIVES

The proposed project has been subject to a process of design evolution, informed by both consultation and an iterative environmental assessment. In terms of the Environmental Management Act, 2007 and its regulations, alternatives considered should be analysed and presented in the scoping assessment and EIA report. This requirement ensures that during the design evolution and decision-making process, potential environmental impacts, costs, and technical feasibility have been considered, which leads to the best option(s) being identified.

4.2.1 ALTERNATIVES CONSIDERED

The environmental assessment has taken a worst-case scenario into consideration which includes a review of all likely construction activities, thus no other technological alternatives are available for consideration at this stage. Once the construction programme is further defined, the best available option for methods shall be identified to ensure the impacts on the environment and society are minimised.

4.2.2 NO-GO ALTERNATIVE

Should construction activities within the Nakambale Adventures Lodge site not take place, the anticipated environmental impacts from developmental activities would not occur, however, the social and economic benefits associated with the project would also not be realised.

There will not be an opportunity to define resources within the project area, a missed opportunity for cultural tourism, accommodation and lodging could benefit the Namibian economy.

In many places the introduction and development of tourism allows local people an opportunity for economic and educational growth that would not otherwise be available. In addition, it allows both the tourist and the local community a chance to experience other cultures, which broadens understanding.

4.3 THE PROJECT SITE AND LOCATION

The Nakambale Adeventure Lodge will be located in Olukonda constituency, about 12 km south of Ondangwa town on the D3629 road in Oshikoto region within the central-northern part of Namibia. The lodge boundaries are in close proximity to the Nakambale Museum which is situated in the former Finnish Missionary house and



mainly displays items from the Finnish missionary station, but also some artefacts of the Ovambo (see FIGURE 3 - PROJECT LOCATIO.





FIGURE 3 - PROJECT LOCATION



4.4 SITE AND SURROUNDING ENVIRONMENT

The proposed development, Nakambale Adventure Lodge is located in the beautiful plains, amidst makalani palms, mahangu fields and homesteads of the Ovambo people in Olukonda village. Olukonda was one of the first Finnish mission stations in Ovamboland and was founded in 1871 during the colonial time of German South West Africa. It became home for Rev Martti Rautanen who often wore a hat which when turned upside down looked like ombale, (a traditional basket) and became locally known as Nakambale and that is where the Museum, in proximity to the proposed lodge, got its name.

Additionally, the Olukonda mission church known as Evangelical Lutheran Church in Namibia (ELCIN) is one of the first church built in Namibia in 1889, close to the lodge and the Ndonga royal family homestead. The area is also surrounded by a graveyard north east of the proposed development site FIGURE 4.

Tourism attractions within the region include the Otjikoto Lake, Guinas Lake, and Tsumeb Museums. The tourist attraction in the region is Etosha National Park, which is the biggest and most famous area which offers opportunities for viewing wildlife, such as elephants, rhinos, lions, impala, leopards, kudus, zebras, giraffes and many others.FIGURE 5 - ROADS AND ACCESS ROUTES TO THE PROPOSED LODGE SITE





FIGURE 4 - NAKAMBALE ADVENTURE LODGE SITE AND SURROUNDING





FIGURE 5 - ROADS AND ACCESS ROUTES TO THE PROPOSED LODGE SITE



4.5 PROPOSED DEVELOPMENT ACTIVITIES

The planned development entails the construction of tourist accommodation consisting of the following:

- Accommodation rooms for maximum of 30 guests
- Fifteen (15) en-suite guest rooms
- Five (5) camp sites
- Five (5) self-catering facilities
- Power line to provide electricity
- Water pipelines connections and water storage tanks
- 30 litres Swimming Pool
- Removal of natural resources (sand /soil) for construction if required

4.5.1 DESIGN AND BUILDING MATERIAL

The lodge will be constructed using platforms alleviated from the ground with wooden poles planted to support the structure. The flooring will be made from "everlast" building material which is a recycling product. The walls will be covered with canvas wrapping. All building materials that will be used for the proposed development will be eco-friendly alternative and of low cost compared to other building materials such as bricks. This method of construction is also suitable for flood prone areas and have a non-permanent structure for easier relocation. In addition, the method will have a very low carbon footprint and requires unskilled local labour during the construction phase.

4.5.2 PLANNED PROJECT SCHEDULE

The proposed activities as discussed above are anticipated to be carried out once an environmental clearance certificate is granted by the MET. Construction activities are intended to commence in October 2019 and may last for up to January 2020. The environmental clearance certificate along with all required permits should be in place during the construction and operational phases of the project.

4.5.3 WORKERS AND ACCOMMODATION

During the construction phase, the project expects to avail 10-30 employment opportunities. Housing for staff will be in the existing village and not at the lodge. All workers are expected to commute from homes every day. Once the lodge moves into operation, up to five (5) people will be permanently employed. Employment will be sourced locally as far as practically possible.

4.5.4 RESOURCE AND WASTE MANAGEMENT

Water will be required for various uses including human consumption and for construction activities. The water will be sourced from existing water sources on site, after permission is granted from the relevant authority. In the event that suitable water is not available, water maybe brought to site by truck, alternatively, a borehole will be drilled. In this case the required water borehole permits, and abstraction permit shall be obtained from the Ministry of Agriculture, Water and Forestry.

Waste will be produced on site, which will include sewage and solid waste. All solid waste shall be collected and delivered to the nearest waste management site for disposal. The proponent will ensure waste transport certificates are provided by the contractor. No waste shall be discharged into the environment.



5 ENVIRONMENTAL AND SOCIAL BASELINE

5.1 INTRODUCTION

This section provides an overview of the existing biophysical environment through the analysis of the baseline data regarding the existing natural and socio-economic environment. Desktop studies on the national database are undertaken as part of the scoping stage to get information of the current status of the receiving environment. This provides a baseline where changes that occur as a result of the proposed project can be measured. This section also incorporates consultation and public participation of the proposed project.

5.2 BASELINE OF THE BUILT ENVIRONMENT AND LAND-USE

The Oshikoto region is centrally located north of the Ohangwena region, east of the Kavango west, south and east of Otjozondjupa region and west of Oshana region. The total population of the region is 181,973 and it covers an area of 38,685 km². Approximately 86% of the population speak the oshiwambo language.

The proposed development is located in the area in which is land use is predominated by small-scale agricultural crop and livestock farming, making farming one of the main land-use activities, but the area also has a potential tourism business. This involves agro-silvo pastoralism, based primarily on the Pearl Millet (*Pennisetum glaucum*) (locally known as mahangu) as a crop composition, livestock keeping through communal grazing and multipurpose use of indigenous plants (e.g. wood harvesting) (Jurgens, Schmiedel, & Hoffman, 2010).

In terms of tourism attractions within the project area, the culture of the Ovambo people and their exciting history of the liberation struggle as well as some sights such as the Ombalantu Baobab (which is one of the largest Baobabs in Africa), Olukonda Missionary Station and Nakambale Museum are worth the visits. Other attractions in Oshikoto region are the natural springs in King Nehale conservancy.

5.3 CLIMATE AND RAINFALL

Namibia is generally considered to be a hot country however temperatures vary with day, time, and season. The central-northern Namibia is described as semi-arid, with rainfall restricted to the summer months (November to April) when temperatures are also the highest. The annual rainfall varies between 350 – 550 mm. It is estimated that about 83% of all the rainwater evaporates soon after it has fallen while percolation rate is also very high. This is due to the poor water holding capacity of the soils in the area and consequent reduction in the water available for plants (Mendelssohn, 2000).

The Ovambo, of whom many still live of subsistence farming, make use of the water in the Oshanas. Oshanas are shallow water ways that are filled during the rainy season, with draining waters from the Angolan highlands. During the floods the water eventually travels into the Etosha Pan where it forms a large temporary lake.

The temperatures in the central-northern Namibia varies greatly as it has hot summers and mild winters. In summer, heat is often subdued by the rains, but temperatures may rise well above 37.5 degrees. The highest total radiation values are in the central north Namibia ranging between 6.2-6.4kWh/m2/day. This is where the elevations of the sun are higher on average than in the south (Mendelssohn, 2000). The prevailing wind in the central-northern is dominantly from the north east, with an average speed of approximately 2.3m/s and 4.8% calm days since the beginning of 2019 (FIGURE 6).





FIGURE 6 - WIND DIRECTION OF SPEED IN ONDANGWA, OSHANA REGION



5.4 SOIL AND VEGETATION

The soils of the central-northern area are mainly deposited by wind and water. The soils are nutrient-poor with relatively low fertility due to minimal organic matter that is returned to the soil. The soils are part of the cambric arensols group as indicated in FIGURE 7. Generally, rocks do not occur in central-northern Namibia, but precipitated calcareous concretes have been encountered in some areas (Mandelssohn *et al.*, 2000).

The vegetation within Oshikoto is classified into five physiographical regions namely;

- Oshigambo-Niipele Drainage Basin- palm savannah characterized by open grassy drainage depressions lined by Makalani Palms and Mopane trees on higher ground.
- Ekuma Grassveld- seasonally flooded grasslands with patches of Acacia and Mopane species (Southwestern part, north of Etosha).
- Northern Kalahari Sandveld- dry bush savannah with dunes. Acacia species are predominant.
- Kalkveld-Mopane Acacia savannah and bush savannah (east of Etosha Pan) and,
- Karstland-mountain savannah dominated by Mopane and Acacia. Slopes of mountains have trees and shrubs with edible grass species.

Only a sparse vegetation is found in the *Oshanas* during dry season with Mopane trees and Makalani palms growing along their fringes. The proposed site is dominated by spare shrublands and slight cover of woodland (FIGURE FIGURE **8**). The vegetation density in proximity of the lodge site is sparse, dominated by *Colophospermum mopane* (mopane). Nevertheless, every effort will be made to protect the existing trees and shrubs, because it is equally important to ambience and aesthetic appeal of the lodge surroundings. List of species in the area provided by the National Herbarium of Namibia is included in appendix E.





FIGURE 7 - SOIL IN THE AREA

AUGUST 2019





FIGURE 8 - VEGETATION IN THE AREA

AUGUST 2019



5.5 BIODIVERSITY - FAUNA SPECIES

There is a wide variety of wildlife within the region, especially in Etosha National Park, King Nehale conservancy and in some commercial farms which provide a complementary economic opportunity with the proposed project. During the flood, large parts of the central-northern turns into wetlands bird diversity appears consisting of pelicans, storks, flamingos and many other species. The waterways are filled with fish. Apart from that, only very little wildlife is found in the communal area particularly north of the Etosha National Park due to the high population density.

5.6 SITE GEOLOGY

The stratigraphy of the area encompasses the Kalahari and Namib sands basin. These outcrops are surrounded by sediments that accumulated and evolved through fluvio-deltaic, aeolian and groundwater processes. The regional geology within Kalahari group sediments generally include a widespread basal gravel and a fining upwards sequence with sedimentary facies ranging from coarse clastic proximal facies to distal fine-grained mudstones (See FIGURE 10) (Haddon, 2005).




FIGURE 9 - GEOLOGICAL MAP OF THE AREA

AUGUST 2019



5.7 HYDROLOGY AND TOPOGRAPHY

The planned project site is relatively flat with little to no elevated areas as shown in FIGURE 10. The elevation above sea level is 1041m - 1123m. However, there are some pockets of higher ground at the Otavi Mountain Range and the mountain at Halali.

Numerous underground caverns, with high-quality groundwater, are found in limestone. The drainage system is defined by three river systems flowing from east to west and two systems originating in Central Angola draining into the Etosha Pan. The central part of the region is intersected by a network of shallow water courses (*Oshana's*) which comprises the Cuvelai Delta. The *Oshana's* are usually recharged by flood waters that flow from Angola highlands where annual rainfall may exceed 700 mm and become flooded during rainy seasons. After rain, fresh surface water in pans and *Oshanas* is available until June-July. Groundwater retrieved through boreholes ranges from drinkable to highly saline. There are number of existing boreholes around the site and should the project require abstraction of water from surface and or underground sources, an application must be submitted to the Minister of Agriculture, Water and Forestry refer to FIGURE 10.





FIGURE 10 – HYDROLOGY AND ELEVATION MAP



5.8 SOCIO-ECONOMIC ENVIRONMENT

Commercial farming area forms part of the highest source of income making up to 33.3% while the remainder of the region consist of government employment, including education, health, and law and order. The majority of the population is employed in the subsistence agriculture sector, agriculture has a significant effect on the economy of the region, and communal farmers do practice crop and animal production in Oshikoto region, mainly mahangu and livestock farming. Mixed subsistence farming is practiced, with Mahangu as a staple crop and extensive livestock (cattle, goats and sheep) production. Some people sell their mahangu or livestock to get income (Oshikoto Region Flood Contingency Plan , 2010). The proposed project will not only provide employment opportunities and income but also encourage community's to open up markets to sell their products to tourist, for example craftwork etc.

5.8.1 DEMOGRAPHIC PROFILE

Namibia is one of the least densely populated countries in the world, with a population of 2.3 million people. Life expectancy is 65 years and expected years of schooling is 11.7 (National Planning Commission, 2017). Namibia's population is expected to increase from an estimated 2.11 million in 2011 to 3.44 million by 2041 (63%). In the 2011 Census, the population of the Oshikoto Region was 181 973 (Namibia Statistics Agency, 2011). Olukanda village of which the proposed lodge is situated has a total population of 9 559 people residing in 1 562 households or homesteads.

5.8.2 HIV/AIDS IN NAMIBIA

HIV/AIDS in Namibia is a critical public health issue and is one of the leading causes of death. Namibia has a generalised HIV epidemic, meaning that there is a high HIV prevalence among the whole population. The epidemic is now starting to stabilise, after a rapid increase from the time that the first case of HIV was reported in 1986 through until a peak in 2002. HIV prevalence in Namibia is not yet measured through a population-based survey, instead, HIV prevalence among pregnant women attending Ante Natal Clinics is used. In 2010, 18.8% of pregnant women were HIV positive, a reduction from the high of 22% in 2002. However, HIV prevalence is unevenly distributed throughout the country, therefore this figure is not a national representation. The overall trend illustrates that HIV prevalence is stabilising rather than increasing (UNICEF, 2011).

5.8.3 EMPLOYMENT

Unemployment rates in Namibia particularly, among the youth are exceedingly high. About 40% of the unemployed population had completed their primary education of which 14% had completed their secondary education and 0.7 percent had completed their tertiary education. Those with no formal education constituted around 16 percent of the unemployed population. The proposed development has a potential to contribute to the reduction in unemployment rate by providing temporal and permanent jobs during construction and operation phase (Namibia Statistics Agency, 2011).

5.8.4 HERITAGE

A review of the National Heritage Council database was conducted, and no known heritage sites were identified in the project area. In cases where heritage sites are discovered, the chance find procedure will be used.



6 ENVIRONMENTAL ASSESSMENT OF FINDINGS AND MITIGATION

6.1 SCOPING ASSESSMENT FINDINGS

When undertaking the scoping exercise, the design of the proposed project and best practice measures were considered to ensure the likely significant effects and any required additional mitigation measures were identified. The following topics were considered during the assessment:

- Surface water and ground water
- Soils and geology
- Landscape (visual impacts, change in landscape, sense of place)
- Socio-economics (employment, demographics, and land-use)
- Noise
- Ecology (fauna and flora)
- Air Quality (including dust), and
- Cultural heritage and palaeontology resources.

The source-pathway-receptor model was used to evaluate the potential impacts of the proposed project and determine if further assessment is required. These include:

- **Source of potential impact** where does the impact come from? (e.g. the activity, ground excavation, which emits dust)
- **The potential pathway** how can the pollution / impact travel through the environment? (e.g. wind direction and speed); and
- **The receptor and effect** what can be affected and how? (E.g. water body, sedimentation, water quality affected).

Table 11 sets out the findings of the assessment. Activities that could be the source of an impact have been listed, followed by receptors that could be affected. The pathway between the source and the receptor has been identified where both are present. Where an activity and/or receptor has not been identified, an impact is unlikely, thus no further assessment or justification is provided. Where the activity, receptor and pathway have been identified, a justification has been provided documenting if further assessment is required or not required.

Due to the nature and localised scale of the exploration activities, and the environmental context of both sites, the potential environmental and social effects are limited and unlikely to be significant. Where effects occur, they will be managed (avoided or reduced) through implementation of best practice mitigation, as detailed in the EMP (contained in Appendix A). All topics were considered during the scoping assessments, which did not identify areas of uncertainty and thus no further investigation was deemed required.



LIMITATIONS, UNCERTAINTIES AND ASSUMPTION

A number of limitations and uncertainties were acknowledged during the EIA process. In line with EIA best practice, assumptions have been made based on realistic worst-case scenarios, thereby ensuring that the worst-case potential environmental impacts are identified and assessed. The following assumptions and uncertainties identified during the assessment process.

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LIMITATION / UNCERTAINTY	ASSUMPTION
The program of construction works is not confirmed	It is assumed that construction work shall take up to 3 months and involve construction lodging facilities, powerlines and water pipeline construction.
Number of employees and area they will come from	It is assumed that most of the workers will come from Olukonda Village and the number of employees will be changing depending on the program.
Access route and creation of new tracks	No new tracks or access roads will be created, public roads will be used to access the site.



TABLE 14 - SUMMARY OF POTENTIAL IMPACTS

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Soil	Fuel handling and storage, lubrication of equipment	- Spillages lead to groundwater contaminatio n and soil contaminatio n	Direct On-site Short-term Temporary/re versible Unlikely	Medium	Moderate	Moderate (6)	 Safe delivery and handling: Training employees and toolbox talks Good housekeeping across the site Spill kits to be placed at designated areas across the site Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard Any major spill is reported to the project manager and Ministry of Mines and Energy Equipment to be well maintained and serviced regularly The use of hydrocarbons under 200 litres can be 	Low (2)



RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							 used for mobile refuelling or servicing Refuelling: Drip tray to be used during refuelling of any vehicles and must be on impermeable flat surface where possible, and Funnel should be available and used to avoid spillage during decanting 	
Community, socio - economic and environment		 Floods cause extensive destruction of infrastructure which in turn disrupts service provision particularly education and health services. 	Direct Local Short-term Reversible Likely	Medium	Moderate	Moderate (6)	 Dissemination of information on flood preparedness Monitoring preparedness activities Contact different stakeholders to identify their support Identify relocation sites Training and orientation Identifying and budgeting for resources (resource mobilization) 	Minor 3

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							 Reporting on the evolving flood situation 	
Terrestrial Ecology and biodiversity	 Vegetation clearance for constructio n of the lodge Vehicle movement s 	 Possible injury or death of animals Poaching Habitat fragmentatio n from clearing Habitat loss from excessive Clearing Increased human activity can impact biodiversity security 	Direct Local Short-term Temporary/re versible Certain	Medium	Low	Minor (2)	 Use existing tracks where possible Route new tracks around established and protected trees, and clumps of vegetation Identify rare, endangered, threatened and protected species and demarcate them and avoid cutting them down. All workers shall be notified avoid any excluded areas or species Natural drainage patterns should be restored Relocation of protected plant species if disturbance cannot be avoided. 	Low (2)
Community	- Dust creation due	 Impacts of public health and visibility 	Direct Local	Low	Minor	Minor (3)	- Avoid off-road driving	Low (2)

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	constructio n activities	- Impact on fauna and flora	Temporary Reversible Unlikely				 Apply dust suppression methods- water sprinkling Communication with farmers/landowners/nei ghbours. 	
Community and environment	 Light may cause disturbanc e/disorient ation of animals at night 	 Disruption to neighbour and nearby settlements Disturbance of local wildlife 	Direct Local Temporary Reversible Unlikely	Low	Negligible	Low (2)	 No construction activities to be conducted (between dusk and dawn, on Sundays and on public holidays 	Low (1)
Community and environment	 Noise and lights may act as a distraction/ attraction to different species. 	Construction noise impacting neighbouring residents	Direct Local Temporary Reversible Likely	Low	Negligible	Low (2)	 No construction activities to be conducted (between dusk and dawn, on Sundays and on public holidays 	Low (1)
Neighbours /Landowners/ Tourists	 Visual impact becaus e of new buildin 	 Changes to aesthetics- disturbed 	Direct Local Short-term	Low	Minor	Minor (3)	 Maintain good housekeeping on site Building material is low rise and made of natural material therefore, it is 	Low (2)

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	g in the area	view from the road (tourists and local community)	Reversible Likely				unlikely that the lodge will have any impact of the landscape of the local community.	
Topography and landscape	- Creation of new tracks and roads	 Environment al disturbance Loss of flora and fauna Disturbance of migratory animals in the area 	Direct Local Short-term Reversible Likely	Medium	Moderate	Moderate (6)	 Make use of existing tracks if available When developing a new track off an existing roadway ensure the junction is discreet and safe Monitor the condition of the track before, during, and after use Do not needlessly remove vegetation from either side of the roadway. 	Low (2)
Heritage	 Potential to unearth archaeologi cal remains Direct and indirect impacts to 	 Impact on viewshed/lan dscape surrounding heritage features 	Direct On site Long-term Irreversible	High	Major	Major (9)	If discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied: - Works to cease, area to be demarcated with	Minor (4)

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	cultural resources		Likely				 appropriate tape by the site supervisor, and the Site Manger to be informed Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary If work cannot proceed without damage to findings, Site Manager is to inform the Environmental Manager who will get in touch with an archaeologist for advice 	
							 Archaeological specialist is to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains) 	

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							 Inform the police if the remains are human, and Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as appropriate. 	
Social Economic	- Job creation due to activities	 Employment creation and skills development Opportunities during the phase (Approx. 10- 20 jobs) Knowledge and technology skills transfer to workers during the 	Direct Regional Long-term Reversible Certain	Medium	Minor	Minor (4)	 Maximise local employment and local business opportunities to promote and improve the local economy Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained, and 	Low major beneficial

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
		operational phase and training of local employees					 Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible 	
Community	- Increased people in the area	 Potential risk for social interactions and transmission of infectious diseases 	Direct Local Short-term Irreversible/R eversible Likely	Moderate	Low	Minor (3)	 Public awareness Ensure distribution of protection (condoms) at the lodge 	Low (2)
Community & Environment	 Generation of waste due to activities 	 Nuisances (odours and visual), and Litter (nuisance and ecological risk) Increased pollution such as plastic etc. 	Direct On-site Short-term Reversible Likely	Moderate	Low	Minor (3)	 Training and toolbox talk to workers shall be provided Ensure good housekeeping across site Implement the waste management hierarchy across the site: avoid, reuse, and recycle Waste shall be collected and shall be removed on a regular basis to avoid bad odours 	Low (2)

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RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF POTENTIAL IMPACT/S	EFFECT/DESCRI PTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							 It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials, and Hazardous and non- hazardous waste shall always be stored separately. 	



7 ENVIRONMENTAL MANAGEMENT PLAN

The EMP for the proposed project is presented in Appendix A. It provides management options to ensure the impacts of the proposed project are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary.

The management measures should be adhered to during all stages of the construction activities of the lodge. All persons involved and partaking in the proposed activities should be made aware of the measures outlined in the EMP to ensure activities are conducted in an environmentally sound manner.

The objectives of the EMP are:

- To include all components of the development and operations of the project
- To prescribe the best practicable control methods to lessen the environmental impacts associated with the project
- To monitor and audit the performance of operational personnel in applying such controls, and
- To ensure that appropriate environmental training is provided to responsible operational personnel.



8 CONCLUSION

The environmental assessment that was undertaken for the proposed project, followed ECC's EIA methodology to identify if there is potential for significant effects to occur as a result of the proposed project.

All other social and environmental receptors were scoped out as requiring further assessment as it was unlikely that there would be significant effects. Through further analysis and identification of mitigation and management methods, the assessment concludes that the likely significance of effects on visual amenity is expected to be minor. Various best practice and mitigation measures have been identified to avoid and reduce effects as far as reasonably practicable, as well as to ensure the environment is protected and unforeseen effects are avoided.

On this basis, it is of the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.



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APPENDIX A- EMP



APPENDIX B - NON-TECHNICAL SUMMARY







ECC ENVIRONMENTAL COMPLIANCE CONSULTANCE

NON-TECHNICAL SUMMARY SOUTHERN CROSS ADVENTURE LODGES

NON-TECHNICAL SUMMARY DEVELOPMENT OF THE SOUTHERN CROSS ADVENTURE LODGES IN ERONGO, OSHANA, AND KAVANGO REGIONS IN NAMIBIA

1 PURPOSE OF THIS DOCUMENT

The purpose of this Non-Technical Summary (NTS) is to provide Interested and Affected Parties (I&APs) a background to the proposed project and to invite I&APs to register as part of the Environmental Impact Assessment (EIA) process. Development of the Erongo Rocks Adventure Lodge, Nakambale Adventure Lodge and Okavango River Adventure lodge hereby invite I&APS to register as part of the Environmental Impact Assessment (EIA) process. Through registering, all I&APs will be kept informed throughout the EIA process, and a platform for participation will be provided to submit comments/recommendations pertaining to the project.

This NTS includes the following information on:

- The proposed project and location
- The necessity of the project, benefits or adverse impacts anticipated
- The alternatives to the project have been considered and assessed
- How the EIA process works
- The public participation process and how to become involved, and
- Next steps and the way forward.

2 DESCRIPTION OF PROPOSED PROJECT

2.1 BRIEF INTRODUCTION

Environmental Compliance Consultancy (ECC) has been engaged by the proponent (Southern Cross Adventure Lodges) to undertake an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) in terms of the Environmental Management Act, 2007 and its Regulations. An environmental clearance application will be submitted to the relevant competent authorities; the Ministry of Environment and Tourism (MET).

2.2 LOCATION

The project is location is illustrated in Error! Reference source not found..

2.3 WHAT IS PROPOSED

Southern Cross Adventure Lodges is an Inbound Tour Operator with offices in South Africa, Namibia, Botswana and Zimbabwe.

The proponent organises group tours in South Africa, Namibia, Botswana, Lesotho, Zimbabwe, Zambia, Mozambique and Malawi since 1991.

Southern Cross Adventure Lodges proposes to develop lodges with up market accommodation units. With the intend to further spread the financial and social benefits of ecotourism to the previously disenfranchised communities.

2.4 OPERATION PHASE

The proposed construction activities are low-impact and non-intrusive. The following are envisaged during the proposed project:

- Potential creation of access tracks, where existing tracks cannot be utilised
- Limited vegetation clearing for the creation of tracks
- Possible construction of drainage infrastructure, power and water supply infrastructure, sewerage treatment facility and associated connections.

2.5 WHY IS THE PROJECT NEEDED

The development of the Southern Cross Adventure Lodges will aid development in the region whilst offering tourists a higher valued service which will caters for medium to upper market tourists seeking a reasonably priced lodge. The new development will expose tourists to a cultural experience in the west and north central Namibia. This area has large tourism potential and will generate income for the indigenous community.











2.6 POTENTIAL IMPACTS OF THE PROJECT

2.6.1 SOCIO-ECONOMIC

The potential social impacts are anticipated to be of low significance, and those that may transpire shall be confined within the proposed project sites, these potential impacts may include the following:

- Potential to unearth, damage or destroy undiscovered heritage remains
- Minor disruption to the residents of the farms within the site, including some increase in noise levels and dust arising from construction activities and vehicular movements
- Some jobs will be created as a result of the project, and
- Potential economic benefits due to increased income in the Namibian tourism sector.

2.6.2 ENVIRONMENTAL

The potential environmental impacts are anticipated to be of minor significance, and those that may occur shall be contained within the site, these potential impacts may include the following:

- Some potential biodiversity loss due to possible tracks creation and excavations
- Potential use of resources, including surface and groundwater, and
- Potential creation of noise and dust due to construction activities.

3 CONSIDERATION OF ALTERNATIVES

Best practice environmental assessment methodology calls for consideration and assessment of alternatives to a proposed project.

In a project such as this one, it is difficult to identify alternatives to satisfy the need of the proposed project; the activities shall be specific to the sites.

During the assessment, alternatives will take the form of a consideration of optimisation and efficiency to reduce potential effects.

4 THE ENVIRONMENTAL ASSESSMENT PROCESS

This EIA, conducted by ECC, is undertaken in terms of the Environmental Management Act, 2007 and its regulations.

NON-TECHNICAL SUMMARY SOUTHERN CROSS ADVENTURE LODGES

The process followed in this EIA is set out in the flowchart in

FIGURE 2 below.



FIGURE 2 - FLOWCHART OF THE ENVIRONMENTAL ASSESSMENT PROCESS





4.1 SCREENING

A review of the proposed project screening findings against the listed activities was conducted; the findings of which are summarised below:

TOURISM DEVELOPMENT ACTIVITIES

6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities

WATER RESOURCE DEVELOPMENTS

8.1 The abstraction of groundwater and surface water industrial or commercial purposes

8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline system

WASTE MANAGEMENT, TREATMENT, HANDLING, AND DIPOSAL ACTIVITES

2.1 The construction of waste sites, treatment of waste and disposal of waste

2.3 The import, processing, use and recycling, temporary storage, transit or export of waste

The potential environmental and social effects are anticipated to be of minor significance, and those that may occur shall be contained on the proposed lodge sites.

4.2 SCOPING

Due to the nature of the proposed project, and the implementation of industry best practice mitigation measures during the development phase of the project, the effects on the environment and society are expected to be minimal and localised.

4.3 BASELINE STUDIES

For the proposed project, baseline information was obtained through a desk-based study and site verification processes through focusing on the environmental receptors that could be affected by the proposed project. ECC will also engage with stakeholders, I&APs and the proponents to seek input into the assessment.

4.4 IMPACT ASSESSMENT

Impacts will be assessed using the ECC EIA methodology. The EIA will be conducted in terms of the Environmental Management Act, 2007 and its regulations. ECCs methodology for impact assessments

NON-TECHNICAL SUMMARY SOUTHERN CROSS ADVENTURE LODGES

was developed using IFC standards in particular Performance Standard 1 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017), (International Finance Corporation, 2012) and Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008) including international and national best practice with over 25 years of combined EIA experience.

4.5 ENVIRONMENTAL MANAGEMENT PLAN

An EMP shall be developed for the proposed project setting out auditable management actions for Southern Cross Adventure Lodges to ensure careful and sustainable management measures are implemented for their activities in respect of the surrounding environment and community.

4.6 PUBLIC PARTICIPATION AND

ADVERTISING

Public participation is an important part of the EIA process; it allows the public and other stakeholders to raise concerns or provide valuable local environmental knowledge that can benefit the assessment, in addition it can aid the design process. This project is currently at the scoping phase and public participation phase.

At this phase ECC will perform the following:

- Identify key stakeholders, authorities, municipalities, environmental groups and interested or affected members of the public, hereafter referred to as I&APs
- Distribute the NTS for the proposed project (this document)
- Advertise the environmental application in two national newspapers
- Place notices on-site at or near the boundary
- If required host a public meeting to encourage stakeholder participation and engagement, and provide details of issues identified by the environmental practitioner, stakeholders and I&APs
- Record all comments of I&APs and present such comments, as well as responses provided by ECC, in the comments and responses report, which will be included in the scoping report that shall submitted with the application, and
- Circulate I&AP comments to the project team for consideration of project design.







APPENDIX C - EVIDENCE OF PUBLIC CONSULTATION





The following was advertised in the Informante on the 18th July and 25th July 2019, (online newspaper).



SITE NOTICES





APPENDIX D - ECC CVS



Stephan Bezuidenhout

IRONMENTAL COMPLIANCE CONSULTANCY **ENVIRONMENTAL ASSESSMENT** PRACTITIONER

Hello! :)



ABOUT ME

Name

Jacobus Stephan Bezuidenhout - But you can call me Stephan -

> Born 11 April 1989

Current

Phone +264 81 262 7872

Email stephan@eccenvironmental.com

> Website www.eccenvironmental.com

> > Contact me!

How to reach me!

kid.bezuidenhout

+264812627872

Stephan Rezuidenhout

Education & Qualifications

University of Pretoria South Africa 2012

K

University of Stellenbosch South Africa 2008

Additional Qualifications:

Publications:

Postgraduate Degree in Environmental Management & Analysis

Bachelors in Applied Science

- Snake Bite and Snake Handling
- Level 1 & 2 First Aid
- Industrial Environmental Compliance

N.S., et al., Some ecological side-effects of chemical and physical bush clearing in a southern African rangeland ecosystem, Southern African Journal of Botany (2015), http://dx.doi.org/10.1016/j.sajb.2015.07.012

The FSC National Forest Stewardship Standard of Namibia (Draft V 4). Co-authored by S Bezuidenhout, P Cunningham, A Ashby, F

Detering, W Enslin & D Honsbein

Experience & Work History

Managing Director

Since 2012, Stephan has been working as an environmental assessment practitioner. Stephan has a strong ecological background and has gained more than seven years experience in the environmental industry. As a lead practitioner, Stephan has successfully driven environmental impact assessments and compliance assessments within Southern Africa. His hands on and practical experience and knowledge of international standards, such as IFC and World Bank standards allows Stephan to advise his clients and teams constructively and effectively.

ENVIRONMENTAL CONSULTANT & PRACTITIONER

Stephan manages a dynamic team of environmental practitioners and graduates at Environmental Compliance Consultancy. The firms' core objective is to improve the national standard of environmental compliance by developing local capacity. To date Stephan and his team have successfully completed over 30 projects for various industries, including mining, energy, infrastructure, conservation and tourism.

AUGUST 2019







References

Feel free to ask the boss :)

SALOME BEESLAAR Environmental Practitioner Pr.Sci.Nat: 400385/14

> ESCA COETZEE Environmental Scientist Sasol Technology

PHIL BARKER Pipeline Construction Superintendent Worley Parsons

Or ask those who have worked for me?

Michael Moreland Environmental Scientist CSP Solar Energy Projects

Professional Associations

- South African Institute of Ecologists and Environmental Scientists (SAIE&ES)
- Environmental Assessment Practitioners Association of Namibia (EAPAN#172).
- Member of FSC Environmental Chamber
 Executive Committee Member of
- Executive Committee Member of Namibian Chamber of Environment

Fun Facts:

- Keen fisherman
- Passionate Hunter & Conservationist
- 21ft vessel certified skipper
- Summated Kilimanjaro
- Have survived scorpion stings and snakebites!
- Did I mention I love camping?
- Words I live by:

'Do what makes you happy the rest will follow'

Stephan Bezuidenhout Managing Director

+264 81 262 7872

Experience & Work History

Over the past two years he has mentored over eight interns (of which most still work closely with him) building their careers in environmental management, conservation and rangeland management.

Examples of projects successfully completed include:

 Abengoa Solar SA Paulputs CSP (Pty) Ltd. 150 MW CSP Tower Environmental Assessment Practitioner during EIA Process

Northern Cape Province, South Africa

- Abengoa Solar SA, Xina Solar One (200 MW) CSP Trough Environmental Control Officer during construction phase. Northern Cape Province, South Africa
- Abengoa Solar SA, Khi Solar One (50 MW) CSP Tower. Environmental Control Officer during commissioning and rehabilitation phases. Northern Cape Province, South Africa for Abengoa Solar
- Isondlo Project Support (IPS) (Pty) Ltd. Soil Remediation and commissioning report of NGALA Camp. Gauteng, South Africa
- Berekisanang Empowerment Farm. Annual external Water Use Licence audit and 70 hectare agricultural development. Northern Cape, South Africa.

Environmental Coordinator

ROMPCO PIPELINE – Worley Parsons Mozambique and South Africa

Stephan was employed by the Procurement, Management and Construction (PMC) consultant, Worley Parsons to manage the environmental aspects of the proposed linear development. Stephan managed a team of 12 positions for the duration of the project ensuring compliance of National and best practice such as IFC standards.



ENVIRONMEN COMPLIANCE CONSULT	TAL Jess TANCY Enviro	Sica Mooney nment & Safety Specialist
Hello! :)Image: Second systemImage: Second system </td <td>Federation University Australia 2003-2006 Additional Qualifications</td> <td>Education & Qualifications Bachelor of Applied Science -Environmental Management Management Systems Leadership ICAM - Incident Cause Analysis Method Certificate II in Metalliferous Mining core safety and risk management Certificate III in Mine Emergency Response & Rescue Level 3 – HLTFA402B Apply Advanced first Aid Emergency Rope Rescue Level 2 - 21593VIC First Aid level 2 Bonded Asbestos Removal >10m2 Leading and Managing People –</td>	Federation University Australia 2003-2006 Additional Qualifications	Education & Qualifications Bachelor of Applied Science -Environmental Management Management Systems Leadership ICAM - Incident Cause Analysis Method Certificate II in Metalliferous Mining core safety and risk management Certificate III in Mine Emergency Response & Rescue Level 3 – HLTFA402B Apply Advanced first Aid Emergency Rope Rescue Level 2 - 21593VIC First Aid level 2 Bonded Asbestos Removal >10m2 Leading and Managing People –
Born 24 October 1984 Phone +264 81 653 1214 Email Jessica@eccenvironmental.co m Website www.eccenvironmental.com	Current Environmer Providing p particular for - ECC A - Mine C - Rehab - Pipelin - Cultura - IMS (IS	Brisbane North Institute of TAFE rience & Work History Iment and Safety Specialist Ital Compliance Consultancy rofessional consulting services to clients in Namibia with iccus on approvals, ECCs, reporting and compliance. upprovals Josure Plans ilitation le projects al Change programmes SO14001 and 18001) HSE Manager
How to reach me! +264 81 653 1214 () Jessica.mooney7 () +264 81 653 1214 () Jessica Mooney ()	Weatherly N An exciting mines (Otjil pit mine (Ts – Manag – Full sc copper – Reduc – Implen – Approv – Establi	Aining Namibia role covering the breadth of two operational underground iase and Matchless) and the construction of a new open ichudi) working for Weatherly Mining in Namibia, Africa. Jed company's SHEQ portfolio iale construction of new greenfield mine into operational r mine ed LTIFR by 90% from 23.1 to 2.4 in 22 months! nented integrated management system vals, ECC renewals and EMPs ished the first mining environmental forums in Namibia nented SAFE COPPER cultural change programme





References

Feel free to ask the boss :)

MR CRAIG THOMAS Managing Director Weatherly Mining

MR COLIN BULLEN Managing Director Imerys (client)

Group Manager Lihir Gold MR NICK CURREY Director at Sustainable Mining Strategies

Or ask those who have worked for me?

Ms Asteria Salmon Worked as Control Room Operator WMN

> Mr. Hermanus Lamprecht Paramedic Safety Officer

Professional

Associations

- Chamber of Mines Namibia
- Women on Boards
- The Chamber of Minerals and Energy of Western Australia Industry Member – Mining, Minerals and Resources

Fun Facts:

- I can deadlift 135kg
- To keep fit I Olympic weight lift
 I run ultra Marathons & the
- longest run yet the fish river Canyon 65km
- I am one of 6 children do you think that means 4 of us suffer middle child syndrome?

Words I live by:

'The journey will bring you happiest, not the destination'

Jessica Mooney

Environment & Safety Specialist

Experience & Work History

Environmental Consultant

Ensolve Pty Ltd - Australia

In February 2013 an opportunity came about to launch my own business, Blue Wren Environmental Services.

During this time I have worked alongside Ensolve Pty Ltd to deliver several environmental projects including:

- A mine closure project taking an operating mine site into the rehabilitation and closure phase. This project involved the full development of a mine closure plan, facilitation of the government approvals, stakeholder engagement and technical environmental studies to inform the mine closure plan
- Sustainability reporting in accordance with the Global Reporting Initiative
- Rehabilitation of historic exploration sites and obtaining associated government approvals for relinquishment of bonds.

Site Environmental Manager

Panoramic Resources – Australia

- Brought the site into full compliance with the Environmental Licence within 1 year.
- Managed projects relating to the expansions of the current mine tailings dams including obtaining approvals under the Mining Act 1978 and Environmental Protection Act 1986.
- Managed the environmental and community aspects of three operations; Savannah Nickel Mine, Copernicus Nickel Mine (currently in care and maintenance) and the operations at Wyndham Port
- Responsible for the environment, sustainability and social reporting portfolio
- Developed productive working relationships with local government environmental agencies and non-government agencies, which assisted with the approvals process.
- Developed strategies for the recruitment and retention of local Indigenous personnel

Environmental Systems Coordinator

Lihir Gold Limited - Australia

Working on site to provide technical environmental and community advice to ensure all regulatory and licence obligations were met or exceeded

- Regulatory Approvals (State and Federal Government)
- Environment and social aspects of the international cyanide management code
- Operational budgeting and bond management for mine closure
- Compliance with the legislative framework
- Community engagement



ENVIRONMEN COMPLIANCE CONSULT	ENTAL SULTANCY Emerita Lyapaka Ashipala Environmental Graduate			
Hello! :)	Glasgow Caledonian University, UK 2017 - 2018 University of Namibia 2013 -2016	Education & Qualifications Master's Degree in Environmental Management (Oil & Gas) (Distinction) Bachelors in Environmental Biology		
ABOUT ME Name Emerita Lyapaka Ashipala Born 15 February 1994	Current	Environmental Graduate Working with Environmental Compliance Consultancy Providing professional consulting services to clients in Namibia with particular focus on: - Drafting EIA adverts and NTS documents - Assisting in the development of scoping reports and - Environmental Management Plans for exploration projects		
Phone +264 81 701 6851 Email emerita@eccenvironmental.co m Website www.eccenvironmental.com		 Intern Community-Based Natural Resource Management (CBNRM) Project, GIZ Namibia Roles and Responsibilities: Managed a high-volume workload within a deadline- driven environment. Responsible for weekly press review. Compilation and analyses of data collected from field for baseline study of projects. Assists in project management activities. Ensure work ethics is compliant with approved codes and standards. Even/workshop assistance planner. Engaged in clients and stakeholders' meetings. Provides overall project management support throughout the entire life cycle of projects. 		
		 Team Leader (Ad hoc Registration Official) Electoral Commission of Namibia Roles and Responsibilities: Kit operator Printing of registration cards Responsible for keeping order and safe guarding of all equipment 		





References

Feel free to ask the boss :)

JESSICA MOONEY Environment & Safety Specialist

STEPHAN BEZUIDENHOUT Managing Director

Or ask those who have worked with me?

Prof Jim Baird Programme Leader Glasgow Caledonian University j.baird@gcu.ac.uk

Experience & Work History

Undergraduate Internship

South African Science Of Climate Change and Adaptive Land Management (SASCCAL), Namibia Role and Responsibilities:

Compilation of news in all regions, for newsletter publication

Environmental Graduate

- Using qGIS to digitise map drawings
- Organising various task research portfolios

Fun Facts:

- I am an adventurous
- Passionate on learning more about Oil and Gas

Words I live by:

"Be willing to go all out, in pursuit of your dream. Ultimately it will pay off. You are more powerful than you think you are."



ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY	Titus Shuuya SENIOR SCIENTIST ENVIRONMENTAL PRACTITIONER		
Hello! :)			
	R	Education &	
CTER LAR	Namibia University of Science and Technology, Namibia 2016	Qualifications Master of Science in Natural Resources Management	
	University of Namibia, Namibia 2013	Bachelor of Science in Integrated Environmental Science	
ABOUT ME		Experience & Work	
Name		History	
Titus Shuuya	Current	Senior Scientist Environmental	
Born	:	Practitioner	
14 April 1983	÷	Environmental Compliance Consultancy	
		 Providing professional consulting services to clients 	
Email titus@eccenvironmental.com		 Environmental Assessment activities Participate in environmental requirements of projects including licences monitoring and 	
Website		reporting Eield work and on site support	
www.eccenvironmental.com		 rea work and on-site support Conduct training 	
Contact me!	Jul 2012 -Jul 2019	Senior Researcher	
How to reach me!			
+264 85 301 3777	÷	Gobabeb Research and Training Centre – Managing all planning and logistical	
+264 85 301 3777		implementation of field projects, particularly with reference to the Biodiversity Research and Monitoring Program	
References		 Data analysis and report writing Develop long-term ecological monitoring program 	
JESSICA MOONEY Environmental and Safety Consultant		for the uranium mines in fulfilment of their EMP requirements	
DR. GILLIAN MAGGS-KÖLLING	Dec 2015 -	Ecologist	
Executive Director Gobabeb Research and Training Centre	Apr 2016	Cheetah Conservation Fund of Namibia (CCF) Assist in all aspects of CCF's ecology research 	
Words I live by:		 Write research proposals and scientific nublications 	
'A slow movement of a cheetah		 Coordinate the de-bushing project and harvest 	
is not a mistake but a		and horticulture activities	
culculated accuracy			



APPENDIX E - LIST OF PLANT SPECIES

PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES
Acacia arenaria Schinz	-	Oniipa
Adenia repanda (Burch.) Engl.	Climber 1 m high, perennial, herbaceous, ascending, suffrutex. Crushed leaf exude no sap or smell.	Along Onathinge Okankolo road.
Albuca amboensis (Schinz) Oberm.		Oniipa field.
Aloe zebrina Baker	The plant is 25 cm high. Light green succulent leaves with white spots arranged horizontally. Thorns on the leaf edge.	Major: Ovamboland. Minor: Uukwanyama. Precise: Onekwaya west, 55 km NE of Ondangwa.
Aristida congesta Roem. & Schult. subsp. congesta	Grass.	Ovamboland, Oshigambo.
Aristida stipoides Lam.	Grass.	Ovamboland, forest.
Asparagus cooperi Baker	Perennial shrub, 0.40 m high. Stem ascending, no sap, crushed leaf no smell. Crown diameter 20 cm. Bark green, smooth. Leaves hardened stipules, but no real stipule thorns. Flowers white, about 3 mm in diameter.	About 10 km along Omuthinge Okaukola road, about 500 m behind cuca shop.
Bauhinia petersiana Bolle subsp. macrantha (Oliv.) Brummitt & J.H.Ross		Enani. Onayena, forest.
Boscia foetida Schinz subsp. foetida		Farm Onguma 314.
Brachiaria deflexa (Schumach.) C.E.Hubb. ex Robyns	Erect annual.	Etomba, 20 miles south-east of Oshikango.
Brachiaria humidicola (Rendle) Schweick.	Erect perennial with prostrate base growing in wet places.	Etomba, 20 miles south-east of Oshikango.
Brachystelma schinzii (K.Schum.) N.E.Br.		Oniipa, sandy field.
Bulbostylis hispidula (Vahl) R.W.Haines	Sedge with red- brown spikes which are cylindrical.	Olukonda mission station, next to road at church.
Cenchrus ciliaris L.	Grass.	Ovamboland, Oshigambo.
Cleome gynandra L.	Herb 25 cm high. Only few of the basal leaves left. Small leaves clustered on upper stem. Not aromatic. Fruits are glandular and sticky.	Olukonda mission station.
Commelina subulata Roth		Oniipa, border of pool.
Cyperus compressus L.	Sedge with triangular stem, found in full sun. Flowers have flat spikes that are red- brown with green margin.	Olukonda mission station, next to road at church.
Cyperus fulgens C.B.Clarke var. contractus Kük.		Oniipa: waterpool.
Cyperus longus L. var. longus		Oshigambo river


PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES
Cyperus margaritaceus Vahl var. margaritaceus	Perennial sedge,10 cm high. Triangular stem, seed packets white with thin green margin. Stem ascending. Texture herbaceous.	Along Onathinge - Okankolo road.
Cyperus procerus Rottb.		Oniipa, water pool.
Cyperus rotundus L. subsp. rotundus var. platystachys C.B.Clarke		Oniipa, pool in water valley.
Cyperus sphaerospermus Schrad.		Oniipa, pool in water valley.
Dactyloctenium aegyptium (L.) Willd.	Grass.	Oniipa.
Digitaria sanguinalis (L.) Scop.	Grass. Erect quite glabrous annual growing in shade of trees.	Etomba, 20 miles south-east of Oshikango.
Dipcadi glaucum (Burch. ex Ker Gawl.) Baker	Perennial geophyte, 30 cm high. Flower colour: green - brown. Stem: ascending (upright). Underground organ: bulb. Texture: herbaceous. Sap: none.	10 km along Omuthinge - Okaukolo road, 500m behind Cuca shop.
Eclipta prostrata (L.) L.		Ondangwa. Oniipa, border of pool.Water pool.
Eragrostis trichophora Coss. & Durieu	Grass.	Oniipa.
Eriospermum rautanenii Schinz	Perennial geophyte, 5 cm high with inflorescence. Leaves: single leaf, then flowering, later 2 leaves. Other: bulb about 10cm below ground. Stem: ascending (upright). Underground organ: tuber, white. Texture: herbaceous.	10 km along Omuthinge - Okankolo road behind Cuca shop.
Erlangea misera (Oliv. & Hiern) S.Moore		Ovamboland, Oshigambo.
Felicia smaragdina (S.Moore) Merxm.		Ovamboland: Oshigambo, field in yard area.
Gardenia ternifolia Schumach. & Thonn. subsp. jovis-tonantis (Welw.) Verdc. var. goetzei (Stapf & H	Tree, ± 4 m high. Flowers yellow, tubular, petals free. Leaves clustered on blunt spines. Old fruit round, fallen off, turned black.	Oshipanda village, along the small tract that leads to Oshigambo ELCIN Church
Geigeria schinzii O.Hoffm. subsp. schinzii	Biennial dwarf shrub, 80 cm high. Leaves: tomentose. Stem: ascending (upright). Bark: reddish (maroon) to red-brown.Texture: suffrutex. Biotic effect: eroded.	About 2 km north-east of Onathinge.
Hermannia glanduligera K.Schum.		Oshigambo.
Hygrophila auriculata (Schumach.) Heine		Oniipa



PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES		
Hygrophila gracillima (Schinz) Burkill		Oniipa		
Indigofera hochstetteri Baker subsp. streyana (Merxm.) A.Schreib.		Oniipa		
Justicia exigua S.Moore		Oniipa		
Kyllinga alba Nees	Annual sedge, herbaceous sedge. Spikes white and spherical.	17 km from Ondangwa towards Tsumeb		
Lapeirousia littoralis Baker subsp. caudata (Schinz) Goldblatt		Oniipa		
Ledebouria revoluta (L.f.) Jessop	Perennial geophyte. Flower colour: grey-purplish. Leaves: grey-green with brown spot. Stem: procumbent (flat on ground). Underground organ: bulb. Texture: herbaceous.	10 km along Omuthinge - Okankolo road, about 1km behind Cuca shop		
Leptochloa fusca (L.) Kunth	Grass.	Oniipa, pool		
Limeum myosotis H.Walter var. confusum Friedrich	Annual herb, 5-10 cm high. Flowers: small, yellow. Leaves: lanceolate, 5 mm wide, 20 -30 mm long, margins roled downwards. Stem: ascending (upright). Underground organ: roots. Slope: flat. Texture: herbaceous.	10 km along Onathinge - Okankolo road, behind cucashop		
Limeum viscosum (J.Gay) Fenzl subsp. viscosum var. dubium Friedrich		Oniipa		
Maerua schinzii Pax	Plant 4 m high.	Olukonda. At the grave of M. Rautanen		
Mariscus hamulosus (M.Bieb.) S.S.Hooper	Erect and annual.	Shallow pan near Onayena Mission Station, 28.96 km south-east of Ondangwa.		
Marsdenia macrantha (Klotzsch) Schltr.	Decumbent, perennial suffrutex shrub, 1.5 m high. Branches lax with a climbing habit. Flowers light yellow - green, about 12 - 15 mm in diameter, hairy. Sap white latex. Crushed leafs no smelll. Bark smooth with gland - like knobs.	10 km along Onathinge - Okankola, about 500 m behind cuca shop		
Marsilea nubica A.Braun var. gymnocarpa (Lepr. ex A.Braun) Launert	Fern with black sporocarps and stolons. Few plants in dry mud of dried pool.	Olukonda mission station, next to road at church		
Megaloprotachne albescens C.E.Hubb.	Grass.	Ovamboland: Oshigambo		
Monandrus longicarpus vorster ms.	Annual. Spikelets dark chestnut brown.	Shallow pan near Oneina Mission Station, 28.96 km south-east of Ondangwa		
Monandrus squarrosus (I.) vorster s	Erect annual.	Shallow pan near Oneina Mission Station, 28.96 km south-east of Ondangwa		



PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES
Nicolasia costata (Klatt) Thell.	Decumbent herb, no sap, biennial, herbaceous, crushed leaf no smell. Leaves: densely packed, scale-like, lanceolate.	Outside Omuthinge
Nymphaea nouchali Burm.f. var. caerulea (Savigny) Verdc.		Oniipa, temporary pool in water valley
Ochna pulchra Hook.f.	Perennial 8 m high. Leaves: margin entire, slightly toothed. Stems: pale grey, peeling. Fruits: none yet. Roots: underground.	Omwandi west
Ophioglossum polyphyllum A.Braun		Oniipa, ridge of erosion field
Oxygonum alatum Burch. var. longisquamatum Germish.		Ovamboland, Oshigambo, sandy fields
Oxygonum dregeanum Meisn. subsp. canescens (Sond.) Germish. var. dissectum Germish.	Annual, prostrate herb, 0.05 m high. Flowers white. Leaves with whitish hairs.	Olukonda mission station, next to road at church
Ozoroa schinzii (Engl.) R.Fern. & A.Fern.		Farm Onguma 314
Panicum trichonode Launert & Renvoize	Grass.	Oniipa. border of water valley
Petalidium coccineum S.Moore	Shrub 30 inches high. Flowers red - slightly unplesant smell, 4 filaments. Leaves rigid, petiole pubescent with 3 mm long hairs.	Western Owamboland, 5 miles south of Ruacana on road to Otjekua
Phyllanthus fraternus G.L.Webster	Woodland, soil sandy white. Erect, pale green annual with small greenish white flowers.	Etomba, 20 miles south-east of Oshikango
Pogonarthria fleckii (Hack.) Hack.	Grass.	
Polygala schinziana Chodat	Biennial herb, 10 cm high. Flowers: deep purple. Leaves: oblong, obovate, mucronate apex, folded. Stem habit: procumbent.	Along road Omathinge - Okankolo
Portulaca oleracea L.		
Pycreus chrysanthus (Boeck.) C.B.Clarke	Annual, herbaceous sedge up to 70 cm in height. Stems triangular. Spikes yellow-brown, flat.	17 km from Ondangwa towards Tsumeb
Pycreus pumilus (L.) Domin	Sedge with flat spiked flowers which are red- brown. Also has round stems.	Olukonda mission station, next to road at church
Pycreus unioloides (R.Br.) Urb.		Oniipa, pool in water valley.
Requienia pseudosphaerosperma (Schinz) Brummitt		Ovamboland, Oshigambo, forest
Rhigozum brevispinosum Kuntze	Shrub, 3 m high, 2 m in diameter. Yellow flowers, scentless. No fruit.	Ovambo district, Ondangwa Oshigambo - Oshanga road



PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES
Schinziophyton rautanenii (Schinz) Radcl Sm.	Heigth: 15 - 20 m. Perennial. Leaves: digitately compound with 5 - 7 leaflets. Bark: dark grey to light golden brown peeling, stem erect. Fruits: abscent, edibile, single and ground nut test with too much oil, egg - shaped.	Omwandi west
Schmidtia pappophoroides Steud.	Grass	Owambo: Oshigambo.
Schoenoplectus corymbosus (Roth ex Roem. & Schult.) J.Raynal	_	Oniipa, pool in water valley
Sesamum triphyllum Welw. ex Asch. var. triphyllum	_	Oshigambo
Sesbania pachycarpa DC. subsp. dinterana J.B.Gillett	Herbaceous, ascending, indigenous shrub. Flowers yellow with purple specks on back of standard. Base of standard with two short knobs on inside.	11 km south-east of Ondangwa next to tar road to Tsumeb
Sesuvium sesuvioides (Fenzl) Verdc. var. angustifolium (Schinz) Gonç.	_	Oniipa
Setaria sagittifolia (A.Rich.) Walp.	Graminoid. Small annual in shade of trees	Etomba, 20 miles south-east of Oshikango
Solanum multiglandulosum Bitter		Central Owamboland, Oshigambo
Sporobolus ioclados (Trin.) Nees	Perennial grass, 35 cm high forms circular colonies. Leaves broad, short	Road to Olukonda, about 1 km west of main road into Ondangwa
Stipagrostis uniplumis (Licht.) De Winter var. uniplumis	Grass	Oshigambo, sandy yard area
Striga hermonthica (Delile) Benth.	Onayena, Onheleina and Ohigambo	Eenhana
Terminalia prunioides M.A.Lawson		Ovambo: Onayena; Onankali, sandy soil in open forest. Eenhana
Trachyandra arvensis (Schinz) Oberm.	Perennial geophyte, 20cm high, crown diameter 10cm. Inflorescence: about 20cm high. Flower colour: light yellow. Leaves: short, slightly curly with sticky glandular hairs; rather short at this stage only 5-10cm. Stem: ascending (upright). Underground organ: roots.	10 km along Omuthinge - Okankole road, behind Cuca shop



PLANT SPECIES	PLANT DESCRIPTION	LOCATION NOTES			
Tragus berteronianus Schult.	Grass. Erect annual	20 km south-east of Oshikango			
Tragus racemosus (L.) All.	Semi-decumbent annual grass	20 km south-east of Oshikango			
Triumfetta pentandra A.Rich. var. homoistricha Chiov.		Oshigambo. Sandy soil in forest			
Urochloa brachyura (Hack.) Stapf	Grass	Eehana. Owambo: Ondangua, Oniipa, yard area			
Vahlia capensis (L.f.) Thunb. subsp. ellipticifolia Bridson		Oshigambo			
Willkommia sarmentosa Hack.	Grass	Oniipa			
Withania somnifera (L.) Dunal		Oniipa			



APPENDIX F – ASSESSMENT FORM

The full application is available on their website



As: Esta Name NTB F And n Physic	sessment Form ablishment details: e: Registration category	n:						
<u>Esta</u> Name NTB F And n ² hysi	ablishment details: e: Registration category							
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2.	Conservation		17	17				
3.	Energy		16	16				
4.	Water		20	20				
5.	Waste, pollution, sew	er	24	24				
5. 7	Building & landscapin	g	18	18				
2	Guiding		50	30	-			
3	Social responsibility		13	13	3 			
10.	Legal/NTB Compliand	ce 📃	16	16				
2	SUBTOTAL		189	189				
	PERCENTAGE		100%	100%				
	To calculate the perce	entage: divi	de total own	score by total APP	LICABLE sco	ore (i.e. ex	clude i	tems not
11	applicable to your est	abiisnment	specifically a	10%	points), muiti	piy the ans	swer b	y 100.
		ORE	110%	110%				
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40	0% or more	55% or mor	o 7	0% or more	80% or m	ore	90%	or more
= (One Flower =	Two Flowe	rs = T	hree Flowers	= Four Flov	vers	= Five Flowers	