

Cont. No.: WI23-00388

Our reference: WI301-00906/05

8 December 2023

The Environmental Commissioner
Ministry of Environment, Forestry and Tourism
Private Bag 13308
Windhoek
Nmaibia

Dear Mr. Timoteus Mufeti

RE: RENEWAL OF ECC FOR EXCLUSIVE PROSPECTING LICENCE EPL 3140 REQUEST EXEMPTION TO A CONSENT LETTER FROM MEFT, SCOPING REPORT AND PROOF OF CONSULTATION REQUIREMENT (ECC-01233)

Koryx Copper Inc (formerly Deep South Mining (Pty) Ltd) T/A Haib Minerals (Pty) Ltd was granted Exclusive Prospecting License (EPL) 3140 in 2004 and renewed in 2007, 2009, 2011, 2013, 2015, 2017, 2019 and 2023. In 2014, an Environmental Management Plan (EMP) for exploration activities in the current EPL 3140 was prepared and Environmental Clearance Certificate (ECC) approved by the, then, Ministry of Environment and Tourism (MET). The ECC was renewed and approved in 2017 and 2021 by the Ministry of Environment Forestry and Tourism (MEFT). The current ECC (ECC - 01233) is set to expire 25 February 2024 (See Appendix A for existing ECC).

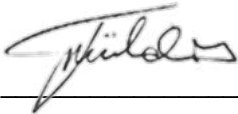
Knight Piésold Consulting, on behalf of Haib Minerals (Pty) Ltd, is currently in the process of developing a comprehensive Environmental and Social Impact Assessment (ESIA) inclusive of a Public Participation Process (PPP) and specialist investigations towards application of an ECC and Mining License (ML) through the competent authority Ministry of Mines and Energy (MME) (See Appendix B for appointment letter and Appendix C for Terms of Reference). The expected submission date is forecast for end of 2024.

Haib Minerals (Pty) Ltd are currently applying for renewal of the existing ECC (01233) on EPL 1340 for exploration activities. They have been requested to submit a consent letter from MEFT for the activities, the scoping report and proof of consultations from the original ECC application. The original scoping report, consent letter and proof of consultation likely utilized for the initial ECC application in 2014, are currently unavailable to KP. Given the

abovementioned context of existing historical approvals, and pending the completion of a comprehensive scoping report, ESIA and consultations process expected to be available end 2024, KP is requesting an exemption from this requirement for the existing ECC renewal.

Your consideration and assistance is highly appreciated.

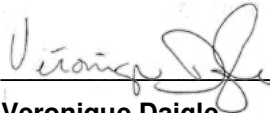
Yours sincerely



Joseph Mulders
Senior Environmental Scientist, EAP

10 January 2024

Date



Veronique Daigle
Director Mining, Knight Piésold Namibia

10 January 2024

Date

APPENDIX A

Environmental Clearance Certificate



REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental
Management Act (Act No. 7 of 2007)

TO

Haib Minerals (Pty)
P. O. Box 23096, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

**Proposed Additional Exploration Activities on EPL 3140,
Noordoewer, //Karas Region**

Issued on the date: **2021-02-15**
Expires on this date: **2024-02-15**

(See conditions printed over leaf)



CONDITIONS OF APPROVAL

1. This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office
2. This certificate does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with the proponent and its consultants
3. This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project
4. All applicable and required permits are obtained and mitigation measures stipulated in the EMP are applied particularly with respect to management of ecological impacts.
5. Strict compliance with national heritage guidelines and regulations is expected throughout the life-span of the proposed activity, therefore any new archaeological finds must be reported to the National Heritage Council for appropriate handling of such.
6. A six monthly report on project progress and environmental management profile, starting from date of commencement of operations, must be submitted by the Proponent to Office of Environmental Commissioner

APPENDIX B

KP Appointment Letter

Cont. No.: WI23-00388
Our reference: WI301-00906/05

26 October 2023

The Environmental Commissioner
Ministry of Environment, Forestry and Tourism
Private Bag 13308
Windhoek
Namibia


Dear Mr. Timoteus Mufeti

RE APPOINTMENT OF ENVIRONMENTAL CONSULTANT (EPL 3140)

Haib Minerals (Pty) Ltd hereby confirms that Mr. Joseph Mülders, Senior Environmental Scientist at Knight Piésold and Dr. Lima Maartens T/A LM Environmental Consulting, have been appointed as the Environmental Assessment Practitioners for the Renewal of the Environmental Clearance Certificate for Exclusive Prospecting License Area EPL 3140.

Your assistance is highly appreciated.

Yours sincerely



Jean-Luc Roy
COO, Director

21/10/23

Date

APPENDIX C

Environmental Studies Terms of Reference

27 July 2023

Mr. Jean-Luc Roy
Chief Operating Officer (COO)
Deep-South Resource
Suite 888, 700 West Georgia,
Vancouver, British Columbia
Canada, V7Y 1G5

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File No.: WI301-00906/05-P.01
Cont. Number: WI23-00195

Dear Jean-Luc,

Re: Proposal for Environmental Impact Assessment for the Haib Copper Project

1.0 INTRODUCTION

Knight Piésold Consulting (Pty) Ltd (KP) was appointed by Deep-South Resources in 2021 to undertake a scoping assessment for the proposed Haib Copper Project. The proposed facility is situated in the //Kharas region of Southern Namibia, near the Orange River which borders South Africa.

KP completed the draft scoping assessment in 2021 inclusive of the following:

- Environmental Reconnaissance and Roadmap to Environmental Authorisation
- Water Supply Options Study
- Power Supply Options Study
- Heap Leach Pad Conceptual Assessment

South Deep Resources requested a proposal for the further environmental studies recommended during the scoping assessment. This letter presents our intended approach and provides a detailed budget estimate for the Environmental and Social Impact Assessment (ESIA).

The SoW discussed comprises environmental and hydrogeological feasibility studies and a public participation programme required for assessing overall feasibility of proposed project and obtaining the necessary authorisations. Required authorisations include an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry and Tourism (MEFT), a Mining Licence from the Ministry of Mines and Energy (MME) and Water Abstraction Permit from the Ministry of Agriculture, Water and Land Reform (MAWLR). Exploration activities on EPL 3140, Noordoewer, //Karas Region are currently authorised under the existing ECC valid from 15 February 2021 to 15 February 2024.

2.0 APPROACH

The SoW has been divided into 7 main tasks as follows:

- Task 100 – Project Management
- Task 200 – Baseline Studies
- Task 300 – Consultations
- Task 400 – Scoping and EIA
- Task 500 – Water Permits

- Task 600 – Mining Licenses
- Task 700 – Closure Planning.

The tasks culminate in the development of a project level Environmental Management Programme (EMPr) and submissions for the necessary authorisations described above.

The project will be initiated upon receipt of a purchase order from Deep-South Resources. KP is ISO 9001, 14001, and 45001 certified and therefore we will adhere to these standards in the project management of all aspects of the work.

Specialist studies are undertaken by the KP team members and various sub contractors of which are discussed more detail below.

3.0 UNDERSTANDING OF THE PROJECT

The Project involves the development of feasibility studies for the Haib Copper Project towards development of a project level Environmental Management Programme (EMPr) and submissions for the necessary authorisations.

The Project comprises a large copper resource to be mined from an open pit and processed through a heap leaching facility at a mined throughput of 20 million tonnes per annum (Mtpa). Life of mine is approximately 22 years and a total of 400 million tonnes (Mt). The Haib copper deposit is in the //Kharas region, near the Orange River at the border with South Africa, approximately 780 km by road South of Windhoek, the capital of Namibia. Proposed project infrastructure includes the following:

- an open pit (made up of three pits which will eventually form one mega pit),
- a crushing and agglomeration circuit,
- a heap leach processing facility and
- a solvent extraction plant to recover the copper.

Ancillary components include:

- Water abstraction pipeline or groundwater abstraction infrastructure (depending on outcomes of feasibility)
- Power lines and substation
- Access roads.

A locality map of the proposed Project site is shown in Figure 1.

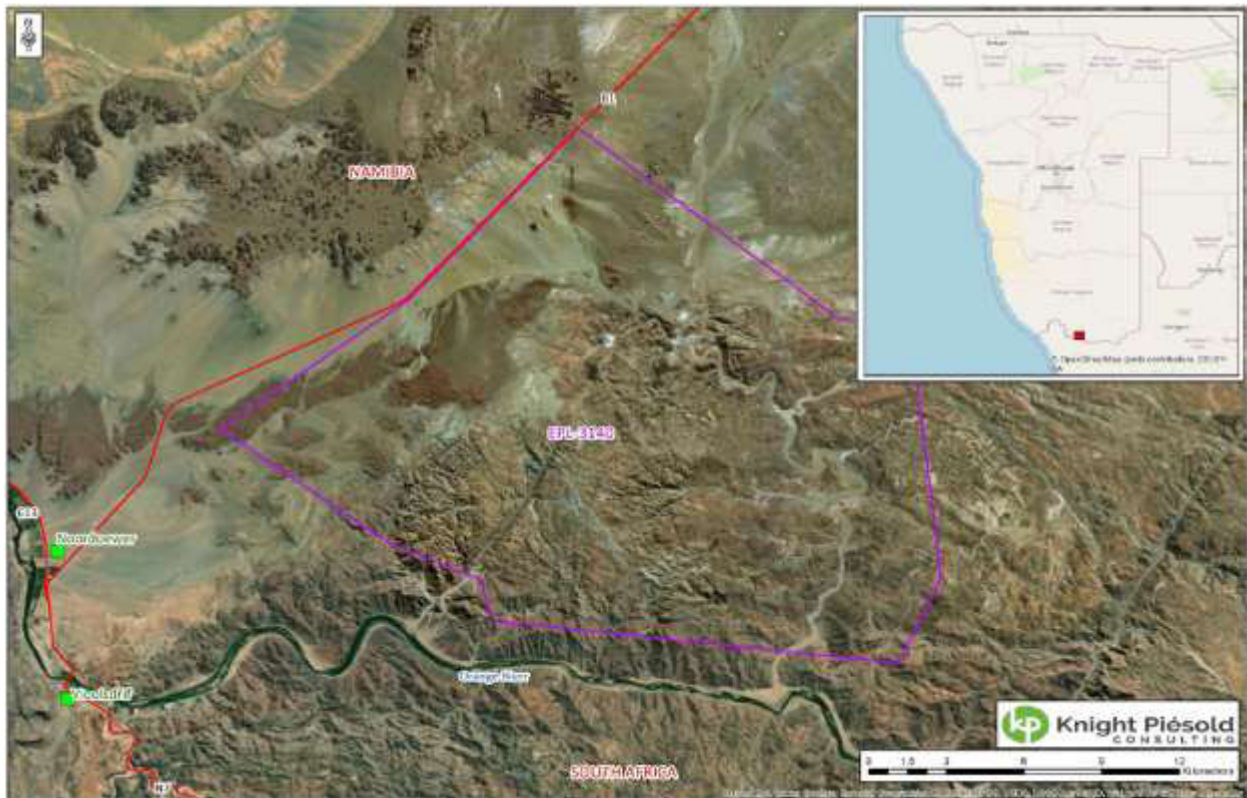


Figure 1: The Haib Copper Deposit and EPL3140 in Namibia along the Orange River

4.0 SCOPE OF WORK

Description	Methodology / notes on scope assumptions
Task 100 - PROJECT MANAGEMENT	
Project set up and inception meeting via Teams	Knight Piésold is ISO 9001 accredited globally and our projects are managed using a web-based project management system to track tasks, deliverable due dates and budget. Project management will entail: <ol style="list-style-type: none"> 1. Conduct inception meeting with the client and project team to initiate the project 2. Review design documents and project specifications and finalise timelines and project milestones 3. Continuous liaison with client providing progress feedback and requests for clarity/ data/ information. 4. Continuous liaison with project team and sub-consultants 5. Ongoing financial management and administration
Project management and financial management	
Client, team and sub-consultant liaison	
TASK 200 - BASELINE STUDIES	
Biodiversity Specialist Study	

Description	Methodology / notes on scope assumptions
	<p>Objective: To determine the effect that the proposed Haib Copper Project developments may have on the terrestrial bio-physical environment (vertebrate fauna & flora) within the development area and immediate surroundings (Noordoewer area).</p> <p>This will be done through implementing the following methodology:</p> <ol style="list-style-type: none"> 1. Phase 1: Literature review <ol style="list-style-type: none"> a. A literature study will be conducted on existing as well as “recent” relevant publications as well as the vertebrate fauna & flora known or expected to occur in the general area. This would include rare & endangered (R&E), threatened, protected, endemic, etc. species as determined by the Namibian and International legal status for such species. 2. Phase 2: Site Visit & Fieldwork <ol style="list-style-type: none"> a. A visit to the proposed Haib Copper Project area (area of interest portions only) will be conducted to determine the actual biodiversity at the proposed development site will be conducted during the same period and will include: <ol style="list-style-type: none"> i. Small mammal transects to determine small mammal diversity in the area ii. Larger mammal presence will be determined in the area iii. Reptile & amphibian transects (diurnal & nocturnal) to determine reptile & amphibian diversity in the area iv. Bird transects to determine avian diversity in the area v. Flora transects to determine plant diversity in the area 3. Phase 3: Report <ol style="list-style-type: none"> a. Results (literature study and fieldwork) of the bio-physical issues for the proposed Haib Copper Project including other general issues for the proposed development area will be presented. b. Possible adverse effects of potential development on the vertebrate fauna & flora (i.e., endemic, endangered, etc. species) will be presented. c. Impact assessment & practical mitigation measures will be included. d. This report will be finalised within the time scale of the proposed EIA study.
Aquatics Specialist Study	
	<p>Objective: To determine the effect that the proposed Haib Copper Project developments may have on the aquatic bio-physical environment within the development area and immediate surroundings.</p> <p>The objective will be achieved through the following:</p> <ol style="list-style-type: none"> 1. Phase 1: Literature Review <ol style="list-style-type: none"> a. Review previous studies b. Review applicable legislation and standards c. Consult available ecological databases, aerial imagery, topographical maps and identify target areas for survey d. Review species distribution lists to identify Species of Conservation Concern (SCC) 2. Phase 2: Field work <ol style="list-style-type: none"> a. Two seasonal (dry and wet season) field investigations conducting the following aquatic biodiversity analysis: <ol style="list-style-type: none"> i. Water quality (SANS241), ii. diatoms, iii. fish and iv. macro-invertebrates’ assessments

Description	Methodology / notes on scope assumptions
<p>3. Phase 3: Reporting</p> <ol style="list-style-type: none"> a. Analyse all site data and compile species lists b. Review results of water quality analysis and compare to Namibia and international standards c. Evaluate baseline data and provide aquatic ecological sensitivity maps with detail on the ecological aspects of concern d. Conduct an impact assessment, taking the mitigation hierarchy into account e. Provide mitigation / management measures and monitoring requirements 	
<p>Hydrogeology Specialist Study</p> <p>Objective: Undertake a hydrogeological study to determine effect that the proposed Haib Copper Project developments may have on groundwater resources and determine the quality and availability of groundwater to augment the proposed main surface water supply which is proposed to be sourced from the Orange River.</p> <p>The objective will be achieved through the following:</p> <ol style="list-style-type: none"> 1. Task 1: Project Management <ol style="list-style-type: none"> a. A kick-off meeting will be held using Microsoft Teams (or similar) within 1 week of award of the contract. During the kick-off-meeting the following details will be discussed/agreed: <ol style="list-style-type: none"> i. Contact details for various members of staff. ii. Confirmation of staff members roles and responsibilities. iii. Confirmation of mutual understanding of the Scope of Work. iv. Details as to how to access any data room that may exist. v. Agreement on style of weekly project updates. vi. Agreement on timelines. vii. Confirming goals and objectives of the site visit and assessing availability of mine site staff to facilitate the site visit. viii. Financial management details including invoice processing procedures. 2. Task 2: <ol style="list-style-type: none"> a. Hydrocensus <ol style="list-style-type: none"> i. KP have allowed for conducting a site walkover and hydrocensus. The site walkover will be used to allow the visiting Hydrogeologist to become acquainted with the site. We shall: <ol style="list-style-type: none"> 1. Undertake a site walkover and identify various hydrogeological/hydrological features and make observations with respect to possible historical surface water flow. 2. Visit boreholes to determine in-situ groundwater quality parameters and to determine water levels. 3. Take measurement of in-situ surface water quality parameters (if present). 4. Identify areas of waste deposition/accumulation. 5. Produce an annotated map of areas of potential concern and identify sampling locations. 6. Obtain up to five bailed groundwater samples of groundwater for subsequent chemical analysis. 7. Water field parameters, including pH; electrical conductivity, and oxidation-reduction potential (ORP) will be monitored prior to sampling using calibrated portable hand-held equipment. 	

Description	Methodology / notes on scope assumptions																																																								
	<p>ii. Photographs will be taken and a technical memo recording the event with be produced.</p> <p>b. Aquifer Testing</p> <p>i. Opportunistic aquifer testing will be undertaken at existing boreholes and, if available, recently drilled geotechnical boreholes. Aquifer testing will be undertaken using a combination of the following methods:</p> <ol style="list-style-type: none"> 1. Falling Head: <ol style="list-style-type: none"> a. The hole is filled with water and the change (decrease) in the water level in the hole over time is observed until the equilibrium position is reached (corresponding to the groundwater table in the vicinity). 2. Rising Head: <ol style="list-style-type: none"> a. The water in the borehole is pumped or bailed to a level lower than the groundwater table in the vicinity and the change (increase) in water level in the borehole over time is observed until the equilibrium position is reached. 3. Constant Head: <ol style="list-style-type: none"> a. The hole is filled with water and the (constant) flow rate required to maintain the water level in the hole is measured. <p>c. Geophysical Survey</p> <p>i. If after review of the available site-specific information it is considered that a geophysical survey is required to further inform understanding of the site, development of the Conceptual Hydrogeological Model (CHM) and improved construction of the Numerical Hydrogeological Model (NHM) then KP will inform the client of this recommendation. Currently, we have allowed for 1 week of site supervision for a geophysical survey; however, we have not allowed for third party contractor costs for conducting such a survey.</p> <p>d. Chemical Analysis</p> <p>i. Ground water samples will be submitted to a South African National Accredited System (SANAS) accredited laboratory for the suite of analysis shown below:</p> <p style="text-align: center;">Table 1-1: Proposed Chemical Analysis for Water Samples</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #4CAF50; color: white;">Determinand</th> <th style="background-color: #4CAF50; color: white;">Unit</th> <th style="background-color: #4CAF50; color: white;">Determinand</th> <th style="background-color: #4CAF50; color: white;">Unit</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>-</td> <td>Magnesium as Mg</td> <td>mg/L</td> </tr> <tr> <td>Electrical Conductivity</td> <td>mS/m</td> <td>Potassium as K</td> <td>mg/L</td> </tr> <tr> <td>Total Dissolved Solids</td> <td>mg/L</td> <td>Sodium as Na</td> <td>mg/L</td> </tr> <tr> <td>Total Suspended Solids</td> <td>mg/L</td> <td>Phenolic compounds</td> <td>mg/L</td> </tr> <tr> <td>Total Alkalinity</td> <td>mg/L</td> <td>Manganese as Mn</td> <td>mg/L</td> </tr> <tr> <td>Chemical Oxygen</td> <td>mg/L</td> <td>Boron as B</td> <td>mg/L</td> </tr> <tr> <td>Chlorides as Cl</td> <td>mg/L</td> <td>Chrome Total and</td> <td>mg/L</td> </tr> <tr> <td>Ammonia (NH₃-N)</td> <td>mg/L</td> <td>Copper as Cu</td> <td>mg/L</td> </tr> <tr> <td>Fluoride as F</td> <td>mg/L</td> <td>Cadmium as Cd</td> <td>mg/L</td> </tr> <tr> <td>Nitrate as NO₃</td> <td>mg/L</td> <td>Cyanide as CN</td> <td>mg/L</td> </tr> <tr> <td>Sulphates as SO₄</td> <td>mg/L</td> <td>Lead as Pb</td> <td>mg/L</td> </tr> <tr> <td>Total Inorganic Nitrogen</td> <td>mg/L</td> <td>Mercury (Hg)</td> <td>mg/L</td> </tr> <tr> <td>Calcium as Ca</td> <td>mg/L</td> <td></td> <td></td> </tr> </tbody> </table> <p>3. Task 3: Reporting and Modelling</p> <p>a. Document Review</p> <p>i. KP will review all existing information made available and/or that is accessible in the public domain. It is envisaged that this information will include, but not necessarily be limited to the following:</p> <ol style="list-style-type: none"> 1. Borehole drilling logs. 	Determinand	Unit	Determinand	Unit	pH	-	Magnesium as Mg	mg/L	Electrical Conductivity	mS/m	Potassium as K	mg/L	Total Dissolved Solids	mg/L	Sodium as Na	mg/L	Total Suspended Solids	mg/L	Phenolic compounds	mg/L	Total Alkalinity	mg/L	Manganese as Mn	mg/L	Chemical Oxygen	mg/L	Boron as B	mg/L	Chlorides as Cl	mg/L	Chrome Total and	mg/L	Ammonia (NH ₃ -N)	mg/L	Copper as Cu	mg/L	Fluoride as F	mg/L	Cadmium as Cd	mg/L	Nitrate as NO ₃	mg/L	Cyanide as CN	mg/L	Sulphates as SO ₄	mg/L	Lead as Pb	mg/L	Total Inorganic Nitrogen	mg/L	Mercury (Hg)	mg/L	Calcium as Ca	mg/L		
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Description	Methodology / notes on scope assumptions
	<ol style="list-style-type: none"> 2. Drilling specifications. 3. Pumping test data. 4. Pump specifications. 5. Piezometric maps. 6. Records of borehole abstraction rates. 7. Borehole licence data. 8. Regional and local geological maps. 9. Geological memoirs and geological studies. 10. Groundwater level monitoring records. 11. Previous Numerical Modelling reports and modelling files. <p>ii. The purpose of the document review is to assess the appropriateness of data collection and modelling undertaken for the site and to inform the subsequent field activities. KP will produce a record of the information reviewed and identify possible data gaps.</p> <p>b. Modelling</p> <ol style="list-style-type: none"> i. It is proposed to develop a Conceptual Hydrological Model (CHM) for the site. The CHM will be informed following review of available geological, hydrogeological and topographical data. The CHM will be further updated with any new data acquired from the proposed geotechnical fieldwork and possible geophysical survey and developed as a regional 3D Hydrostratigraphic Model using Leapfrog Works®. Available data will be imported and analysed in Leapfrog Works®; this will include structural and geotechnical information, subject to availability. ii. The 3D Hydrostratigraphic Model will be used as the basis for the Numerical Hydrological Model (NHM) (produced in FEFLOW) which will be updated to quantify the available resource of the aquifer, the extent of the drawdown cone associated with groundwater abstraction from boreholes and though open pit mining, potential for water supply, and impact on identified receptors. iii. Compilation of a comprehensive conceptual and numerical model will be used to simulate the following scenarios and will be supported with information from the Geochemical Assessment: <ol style="list-style-type: none"> 1. Steady-state calibration based on water levels. 2. High-level groundwater flow and mass migration of key parameters to estimate the potential plume migration from key mining infrastructure and to determine the impact the mining may have on groundwater quality for Life of Mine (LOM). 3. High-level post-closure understanding of the groundwater rebound and continued mass loading and plume migration over time. iv. There is only limited information available to support construction of the NHM. All assumptions made in constructing the model and associated limitations of the model will be recorded <p>c. Hydrological Reporting</p> <ol style="list-style-type: none"> i. A hydrogeological assessment report will be produced which will include the following sections: <ol style="list-style-type: none"> 1. Introduction to the Project. 2. Scope of Work and Objectives 3. Documents Reviewed. 4. Site Setting 5. Fieldworks Undertaken

Description	Methodology / notes on scope assumptions
	6. Conceptual Hydrogeological Model 7. Numerical Hydrogeological Model 8. Risk Assessment 9. Conclusions with respect to the hydrogeological characterisation of the site. 10. Recommendations for further site assessment, if required.
Geochemical Specialist Study	
<p>Objective: Undertake geochemical testing to assess the potential of geochemical risk of acid rock drainage and metal leaching for potential mine waste and stockpiles that may be generated at the mine.</p> <p>The objective will be achieved through the following:</p> <ol style="list-style-type: none"> 1. Task 1: Project Management <ol style="list-style-type: none"> a. On initiation of the project, a virtual kick-off meeting will be held between the project team and the Client. This will enable: <ol style="list-style-type: none"> i. Establishment of focal points/communication lines between the project team. ii. Confirmation of the scope of work. iii. Agreement on the procedures and guidelines to be used for the project. iv. Provision of project data. v. Provision of any other information required to successfully undertake the project. b. Attend project meetings when required or deemed necessary, in addition to ongoing email communication related to information or issues. Issue a monthly memo summarising the works undertaken to date. 2. Task 2: Sampling and Chemical Analysis <ol style="list-style-type: none"> a. Sampling <ol style="list-style-type: none"> i. KP proposes that a KP Geochemist from Windhoek or Sandton offices visit the site and collect up to 6 samples of material (3 to 5 kg per sample) of various material types. One day on site should be sufficient for all fieldwork. The samples will then be submitted to a South African National Accredited System (SANAS) accredited laboratory with the results used to characterise the long-term acid generation potential of the samples. b. Chemical Analysis <ol style="list-style-type: none"> i. Samples representative of potential waste type will be selected for analysis and mineral characterisation. Waste rock samples will undergo laboratory and chemical analysis determine the acid generating potential and leaching of waste rock, as follows: <ol style="list-style-type: none"> 1. Acid Base Accounting (ABA) <ol style="list-style-type: none"> a. Modified Sobek NP, paste pH, Total Sulphur, Sulphate Sulphur, Sulphide Sulphur, Carbonated Carbon and Neutralization Potential 2. Minerology <ol style="list-style-type: none"> a. X-Ray Diffraction (XRD) analysis 3. Geochemical Source tests (leaching potential) <ol style="list-style-type: none"> a. Synthetic Precipitation Leaching Procedure (SPLP, EPA method 1312) 4. Net Acid Generation (NAG) test <ol style="list-style-type: none"> a. Modified Sobek method 3. Task 3: Assessment and Reporting 	

Description	Methodology / notes on scope assumptions
	<p>a. Data Review and Assessment</p> <ol style="list-style-type: none"> i. Upon receipt of the data requested, KP will undertake a desktop study to collate and analyse the data received and identify any data gaps. The required data will include, but not limited to: <ol style="list-style-type: none"> 1. Available literature i.e., existing geochemical characterisation and hydrogeological reports 2. EIA/baseline study of the proposed mine (If available) 3. Overview of geological model of the mine 4. Groundwater monitoring data and information 5. Any concept mine pit and Waste Rock Dump (WRD) plans 6. Existing geochemical rock mineral characterisation data 7. Extract of geological drill database ii. The data review and gap analysis will aid in planning the geochemical characterisation assessment in terms of additional data needed, planned sample locations and sample-collection procedures during the assessment. <p>b. Reporting</p> <ol style="list-style-type: none"> i. Field Report <ol style="list-style-type: none"> 1. Following completion of the fieldwork a Field Report Technical Memo will be produced summarising the field works undertaken, field measurements obtained, and details of samples gathered in the field. The Field Report Technical Memo will be issued within five working days of departure from site. ii. Comprehensive Report <ol style="list-style-type: none"> 1. A comprehensive report will be produced outlining a high level acidic and metalliferous risk profile for each satellite deposit with recommendations. Based on the static results, the report will outline recommended kinetic testing program to be conducted. The report will include the following: <ol style="list-style-type: none"> a. Introduction to the Project b. Scope of Work and Objectives c. Fieldwork Undertaken d. Documents Reviewed 2. Chemical Analysis undertaken 3. Data Assessment 4. Conclusions with respect to the geochemical characterisation assessment 5. Recommendations for further testing, if required iii. The comprehensive report will also include several drawings, specifically: <ol style="list-style-type: none"> 1. Site Location 2. Sampling Locations 3. Conceptual Site Model
Archaeological Specialist Study	
	<p>Objective: To determine the effect that the proposed Haib Copper Project developments may have on the archaeological components within the development area and immediate surroundings.</p> <p>This will be done through implementing the following methodology:</p> <ol style="list-style-type: none"> 1. Review of existing archaeological records 2. Carry out detailed site survey on foot 3. Document all archaeological materials according to standard procedures 4. Assess archaeological significance and vulnerability of any sites found

Description	Methodology / notes on scope assumptions
5. Compile assessment and impact report. The study includes an assessment of heritage as a requirement by the provisions of the Heritage Act.	
Social Specialist Study	
Objective: To determine the effect that the proposed Haib Copper Project developments may have on the socio-economic conditions within the development area and immediate surroundings and propose mitigation measures.	
The social specialist study is designed around four objectives namely: <ol style="list-style-type: none"> 1. to understand the socio-economic conditions prevailing in the area that will “receive” the proposed project and prepare a socio-economic profile 2. to anticipate the potential positive and negative impacts the project may have on the receiving environment and the people that reside there 3. to assess the impacts and suggest avoidance or mitigation measures for negative impacts and enhancement measures for potential positive impacts 4. to assess the options related to the ability of surrounding towns to accommodate incoming staff and determine the requirements for town planning to design and service the required land for residential and ancillary services to accommodate the impact of the proposed mine 	
Key elements of the social study will be conducted through close collaboration with the project Environmental Assessment Team.	
To facilitate proper control and management, the assignment is divided into four phases as follows:	
<ol style="list-style-type: none"> 1. Phase 1 deals with the familiarisation of the team with the situation on site in Noordoewer and to meet with and brief the authorities and key stakeholders about the assessment. The phase objectives are: <ol style="list-style-type: none"> a. To procure a base map of the study area at local and regional scale b. To do a reconnaissance site visit and meet with the Karas Regional Council, Noordoewer Settlement Office and other direct stakeholders c. To contribute to the stakeholders database d. To review and finalise the methodology after the site visit 	
<ol style="list-style-type: none"> 2. Phase 2 deals with the public consultation and data collection process. The objectives of this phase are to: <ol style="list-style-type: none"> a. Do a stakeholder analysis and prepare a stakeholder engagement plan b. Together with the Environmental Assessment team, prepare a Background Information Document (BID) and presentation c. Together with the Environmental Assessment team hold a public meeting where the project is presented and where stakeholders are afforded the opportunity to seek clarification and identify the potential positive and negative issues and impacts of the proposed mine 	
<ol style="list-style-type: none"> 3. Phase 3 comprise the social and town planning studies and the assessment of socio-economic and planning impacts. The first part of the phase entails the compilation of socio-economic background information which is required to understand the environment within which the project will take place which includes the following: <ol style="list-style-type: none"> a. Provide general social and economic information about the site and its surrounds. The “surrounds” include the village of Noordoewer and the farming, tourism and conservation activities taking place in the area. Grunau is located about 140 km by road from the mine 	

Description	Methodology / notes on scope assumptions
	<p>site. Karasburg is even further (166 km) while Aussenkehr is 52 km away, but this settlement is not planned and has major issues related to accommodating permanent and seasonal workers. It therefore seems logical to concentrate on Noordoewer as the “service centre” for the mine and also the most likely source of accommodation for mine personnel and other support services.</p> <ol style="list-style-type: none"> b. Provide a demographic profile of the people residing in Noordoewer as well as the Karasburg Constituency as the sub region within which the project is located c. Understand the planning context surrounding the project. Noordoewer is a declared settlement and is managed by the Regional Council through a Control Administrative Officer at the Settlement Office. Planning and development of the settlement is largely done from the regional office in Keetmanshoop. However, the current status of planning and the availability of serviced land for various land uses that may be required by the mining activities is unknown <p>The second part of the phase is the preparation of a social impact assessment. The objectives of this part of the phase are to:</p> <ol style="list-style-type: none"> a. Assess the issues and impacts objectively and identify mitigation and management actions that would either avoid or lessen the negative impacts and enhance the positive impacts b. Contribute the key actions required to the Environmental Management Programme (EMPr) to be used during the implementation and operations phases of the project <p>4. Phase 4 rounds off the public consultation process in the form of formal public feedback and the finalisation of the assessment for inclusion into the EIA. The objectives of this Phase are to:</p> <ol style="list-style-type: none"> a. Ensure that the draft EIA report is accessible to all registered stakeholders through the provision of digital copies b. Allow a final input from stakeholders c. Finalise the reports for submission
<p>Air Quality and Noise Specialist Study</p>	
<p>Objective: To determine the effect that the proposed Haib Copper Project developments may have on noise and air quality within the development area and immediate surroundings.</p>	
<p>This will be achieved through conducting baseline surveys, quantitative modelling and impact assessments for noise and air quality.</p>	
<ol style="list-style-type: none"> 1. Task 1: Baseline Surveys <ol style="list-style-type: none"> a. Baseline Noise Surveys <ol style="list-style-type: none"> i. The noise survey will comprise measurements collected at 10 locations on and around the concession area (20-minute measurements). Night-time boundary measurements can be conducted where it is anticipated that noise levels will substantially deviate from daytime levels, and where security is available ii. Noise monitoring will be conducted through the use of a type 1 fully integrating noise meter, capable of measuring all of the necessary noise parameters. The sound level meter will be calibrated prior to use with a portable certified acoustical calibrator. The sound level meter shall be set to record noise levels in terms of the following parameters: <ol style="list-style-type: none"> 1. LAeq The equivalent continuous sound level, normally measured on an A-weighted decibel scale 	

Description	Methodology / notes on scope assumptions
	<ol style="list-style-type: none"> 2. LAmax The maximum sound pressure level of a noise event, normally measured on an A-weighted decibel scale 3. LA90 This parameter indicates the noise levels the receiving environment is exposed to 90% of the time 4. LA10 This parameter indicates the noise levels that the receiving environment will be exposed to 10% of the time <ol style="list-style-type: none"> iii. Noise monitoring will be undertaken using a sound level meter and methodologies which complies with the SANS or other internationally recognised guidelines which in turn are in line with international best practice. <ol style="list-style-type: none"> b. Baseline Air Quality Survey <ol style="list-style-type: none"> i. Passive Sampling of NO₂ and SO₂ <ol style="list-style-type: none"> 1. The most appropriate and cost-effective means of collecting air quality data for SO₂ and NO₂ will be through the use of diffusion tubes. This allows a long-term characterisation of the air quality conditions with reasonable spatial resolution. The use of diffusion tubes for ambient characterisation is advocated by the World Health Organisation (WHO), which is in turn recognised by the International Finance Corporation (IFC). During the site visit and monitoring campaign, WKC will deploy diffusion tubes at 10 locations on-site, which shall be collected by the site staff 2 weeks after deployment, and sent back to South Africa for analysis. ii. Active Sampling of PM <ol style="list-style-type: none"> 1. In order to quantify particulate matter (PM including PM_{2.5}, PM₁₀ and TSP), it is proposed that a real-time particulate matter analyser (Turnkey Instruments™ Osiris) be deployed at a strategic locations (with a potential of 2 to 3 additional locations covering the most critical boundary areas if required) on site or at the nearest receptors based on the proposed density of mining operations and proximity to the concession boundary and sensitive receptors. <ol style="list-style-type: none"> 2. Task 2: Dispersal Modelling <ol style="list-style-type: none"> a. The dispersion modelling will be undertaken using the US EPA endorsed AERMOD software. AERMOD is a straight-line, steady-state Gaussian plume model that can model the dispersion of pollutants over rural and urban areas, flat and complex terrain. AERMOD considers surface and elevated releases, and multiple sources (including point, area and volume sources) to determine ground level pollutant concentrations at specified receptor points. The table below outlines our approach to the modelling assessment. A tabulated data request will be provided to the Client, which will be returned completed and used to inform the study parameters for ADM. 3. Task 3: Noise Modelling <ol style="list-style-type: none"> a. In order to predict operational noise levels, the internationally recognised noise modelling software, SoundPLAN, will be utilised. A noise model for the project will be developed using project noise limits and background ambient noise measurements to determine compliance with environmental noise standards. b. The Noise Study Report will include the following: <ol style="list-style-type: none"> i. Noise contour maps illustrating the Project noise contribution in the surrounding environment ii. Tabulated assessment of noise levels at sensitive receptors iii. A summary showing to what extent project noise requirements are being met
TASK 300 - CONSULTATIONS	

Description	Methodology / notes on scope assumptions
Develop Database of IAP's	<p>Task 300 will conduct a comprehensive Public Participation Process (PPP). This task will be accomplished through collaboration with the Social Specialist Study described above. The PPP will be implemented through the following actions:</p> <ol style="list-style-type: none"> 1. Review and establishment of policy, legal and administrative requirements in Namibia 2. Phase 1 of the Public Participation Process: <ol style="list-style-type: none"> a. Identify and establish a database of Interested and Affected Parties (IAPs) b. Together with the Social Specialist, prepare a Background Information Document (BID) and presentation. c. Notify IAPs of project proposal through email, in newspapers (drafting and placing of advertisements in 2 Namibian newspapers for 1 week each) distributing bulk SMS's and posters on site. 3. Phase 2 of the Public Participation Process: <ol style="list-style-type: none"> a. Inform IAPs and relevant stakeholders of Draft Scoping Report (draft letter, email correspondence) and make this available for comment. b. Notify IAP's of where to access the scoping report and location and time for public meeting. This will be done through emailing all registered IAP's and running a second-round advert for 1 week in 2 Namibian newspapers. c. In collaboration with the Social Specialist hold a public meeting where the project is presented, and stakeholders are afforded the opportunity to seek clarification and identify the potential positive and negative issues and impacts of the proposed mine. 4. Incorporate comments, considerations and suggestions from IAPs into the Draft EIA
Plan and Set up Stakeholder Appointments / Consultations	
Prepare Background Information Document	
Consultations	
Consultation Report	
TASK 400 – SCOPING AND EIA	
Project Description and Baseline	<p>Task 400 involves initiating the Environmental Clearance Certificate (ECC) application process, developing the Scoping Report (required for PPP), compiling the Environmental Impact Assessment (EIA) Report and Environmental Management Programme (EMPr) (for submission).</p> <p>The task includes three key phases:</p> <p>The Application Initiation Phase will provide a high-level project description including preliminary baselines, maps of the project area, focal specialist studies, expected impacts and listed activities for the purposes of initiating the ECC application. Feedback received from Ministry of Environment, Forestry and Tourism (MEFT) will be taken forward into the scoping phase.</p>
Legal Framework	
Risk Assessment	
Environmental Management Programme	
Application/ Submission	

Description	Methodology / notes on scope assumptions
	<p>The Scoping Phase will include the development of the Scoping Report which includes the following:</p> <ol style="list-style-type: none"> 1. Project description and baseline (inclusive of specialist baselines where possible) 2. Develop representative site maps 3. Legal review and list of triggered activities 4. Identification of alternatives and fatal flaws 5. Review of legal framework 6. Compile description of project using information received from the project developers 7. Collect baseline information for the area 8. Assess and evaluate impacts 9. Compile Draft Scoping Report and Draft Environmental Management Programme (draft SR and draft EMPr) <p>The Draft SR and Draft EMPr will be presented to IAPs during the public consultation process for inputs.</p> <p>The EIA Phase will involve the development of the EIA report and finalisation of the EMPr. The following activities are included:</p> <ol style="list-style-type: none"> 1. Incorporate findings, outcomes and recommendations of specialist studies. 2. Integrate considerations and outputs of public consultations 3. Conduct comprehensive impact assessment and design mitigation measures in line with the mitigation hierarchy 4. Integrate findings into final Environmental Management Programme (EMPr) 5. A summarised version of the EIA will be developed (maximum of 90 pages as per MEFT requirements) for the purposes of the submission. <p>The finalisation of the task will be to submit final EIA to MEFT. The decision by MEFT is expected to take approximately 6 weeks from date of submission.</p>
TASK 500 – WATER PERMITS	
Collation of documentation	Task 500 focusses on developing and initiating the application for required Water Permits to the Ministry of Agriculture, Water and Land Reform (MAWLR).
Application, submission and presentations	<p>The task will include the following:</p> <ol style="list-style-type: none"> 1. Compile documentation required for the application for Water Permits 2. Submission to MAWLR.

Description	Methodology / notes on scope assumptions
TASK 600 - MINING LICENSES	
Collation of documentation	Task 600 focusses on developing and initiating the application for required Mining Licence from the Ministry of Mines and Energy (MME). The task will include the following: <ol style="list-style-type: none"> 1. Compile documentation required for the application for Water Permits 2. Submission to MME.
Application, submission and presentations	
TASK 700 – CLOSURE PLANNING	
Closure component of prelim design report	Task 700 focusses on the development of the mine closure component in the preliminary design report. The task will involve the following: <ul style="list-style-type: none"> • Formulation of closure objectives • Identification of closure land uses • Identification of closure-related risks and opportunities • Closure concepts for the major landforms (to enable design with closure in mind) • High-level / first order closure cost estimates for major landforms.

5.0 PROJECT SCHEDULE

Task s	Description	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month
101	Project set up and inception meeting via Teams										
102	Project management and financial management										
103	Client, team and sub-consultant liaison										
200	BASELINE STUDIES										
201	Biodiversity Specialist Study										
202	Aquatic Specialist Study										
203	Hydrogeology and Geochemistry Specialist Study										
204	Geochemistry Specialist Study										
205	Archaeological Specialist Study										
206	Social Specialist Study										
207	Air Quality and Noise Specialist Study										
208	Surface Water Impacts										
300	CONSULTATION										
301	Develop Database of IAPs										
302	Plan and Set up Stakeholder Appointments / Consultations										
303	Prepare Background Information Document										
304	Consultations										
305	Consultation Report										
400	SCOPING AND EIA										
402	Project Description and Baseline										
403	Legal Framework										
404	Risk Assessment										
405	Management Plan										
406	Application/ Submission										
500	WATER LICENCE										
501	Collation of documentation										
502	Application, submission and presentations										
600	MINING LICENCE										
601	Collation of documentation										
602	Application, submission and presentations										
700	CLOSURE PLANNING										
701	Closure prelim design report										

	KP Tasks
	Specialist Studies
	Client Review

6.0 BUDGET ESTIMATE

Knight Piésold proposes to develop Environmental Impact Assessment and Environmental Management Programme and compile and submit the application for Environmental Clearance, Water Permits and Mining Licence for N\$ (excl. VAT). The quotation is calculated on a time cost basis, based on an estimation of hours required to perform each task and are summarised below.

Tasks	Description	Hours	Professional Fees	Disbursements	Sub-Total
100	PROJECT MANAGEMENT				
200	BASELINE STUDIES				
300	CONSULTATION				
400	SCOPING AND ESIA				
500	WATER ABSTRACTION LICENCE				
600	MINING LICENCE				
700	CLOSURE PLANNING				
	TOTALS				

More detailed costing is provided in [Appendix A](#).

6.1 ASSUMPTIONS AND LIMITATIONS

The table below summarises Knight Piésold's assumptions in defining the scope and cost for this project. We are available for discussions on scope and price should our understanding differ materially from the Client's expectations.

Project Component	Assumption
Scope Flexibility	The cost proposal is based on information provided by Knight Piésold at the time of drafting the proposal.
	Any change in scope and/or budget will be agreed upon and approved by the client before being undertaken. For this project, Knight Piésold will provide immediate notification of any changes or deviations to our anticipated budget due to delays and/or out-of-scope activities. If any of these situations occur, we will seek approval from the client before proceeding. Any additional works, if required, can be undertaken upon receipt of an agreed variation order.
Specialist Investigations	Specialist costs are estimates based on a high-level understanding of the scope. The exact range, scope and price of specialist investigations will be confirmed after project inception and based on input from MEFT.
Travel to site	It is assumed that all site access permissions and permits will be arranged by the Client. The Client is to provide unhindered access to site and ensure that it is safe for work.
	No allowance was made for any medical assessment or inductions or required trainings.

Project Component	Assumption
	Where relevant to the services, the Client shall give KP and our specialists adequate notice of any danger or hazard of which the Client ought reasonably to be aware and have foreseen.
Data Availability	A design freeze will be provided prior to the implementation of the EIA phase to allow for finalisation of baseline and scoping reports
	Project specific information will be provided by the Client and all data will be provided at the Client's own costs.
	The Client will make the latest survey available (if available).
Resettlement	No provision for a Resettlement Action Plan has been included. Should a Resettlement Action Plan be required, a costing thereof will be provided.
Stakeholder Consultation	Newspaper advertisements costs have been estimated. Actual costs will be reimbursed from the client.
	Provision for 1 round of stakeholder consultation has been included. This includes notification, advertising and a public meeting.
Project Management	<p>Our scope and cost makes provision for:</p> <p>3 project progress meetings and reports and 10 months of project management.</p> <p>3 updates of the project schedule.</p> <p>3 meetings with the technical team.</p>
Meetings	No inclusion has been provided for on-site meetings.
	Client meetings will be held via telephone, WebEx, Skype or Microsoft Teams.
	No authorities' meetings have been included.
	Key decisions will be recorded and distributed as meeting minutes.
Aquatics	Two seasonal surveys, one wet and one dry season survey, will be undertaken.
	The quotation is based on 4 aquatic bio-monitoring sites. Additional sites will incur additional costs.
	It is assumed there is currently no discharge point on the Orange River
	In the event that a site is deemed hazardous during the time of the survey, either due to weather or safety conditions, aquatic bio-monitoring will not be performed.
	Site access is to be arranged with landowners prior to site surveys by the Client.
Hydrogeology	We have not allowed for the cost of a geophysical survey. However, we have allowed a period of 1 week for supervising a geophysical survey. Should a geophysical survey be required then the scope of this will be defined and a

Project Component	Assumption
	price for the third-party works will be obtained. It is assumed that the third-party contractor will be appointed either directedly by the Client or by KP following receipt of a Variation Order for the works
Payment	Please note that our terms of payment are strictly 30 days from date of invoice.
	A project initiation invoice will be issued upfront to cover anticipated laboratory costs and mobilisation of specialists to site.
	Should the project be put on hold for whichever reason, an invoice will be submitted for all work undertaken and project expenditure up to the time of receipt of the stop works order.
	Provisions of N\$ 5 300 has been made for anticipated application fees. Should additional application fee be by a relevant authority be applicable to the project, this will be paid directly by the client.
Reports	All reports will be provided in electronic format and uploaded onto Knight Piésold's online file management system (Fulcrum) for record purposes.
	Hard copies of reports are excluded other than those required for the application process.
	All reports will be submitted as drafts to the Client for review prior to issuing the final reports.
Translation	The deliverable drafts will be reviewed by KP and Deep South Resources in English only.
Validity	This cost proposal is valid for a period of 30 days.
	Our professional fee rates are valid until August 2024, where after an escalation will apply. KP cannot provide a fixed fee with no escalation, as Deep-South Resources' projects may be delayed due to factors beyond the control of KP.

7.0 PROJECT TEAM

The sections below provide background and describe the expertise of KP and our project team.

7.1 KNIGHT PIÉSOLD

Knight Piésold is a global consulting firm that provides specialised services to the mining, power, water resources and infrastructure industries. We are engineers, environmental scientists, geoscientists and technologists who focus on creating value at every stage of a project through quality driven, sustainable solutions.

Established in 1921 in South Africa, we have expanded throughout the world, with 30 offices in 14 countries. At Knight Piésold, we work as one team, mobilising local and global resources to meet the needs of each client.

We work closely with our clients, understanding unique project characteristics within the context of today’s global business environment. With a commitment to safety, quality and technical excellence, Knight Piésold specialises in creating customised solutions at every stage of a project life cycle, while delivering sustainable, bottom-line results. We have led numerous award-winning projects to completion and have fostered many long-term client relationships that hold strong today.

Our environmental team specialises in mining and large infrastructure projects and have successfully completed numerous EIAs in complex regulatory environments. Our objective is to provide you with quality deliverables that are “fit for purpose” for both local permitting and international financing requirements.

7.2 PROJECT TEAM

The assignment will be managed through KP Namibia’s Windhoek office with additional specialist support being provided from KP offices in South Africa. Knight Piésold will assign the following staff to ensure successful completion of the project within the time schedule.

- Amelia Briel – Section Manager: Environment (KP South Africa) – Technical review
- Veronique Daigle – Director: Mining (KP Namibia) – Project Director
- Joseph Mulders – Senior Environmental Scientist (KP South Africa) – Project Manager
- Diana Duthe – Geochemist and Hydrogeologist Section Manager (KP South Africa)
- Lima Maartens – Environmental Assessment Practitioner (EAP)
- Lloyd Lunch – Environmental Scientist (KP South Africa)
- Amina Mukasa – Junior Environmental Scientist (KP)
- Theo Oosthuizen – Senior GIS Specialist (KP South Africa)
- Bianca Eiasen – Administrative Assistant (KP Namibia)
- Marc Blanche – Air quality and noise specialist
- Ashley Meyer – Air quality and noise specialist
- Peter Cunningham – Biodiversity Specialist
- John Kinahan – Archaeological Specialist
- Ernst Simon - Social Specialist
- Heidri Estellè Bindemann-Nel – Social Specialist.

The table below provides a summary of the complete project team. CVs are attached in **Appendix B**, and qualifications can be provided on request.

Table 1: Summary of project team, qualifications, and experience

Name	Qualifications and experience
Veronique Daigle	2006 B.Sc. Eng. Coop, Civil Engineering, Université de Sherbrooke, Canada Engineering Professional Association in Canada, Reg No: OIQ143 749) Engineering Council of Namibia (ECN), Pr Eng, Reg No (PE2017-19) 17 years’ experience

Name	Qualifications and experience
Amelia Briel	2001 MSc (Environmental Toxicology), University of Johannesburg Professional Natural Scientist (RSA), <i>Pr.Sci.Nat.</i> 114335 >19 years' experience
Diana Duthe	1990 M.Sc. (Hydrogeology), University of Neuchatel, Switzerland Professional Natural Scientist (RSA), <i>Pr.Sci.Nat.</i> 400091/01 >30 years' experience
Lima Maartens	2000 Ph.D. (Fisheries Science), Rhodes University, South Africa Environmental Assessment Professionals of Namibia (EAPAN) >30 years' experience
Joseph Mulders	2015 MSc (Environmental Management), University of Pretoria, South Africa Professional Natural Scientist (RSA) <i>Pr.Sci.Nat.</i> 118063 9 years' experience
Lloyd Lynch	2014 MSc (Aquatic Health), University of Johannesburg, South Africa Professional Natural Scientist (RSA) <i>Pr.Sci.Nat.</i> 116026 7 years' experience
Amina Mukasa	2022 BSc, Environmental Sciences, Université Nouveaux Horizons 1 year experience
Theo Oosthuizen	1995 M.Sc. (Environmental Management), University of Johannesburg, South Africa Professional Natural Scientist, <i>Pr.Sci.Nat.</i> 400304/05 >25 years' experience
Marc Blanche	2005 M.Sc. Applied Environmental Sciences, University of KwaZulu-Natal Professional Natural Scientist (RSA) <i>Pr.Sci.Nat.</i> 400163/11 >20 years' experience
Ashley Meyer	2012 B.Eng. Mechanical Engineering, University of Pretoria 12 years' experience
Peter Cunningham	1996 M.Sc. Nature Conservation, University of Stellenbosch, South Africa >20 years' experience
John Kinahan	1989 Ph.D. Archaeology and Environmental Studies, University of the Witwatersrand. >30 years' experience
Ernst Simon	1986 M. TRP, University of the Free State, South Africa Corporate Member of the Namibia Institute of Town and Regional Planners >30 years' experience
Heidri Estellè Bindemann-Nel	2014, M. TRP, University of Pretoria, South Africa Member of the Namibia Council of Town and Regional Planners, Namibia Institute of Town and Regional Planners, Environmental Assessment Professionals of Namibia 11 years' experience

8.0 PAYMENT TERMS

Please note that in the event we are appointed to undertake this work, our terms of payment are 30 days from date of invoice.

9.0 LIABILITY

In accordance with Knight Piésold's Professional Indemnity Insurers, we limit the maximum amount of compensation payable by Knight Piésold in respect of liability for this scope of work as an amount equal to twice the total fee payable for a period of 3 years from the day of issuing the report.

In the even that we are appointed to undertake this work, we would require that Interwaste indemnifies Knight Piésold against all claims by third parties which arise out of or in connection with the services which exceed the maximum amount of compensation and for the full amount of any such claims after the liability period stated in the agreement.

We would also require that Deep-South Resources indemnifies Knight Piésold against any claim which may be made against us by any party arising from the use for other purposes of documentation submitted to Deep-South Resources in rendition of this appointment.

10.0 WAIVER

We reserve the right to re-negotiate the above proposal should the scope of work change from the above.

11.0 CONCLUSION

The project team presented by Knight Piésold will provide a high level of international experience and in-country expertise. The scope of the environmental and social programmes presented in this proposal is intended to fully address Deep-South Resources' requirements. The scope of work and deliverables may be negotiated and adjusted based on client needs.

We trust that the Scope of Work described in this proposal will support Deep-South Resources well and we look forward to advancing the project together with your team.

Yours Sincerely,

Knight Piésold Consulting (Pty) LTD.

Prepared:



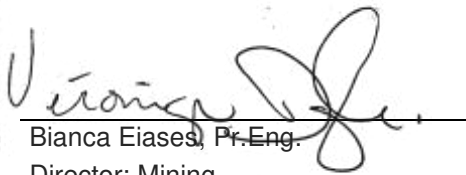
Joseph Mülders, Pr.Sci.Nat.
Senior Environmental Scientist

Reviewed:



Amelia Briel, Pr.Sci.Nat
Section Manager: Environmental

Approved:


Bianca Eiases, Pr.Eng.
Director: Mining

Approval that this document adheres to Knight Piésold Quality Systems:

AB

Attachments:

Appendix A: Detailed Cost

Appendix B: CVs

1.0 APPENDIX B: CV'S

VERONIQUE DAIGLE (Pr Eng)

DIRECTOR - MINING

Veronique is a lead civil engineer with over 17 years of experience, at Knight Piésold's Windhoek office. She has a Civil Engineering degree (Cooperative Program) with specialization in environmental geotechnics and hydraulics from the Université de Sherbrooke, Canada. She joined Knight Piésold Ltd. (Canada) in 2007 and worked in the mining and renewable energy sectors. Her experience includes projects in the Canadian Arctic, North and South America, the Caribbean as well as Western and Southern Africa. Veronique joined Knight Piésold Consulting (Pty) Ltd in Namibia in 2013 and is assisting Knight Piésold's services to the mining and power industry. She has been involved in dam safety inspection, environmental studies, geotechnical assessments as well as tailings and water management systems for over 13 years.



**Knight Piésold
Consulting (Pty) Ltd.
Namibia**

REGISTRATIONS / CERTIFICATIONS

- Ordre des Ingénieurs du Québec, Engineering Professional Association in Canada, Reg No: OIQ143 749)
- Engineering Council of Namibia (ECN), Pr Eng, Reg No (PE2017-19)
- Member of South African National Committee on Large Dams (SANCOLD) and Canadian Dam Association (CDA).
- Certified Verification Service Provider (VSP) for the Towards Sustainable Mining (TSM) initiative from the Mining Association of Canada (MAC) and Lead ISO Auditor (9001)

SPECIFIC RELEVANT EXPERIENCE

- **Twin Hills Gold Project:** Surface and Groundwater Studies for preliminary and pre-feasibility designs.
- **Otjikoto Gold Mine, B2 Gold, Namibia:** 2016 and 2020 Tailings Storage Facility third party audit, risk assessment and recommendations for a thickened ring dyke cycloned tailings disposal, inclusive of a preliminary review and gap analysis for the MAC TSM initiative.
- **Matsa Minas de Agua Teñidas, Trafigura, Spain:** 2020 and 2021 audit of the Paste Tailings Deposition system, review of regional and international guidelines, risk assessment and recommendations.
- **Skorpion Zinc Mine, Vedenta, Namibia:** 2016 and 2019 TSF Audit for a filtered tailings storage facility.
- **Okorusu Graphite Project, Imerys, Namibia:** Design of the tailings storage facility extension and surface water diversion system, audits and design re-appraisal.
- **Rosh Pinah Zinc Project, Trevali, Namibia:** Pre-feasibility studies for TSF life extension, including geotechnical investigation, tailings physical and geochemistry testing.
- **Rössing Uranium Project, Rio Tinto, Namibia:** 2013 independent review of the water and waste facilities, representative of the design engineer for the 2017 TSF review, stability assessments review and recommendations for future operation and design.
- **Yanqul Copper Project, Oman:** Feasibility study for a filtered tailings facility.
- **Dordabis Project Namibia:** High level concept study for a co-disposal filtered tailings/waste facility.
- **Karibib Lithium Project, Lepidico, Namibia:** Feasibility study for waste and water management infrastructure, including a filtered tailings co-disposal facility.
- **Von Bach Dam, Namwater, Namibia:** Investigation of the concrete-asphaltic upstream seal layer for a water reservoir dam, alternative assessment for remediation, inputs to final report.
- **Ruacana power station, Van Eck power station and Brakwater Depot, Nampower, Namibia:** Site inspection, water quality monitoring assessment and recommendations.
- **Husab Uranium Project, CGN, Namibia:** Peer review audit of the Husab Tailings Storage Facility design with specific attention to commissioning, operations and closure.
- **Tsumeb Copper Smelter, Dundee Precious Metals, Namibia:** Dam safety inspection, tailings management optimisation and recommendations, piezocone (CPTu) geotechnical site investigation.
- **Tschudi Copper Heap Leach Facility, Weatherly, Namibia:** Geotechnical site investigation (CPTu and lab testing) of the leached ore, interpretation and lift design.

EDUCATION

- BSc. Eng. Coop, Civil Engineering, Université de Sherbrooke Canada, 2006
- Diploma, International Relations, Université de Sherbrooke Canada, 2002

SPECIALIZATIONS

- Dam Safety Inspection
- Geotechnical and Environmental Site Investigations
- Heap leach pad and solution ponds design
- Hydrology/Hydraulics
- Mine Tailings Disposal
- Permitting of Water and Waste Infrastructures
- Probabilistic Water Balances
- Project Management
- Slurry and Water Pipeline System

COUNTRIES OF WORK EXPERIENCE

- Burkina Faso
- Canada
- Ghana
- Mexico
- Namibia
- Oman
- Spain
- Peru

VERONIQUE DAIGLE (Pr Eng)

DIRECTOR - MINING

- **Various projects, Mexico:** Pre-feasibility and feasibility studies, environmental support and permitting, geotechnical site investigations and construction monitoring for dams, tailings and heap leaching facilities.
- **Cantung Tungsten Project, NWT, Canada:** Annual Inspection of tailings and water facilities for a Tungsten mine and construction supervision of annual raise.
- **Mount Milligan Copper-Gold Project, Canada:** Construction and QA services.
- **Inata Gold Mine, Burkina Faso:** Construction supervision and QA/QC for a tailings pipeline causeway and lined emergency pond.
- **Tarkwa and Damang Gold Mines, Goldfields, Ghana:** Tailings and water management facilities inspection, heap leaching facility water balance, water management and water balance review and various engineering services.
- **Various Gold Mines, Ghana:** Environmental and Engineering Services, Dam Inspection and Water Management Engineering.
- **Mary River Iron Ore Project, Baffinland, Canada:** Alternative Renewable Energy Assessment and geotechnical studies.

WORK HISTORY

Company Name	Position	Dates
Knight Piésold Consulting (Pty) Ltd, Namibia	Director	2022 - Date
Knight Piésold Consulting (Pty) Ltd, Namibia	Senior Engineer, Namibia	2013 - 2021
Knight Piésold (Ghana) Ltd (Internal Transfer)	Project Engineer, Ghana	2009 - 2010
Knight Piésold, (Pty) Ltd	Project Engineer, Canada	2007 - 2013
Northwest Territory Construction (Colas Group), Canada	Student Coop Program	2006
Groupe de Collaboration International de l'Université de Sherbrooke, QC, Canada	General Manager / Student Coop Program	2005
Ministère des Transport du Québec, QC, Canada	Student Engineer, Student Coop Program	2004 - 2005

AMELIA BRIEL (Pr. Sci. Nat.)

SECTION MANAGER : ENVIRONMENTAL

Amelia Briel is the Manager for the Environmental Section of Kni'ght Piésold South Africa and oversees all projects at a strategic level. She has 19 years' experience in Environmental Management and ESG (Environmental, Social and Governance). She is a registered Professional Natural Scientist (Environmental Science). She previously worked for a government agency responsible for regulatory approvals and was involved in large scale as well as small scale mining authorisations, environmental impact assessments, closure applications and performance audits. She specialises in large-scale Environmental and Social Impact Assessments, Stakeholder Consultation, Feasibility Studies, Renewable energy projects, Mine Closure Plans, Environmental Monitoring and Compliance. Amelia has experience in various African countries in terms of delivering regulatory approvals in line with local requirements and also in delivering projects to international best practice standards.



**Knight Piésold (Pty) Ltd.
South Africa**

REGISTRATIONS / CERTIFICATIONS

- South African Council for Natural Scientific Professions, (SACNASP), Professional Natural Scientist (Pr.Sci.Nat.), Reg No. 114335

SPECIFIC RELEVANT EXPERIENCE

- **Mutanda Mining, DRC:** Conceptual Closure Plan and Cost Model
- **Nickel project, Tanzania:** Environmental and Social Due Diligence
- **Hawiah Gold Project, Saudi Arabia:** Project manager for Environmental and Social Impact Assessment
- **Closure Plan for mine residue facilities, Zambia:** Risk assessment, land use planning and closure planning
- **Iduapriem Gold Mine, Ghana:** Environmental, Social and Health Impact Assessment
- **Bisha Mining Share Company, Eritrea:** Detailed Mine Closure Plan and cost model
- **Anglo American PLC, Global:** Assessment of the environmental pollution risks associated with all Mine Residue Facilities in the Anglo-American global operations
- **Nevsun Resources, Bisha Gold Mine, Eritrea:** Conceptual Mine Closure Plan and Closure Cost Model
- **MMG Kinsevere, Kinsevere Copper Mine, DRC:** Environmental and Social Impact Assessment (ESIA) for Stage 2 of the Copper Mine and various follow-up assignments, including a Biodiversity Action Plan, Mine Closure Plan and closure cost model, update of the Environmental Impact Study, ESIA for the Primary Copper Project and various environmental monitoring projects
- **Anglogold Ashanti, Siguri Gold Mine, Guinea:** Environmental feasibility study and Environmental Impact Notice for the Combination Plant Project
- **Anvil Mining / MMG, Mutoshi Copper Project, DRC:** Artisanal Mining Survey, Environmental and Social Baseline Survey and stakeholder consultation
- **Anglogold Ashanti, Mongwalu Gold Project, DRC:** Management plans for the mine's ISO 14001 Environmental Management System, including waste, biodiversity, heritage, soil and land use, noise, air quality, an emergency and contingency response plan
- **Sedibelo Platinum Project, South Africa:** Finalisation of the EIA and EMP process, Integrated Water Use License Application (IWULA) and public participation processes

WORK HISTORY

Company Name	Position	Dates
Knight Piésold (Pty) Ltd	Environmental Unit Manager / Senior Environmental Scientist / Environmental Scientist	Aug 2007 - Date
Gauteng Department of Agriculture, Conservation and Environment	Assistant Director / Principal Environment Officer / Environment Officer	2003 - 2007

EDUCATION

- MSc (Environmental Toxicology), RAU (now the University of Johannesburg), South Africa, 2001
- BSc (Hons) (Zoology), RAU, South Africa, 1998
- BSc (Biological Science), RAU, South Africa, 1997

SPECIALISATIONS

- Large-scale ESIAs
- Stakeholder Consultation
- Closure Plans
- Environmental Monitoring and Compliance
- Project management

COUNTRIES OF WORK EXPERIENCE

- South Africa
- Namibia
- Eswatini
- Democratic Republic of Congo
- Zambia
- Ghana
- Guinea
- Eritrea
- Tanzania

DIANA M DUTHE, (Pr.Sci.Nat.)**LEAD: HYDROGEOLOGY**

Diana Duthe is a Principal Hydrogeologist with expertise in Mining Hydrogeology and Hydrogeochemistry. Diana qualified with a BSc Hons Geology from WITS and a MSc Hydrogeology from University of Neuchatel, Switzerland. Her prior role was that of Principal Hydrogeologist/General Manager at ITASCA Africa Pty Ltd since 2015. Before joining ITASCA Africa, she was with SRK Consulting for 13 years of her career as Principal Hydrogeologist and Head of Groundwater. Diana brings with her over 30 years of experience in Mining Hydrology and has worked throughout Africa for key clients.



**Knight Piésold (Pty) Ltd.
South Africa**

REGISTRATIONS / CERTIFICATIONS

- Registered Professional Natural Scientist (Geological Sciences), South Africa
- Member: International Association of Hydrogeologists (IAH)
- Member: International Mine Water Association (IMWA)
- Introduction to Toxicology (2004) University of Witwatersrand
- Strategic Business Management (2015) University of Cape Town
- Business Sustainability Management (2017) University of Cambridge

SPECIFIC RELEVANT EXPERIENCE

- **Boto Gold Project Senegal** Groundwater characterisation for input to numerical flow model for dewatering design and pore pressure distributions
- **FG Landfill** Groundwater specialist study including isotope characterisation around landfill and input to EIA
- **Lubambe Copper Mine Zambia** Due Diligence, predictions of requirements and design of dewatering system for current mine and future planned underground operations in Zambian Copper Belt.
- **Metalkol DRC** Groundwater site assessment and data analysis for ESIA. Currently design and ongoing support for sustainable groundwater water supply to the tailings retreatment operations and processing plant.
- **Mogalakwena Platinum Mine South Africa** Geochemical waste characterisation and field investigations for contaminant transport, input to environmental permitting and water use licence applications.
- **Otjikoto Gold Mine Namibia** Due Diligence, field investigations including aquifer testing, dewatering design and input to geotechnical studies for slope stability and transition to underground mining, annual groundwater monitoring report.
- **Umbogintwini Industrial Complex South Africa** Contaminant characterisation, site assessment reports, Tier 2 risk assessment, remediation design of complex mixed DNAPL sources.
- **Witwatersrand Gold Mines Acid Mine Drainage, South Africa** Geohydrology Team Leader for Long Term Solution Feasibility Study for DWA.

EDUCATION

- M.Sc. (Hydrogeology), University of Neuchatel, Switzerland, 1990
- B.Sc. Hons. (Geology), University of Witwatersrand, Johannesburg, South Africa, 1984
- B.Sc. (Geology Major, Biochemistry Botany), University of Witwatersrand, Johannesburg, South Africa, 1983

SPECIALIZATIONS

- Mining Hydrogeology
- Tailings Hydrogeology
- Hydrogeochemistry
- Waste Classification and Management
- Remediation
- Due Diligence

WORK HISTORY

Company Name	Position	Dates
Knight Piésold Consulting, Johannesburg, South Africa	Lead: Hydrogeology	2021 - Date
Itasca Africa,(Pty) Ltd., Johannesburg, South Africa	Principal Hydrogeologist/General Manager/Director	2015 - 2020
SRK Consulting (Pty) Ltd, South Africa	Principal Hydrogeologist/Partner	2002 - 2015
KLM Consulting (Pty) Ltd, South Africa	Senior Hydrogeologist	2001 - 2002
SRK Consulting (Pty) Ltd, South Africa	Senior Hydrogeologist	2000

COUNTRIES OF WORK EXPERIENCE

- South Africa
- Madagascar
- Iran
- Sierra Leone
- Ethiopia
- Eritrea
- DRC
- Namibia
- Botswana
- Angola

DIANA M DUTHE, (Pr.Sci.Nat.)**LEAD: HYDROGEOLOGY**

MBA Pty Ltd, South Africa GEOS Consulting Engineers (Swiss)	Independent Hydrogeological Consultant	1993-1999
Swiss Institute of Technology (EPFL) Switzerland	Research Assistant for Protection of Peatlands (WWF Project)	1991-1992
SRK Consulting (Pty) Ltd, South Africa	Student (MSc project) Nitrate contamination in Venda	1990
ISCOR Ltd, Pretoria, South Africa	Exploration and Mine Geologist at Thabazimbi Iron Ore	1985-1988

- Lesotho
- Senegal

lima@iway.na
limamaartens@gmail.com
+264 61 255750
+264 81 2458790
Windhoek, Namibia

Skills

Environmental Scoping
Environmental Impact Assessments
Environmental Management Plans
Environmental Auditing
Environmental and Social Due
Diligence & Legal Compliance
Technical Reviews & Proofreading
Project Management
Research & Monitoring

Education And Training

2000

Ph.D.: Fisheries Science

Rhodes University

Grahamstown, South Africa

1992

B.Sc. Hons: Animal Physiology

Stellenbosch University

Stellenbosch, South Africa

1991

B.Sc.: Zoology and Physiology

Stellenbosch University

Stellenbosch, South Africa

1987

Senior Certificate

Windhoek High School

Windhoek, Namibia

Languages

Afrikaans: First Language

English: Proficient

Membership in Professional Bodies

Associate Membership and
Associate Environmental Auditor -
Institute of Environmental
Management & Assessment
(IEMA), United Kingdom
Lead Practitioner, Practitioner,
Reviewer - Environmental
Assessment Professionals of
Namibia (EAPAN)
Full Member - Namibian Chamber
of Environment (NCE)
Member - Namibia Scientific
Society

Lima Maartens

Summary

I have 30 years' experience in natural resource management, lecturing, environmental science and management, and consulting. Sectors that I worked in as an Environmental Assessment Practitioner include: exploration (including offshore oil and gas); mining and quarrying; renewable energy (solar and wind); tourism; manufacturing; agriculture; aqua- and mariculture; township, property (including medicine storage facilities) and waterfront developments, transport (rail and road), and infrastructure.

Employment Record

LM Environmental Consulting – Environmental Assessment Practitioner

10/2009 – Current; Windhoek, Namibia

Valencia Uranium (Pty) Ltd – Environmental Manager

09/2006 – 09/2009; Windhoek, Namibia

De Beers Marine Namibia (Pty) Ltd – Senior Environmental Scientist

01/2004 – 08/2006, Windhoek, Namibia

Simonis Storm Securities – Analyst

09/2002 – 12/2003, Windhoek, Namibia

University of Namibia – Lecturer

10/2000 – 06/2002, Windhoek, Namibia

Ministry of Fisheries and Marine Resources – Fisheries Biologist

01/1993 – 09/2000, Swakopmund, Namibia

Additional Skills

Oxford Climate Society, Oxford School of Climate Change: *Completion of the nine-week School of Climate Change* (2022)

SHEilds Ltd., United Kingdom: *NEBOSH Certificate in Environmental Management* (2018)

NOSA, Windhoek, Namibia: *Applying SHE (Safety, Health, Environment) Principles and Procedures* (2012)

Centre for Environmental Management, Potchefstroom, South Africa: *Introduction to Integrated Waste Management for Environmental Managers* (2009)

The Chamber of Mines of Namibia, Uranium Stewardship Committee, Namibia: *Radiation Course for Senior Supervisors* (2009)

Prospectors and Developers Association of Canada (PDAC): *From theory to practice: Corporate social responsibility and sustainable development in mineral exploration* (2007)

Crystal Clear, South Africa: *IEMA Approved Foundation Environmental Auditor* (2006)

Centre for Environmental Management, Potchefstroom, South Africa: *Implementing Environmental Management Systems (ISO 14001:2004)* (2005)

University of Stellenbosch Executive Development: *Project Management* (2004)

Publications

I have published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 147 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.

JOSEPH MÜLDERS (Pr.Sci.Nat.)

SENIOR ENVIRONMENTAL SCIENTIST

Joseph Mülders is Senior Environmental Scientist based at Knight Piésold's Sandton office. He has 9 years of experience in the environmental services industry and is a registered Professional Natural Scientist (Environmental Science). Joseph has been involved in social and environmental risk, safeguards assessments and monitoring, spatial classification of socio-economic and environmental systems. He was appointed by the South African National Department of Environmental Affairs where he was responsible for developing and implementing the Social and Environmental Risk Management Program for a large 5 year multi-stakeholder GEF funded project. He specialises in environmental due diligence, impact assessments and risk analysis, environmental monitoring, rehabilitation and offset quantification and design, stakeholder consultation, environmental monitoring and compliance. Joseph has experience in various African countries in terms of delivering projects to international best practice standards focusing on socio-economically sustainable development and management of natural resources.



Knight Piésold (Pty) Ltd.
South Africa

REGISTRATIONS / CERTIFICATIONS

- South African Council for Natural Scientific Professions (SACNASP), Pr.Sci.Nat. Reg No. 115316

SPECIFIC RELEVANT EXPERIENCE

- **DFFE/UNDP/GEF6 Fill Sized Project, South Africa:** Developed and implemented the Social and Environmental Risk Management Program, designed and implemented the project wide integrated monitoring and evaluation plan. Acting Project Manager for 4 months
- **DFFE/IUCN/GEF7 Full sized Project, South Africa:** Project design and developed the Environmental and Social Management Plan (ESMP)
- **uThukela Water Resource Classification System (WRCS), South Africa:** Coordinated the classification and quantification of socio-economic impacts to communities as linked to changing water allocation scenarios
- **Loulo, Gounkoto and Morila Gold Mines, Mali:** Biodiversity Offset (Quantifying residual impacts and proposing mechanisms for internalising costs of impacts back into the biodiversity capital value of Mali)
- **Kibali Gold Mine, DRC:** Biodiversity Offset (Develop a biodiversity offset based on the past, current and future biodiversity impacts and benefits since the start of operations)
- **Makuya Nature Reserve, South Africa:** Park Management Plan (Systems ecologist and spatial planner)
- **Kusile Power Station, South Africa:** Scoping and Basic Assessment, including public consultation and environmental specifications (EAP)
- **Kusile Power Station, South Africa:** Wetland Rehabilitation Strategy (Baseline assessment, condition analysis and strategic design)
- **Kusile Power Station, South Africa:** Wetland Offset Strategy (baseline assessment, stakeholder engagement, offset quantification and strategy design)
- **Kusile Power Station, South Africa:** Turbidity Management Strategy - monthly and quarterly water quality sampling, analysis and reporting

WORK HISTORY

Company Name	Position	Dates
Knight Piésold (Pty) Ltd	Senior Environmental Scientist	July 2023 - Date
South African National Department of Forestry, Fisheries and Environment	Deputy Director	2021 - 2023
Prime Africa Consult	Systems Ecologist	2014 - 2021

EDUCATION

- MSc, Environmental Management, University of Pretoria, South Africa, 2015
- BSc (Hons) Environmental Management and Analysis, University of Pretoria, South Africa, 2009
- BSc, Zoology, University of Pretoria, South Africa, 2008

SPECIALISATIONS

- Environmental monitoring
- Rehabilitation and offset quantification design
- Stakeholder Consultation
- Environmental due diligence
- Impact assessments and risk analysis
- Project management

COUNTRIES OF WORK EXPERIENCE

- Malawi
- Mali
- Mozambique
- South Africa
- Uganda

LLOYD LYNCH (Pr.Sci.Nat)

ENVIRONMENTAL SCIENTIST

Lloyd has worked for Knight Piésold as an Environmental Scientist for seven years with a focus on aquatic science. He is a registered professional scientist and an accredited DWS: SASS version 5 practitioner. During his career, Lloyd has conducted aquatic specialist assessments across South Africa, both for stand-alone assessments as well as scheduled bio-monitoring, making use of both SASS and FAIL. He has also assisted with a variety of other tasks ranging from public participation consultations, ESIA baseline input, both air and water quality reporting and project management.



REGISTRATIONS / CERTIFICATIONS

- SACNASP, South African Council for Natural Scientific Professions, Pr.Sci.Nat, Reg No. 116026
- Department of Water and Sanitation: SASS 5 Accredited Practitioner, 2017, 2020

SPECIFIC RELEVANT EXPERIENCE

- **Johannesburg Water Aquatic Monitoring of Wastewater Treatment Works:** Conducted bi-annual aquatic bio-monitoring for six WWTW within the City of Johannesburg municipality.
- **Kinsevere Copper Mine, DRC:** Responsible for the design and implementation of an extensive groundwater and potable water monitoring programme, including analysis of laboratory results, reporting, air quality monitoring, biodiversity assessments and the establishment of rehabilitation trials.
- **ERWAT Aquatic Monitoring:** Conducted quarterly aquatic monitoring including toxicity and diatom analysis at 19 water care works within the Ekurhuleni area.
- **Palabora Copper – Water Use License Audits:** Compilation of audit checklists, undertaking the audits on site and compilation of the WUL audit reports.
- **Two Rivers Platinum Aquatic Biomonitoring:** Conducted routine aquatic biomonitoring surveys in the Klein, Groot and Dwars rivers.
- **Two Rivers Platinum Financial Provisioning:** Undertook annual reviews of the rehabilitation, monitoring and closure costs associated with the mine and determined annual shortfalls.
- **Tembo Nickel Project Due Diligence:** Undertook a due diligence assessment in line with the IFC Performance Standards for a potential nickel mine in Tanzania.

WORK HISTORY

Company Name	Position	Dates
Knight Piésold (Pty) Ltd	Environmental Scientist	2021 - Date
Knight Piésold (Pty) Ltd	Aquatic Scientist	2019 - 2020
Knight Piésold (Pty) Ltd	Junior Environmental Scientist	2016 - 2019
University of Johannesburg	Contract Lecturer	2015

Knight Piésold (Pty) Ltd.
South Africa

EDUCATION

- MSc Aquatic Health, University of Johannesburg, 2014
- BSc Honours, Zoology, University of Johannesburg, 2012
- BSc Zoology and Botany, University of Johannesburg, 2011

SPECIALIZATIONS

- SACNASP, South African Council for Natural Scientific Professions, Pr.Sci.Nat. Reg No. 116026
- Department of Water and Sanitation: SASS 5 Accredited Practitioner

COUNTRIES OF WORK EXPERIENCE

- South Africa
- Democratic Republic of Congo
- Swaziland

NATACHA AMINA MUKASA

JUNIOR ENVIRONMENTAL SCIENTIST

Natacha Amina Mukasa is a Junior Environmental Scientist at Knight Piésold's Lubumbashi office in the Democratic Republic of Congo (DRC). She is currently completing her MSc in Environmental Sciences. Amina is fluent in French, Swahili and English and is therefore a vital link between local communities and the international specialists from Knight Piésold that work on projects in DRC. Amina is gaining experience in various aspects of environmental management such as baseline data collection stakeholder consultation and environmental monitoring.

SPECIFIC RELEVANT EXPERIENCE

- **Mutanda Mining SARL, MUMI, DRC:** Undertook social-baseline studies, ensuring data integrity and reviewing reports. The field work consisted of the sensitization meetings with traditional leaders and community members, management of the data collection process. Performed quality control of field data and reports and was responsible for the review and elaboration of the archeological and heritage reports.
- **MMG Kinsevere, Kinsevere Copper Mine, DRC:** Proceeding of the in-situ quarterly water quality monitoring. Water quality sampling, including quality assurance / quality control of procedures data analysis and reporting.
- **Mutanda Mining SARL, MUMI, DRC:** Screening-level site visit to inform site selection as part of an ESIA for the Sulphide Expansion Project at MUMI.

WORK HISTORY

Company Name	Position	Dates
Knight Piésold Consulting, RDC SARL	Junior Environmental Scientist	2022 - Date
Observatoire Congolais de l'Environnement	Chief redactor of the magazine	2022
Office Congolais de Contrôle (OCC)	Intern	2020
MMG Kinsevere	Intern	2019



**Knight Piésold Consulting,
RDC SARL**

EDUCATION

- BSc, Environmental Sciences, Université Nouveaux Horizons (2022)

SPECIALIZATIONS

- Pollution and remediation
- Environmental monitoring
- Social data collection

COUNTRIES OF WORK EXPERIENCE

- DRC

THEO OOSTHUIZEN (Pr.Sci.Nat.)

SENIOR GIS ANALYST

Theo Oosthuizen is a GIS Analyst based in Knight Piésold's Sandton office. He has over 27 years of experience in GIS data management, hydrology support, volume calculations, 3D modelling, closure costing support and 3D visualizations in Mining, water and environmental projects in Africa, South America, the Middle East and Europe. His recent assignments include the provision of GIS support for the Kinsevere, MUMI and KCC projects in the DRC, the Sibanye Gold & Platinum operations in South Africa and the TD11 reporting for Mopani Copper in Zambia. 3D visualisation, volumetric calculations, spatial data manipulation and survey processing of drone and LiDAR data are other areas of GIS support.



Knight Piésold (Pty) Ltd.
South Africa

REGISTRATIONS /CERTIFICATIONS

- South African Council for Natural Scientific Professions (SACNASP), Pr.Sci.Nat, Reg No. 400304/05

SPECIFIC RELEVANT EXPERIENCE

- **Two Rivers Platinum:** GIS support Dam Break Analyses. Detailed hydrology and creation of DEM inputs and Mapping. New TSF Facility for TRP - South Africa
- **KAZ Minerals:** GIS support Zone of Influence calculations. DEM creation and ZOI Mapping. Existing Copper facilities in Orlovsky, Nikolaevsky, Belousovsky & Aktogay - KP London, Kazakhstan
- **Tulu Kapi Copper Project:** GIS support for new Tailings Facility and two dams. Projections, DEMS, Modelling and mapping including a new TSF Facility - Lycopodium, Ethiopia
- **Sibanye Gold:** GIS support Dam Break Analyses (Driefontein, Leeudoorn, Beatrix) and Quarterly Reporting - South Africa
- **Tarkwa Gold Mine:** GIS support for Quarterly reporting. RIFT modelling TSF5. TSF Facility - Goldfields, Ghana
- **Palabora Mining Company:** Spatial modelling in support of the Mining Division on various aspects of historical and planned tailings management. Volume calculations, capacity curves and support on Hydrological modelling - PMC, South Africa.
- **Kinsevere Project:** GIS support for environmental and hydrogeology sectors. Borehole supervision and hydrogeology - MMG, DRC
- **Lesedi Power** GIS support and Floodlines - South Africa
- **Kareerand TSF:** GIS survey support, quarterly reporting and mapping - Harmony, South Africa
- **Ambatovy TMF:** GIS support, mapping and modelling for the Tailings Management Facility. Modelling using RIFT, Geotech Testpit mapping and borrowpit volumes - Madagascar
- **BRPM & Maseve TSF's:** GIS support and mapping for quarterly reporting including survey processing - RBPlats, South Africa
- **Sibanye Platinum** GIS support Dam Break Analyses (Paardekraal, Kroondal, Marikana & Hoedspruit) including Quarterly Reporting - South Africa
- **Iduapriem Project:** Design Criteria and Risk Analyses Mapping - AGA, Ghana

EDUCATION

- MSc (Environmental Management), RAU (Now University of Johannesburg), South Africa, 1995
- BSc (Hons) Mineral Economics, RAU (Now University of Johannesburg), South Africa, 1989
- BSc Earth Sciences (geology/Geography), RAU (Now University of Johannesburg), South Africa, 1988

SPECIALIZATIONS

- Mapping
- Data conversion
- Modelling
- 3D Visualization

COUNTRIES OF WORK EXPERIENCE

- South Africa
- Namibia
- Swaziland
- Zambia
- DRC

WORK HISTORY

Company Name	Position	Dates
Knight Piésold (Pty) Ltd	GIS Analyst	1999 - Date
Geographic Information Management Systems (GIMS)	GIS Specialist	1997 - 1999
AngloGold - Tautona Mine	Staff Geologist	1996 - 1997
Council on Mineral Technology (MINTEK), South Africa	Information Specialist	1993 - 1996

Marc Blanché

BSc. (Hons), MSc.

Partner



Marc is a Partner at WKC Group, an international consultancy that specialises in technical services and has particular focus on the oil and gas, power and mining industries. Marc has over 15 years' experience as an Environmental Scientist and is well versed in the environmental laws and regulations pertaining to the countries within which his projects were based. Marc currently manages WKC 's air quality team comprising of engineers and scientists with a core focus on air quality and noise impact assessment and mitigation.

Marc started his career as an Environmental Impact Assessment Practitioner in 2005 and began his specialisation as an Air Quality Consultant in 2008 for a well-known multinational company. In 2010, Marc joined WKC Group as an air quality specialist where he has primarily worked on Equator Principal Financial Institution (EPFI) compliant environmental assessments, with particular emphasis on the International Finance Corporation (IFC) Performance Standard 3 and the General Environmental, Health and Safety (EHS) Guidelines.

EDUCATION

- MSc. Applied Environmental Sciences (2005, 1st Class Cum Laude).
- BSc. (Hons) Applied Environmental Sciences (2002)

COUNTRIES OF WORK EXPERIENCE

United Arab Emirates, Oman, Iraq, Egypt, Jordan, Lebanon, Saudi Arabia, Qatar, Mozambique, Democratic Republic of Congo, Kenya, Tanzania, Namibia, Nigeria, Ghana, Zambia, Rwanda, Libya and South Africa and South Korea

LANGUAGES

English, Afrikaans and basic isiZulu

CAREER SUMMARY

- 2015 onwards
Partner, WKC Group
- 2012 – 2015
Principal Consultant, WKC Group
- 2010 – 2012
Senior Consultant, WKC Group
- 2008 – 2009
Air Quality Consultant, WSP Environment and Energy
- 2006 – 2008
Junior/Environmental Consultant, Knight Piésold Consulting
- 2005 – 2006
Construction Projects Manager (Environmental), JB Projects

FIELDS OF SPECIAL COMPETENCE

- Air Quality Impact Assessment
- Carbon Foot-printing (World Resources Institute)
- EIA / HSEIA for International Oil, Gas and Power Developments
- Atmospheric Dispersion Modelling and Screening Assessments (AERMOD, Screen 3, ADMS, DMRB, Caline 4)
- Ambient Air and Noise Monitoring
- Geographical Information Systems (ArcGIS)
- Impact Assessment for Bank Financed Projects

POST NOMINAL TITLES

- Pr Sci Nat. Awarded post-nominal title of Professional Natural Scientist (Pr Sci Nat) in terms of Section 20(3) of the Natural Scientific Professions Act, 2003 as regulated by the South African Council for Natural Scientific Professions
- MIEnvSci. Awarded membership to the UK Institution of Environmental Sciences
- MIAQM Awarded membership to the UK Institution of Air Quality Management

KEY EXPERIENCE

Air Quality

- Jazan Economic City(JEC), Saudi Arabia. Marc led the city wide regional scale, detailed modelling assessment of JEC utilising the US EPA regulatory dispersion model, CALPUFF. The study incorporated in excess of 170 point sources in addition to area and line sources located within a 128 x 128 km model domain. The aim of the assessment was to determine, in principle, whether the industrial city can be developed in such a way that air quality impacts to community health and the environment can be avoided, acknowledging:
 - The range of industrial tenants (existing, proposed and currently undefined);
 - The regulatory framework within which existing and future tenants will be regulated;
 - The intensity and distribution of road traffic;
 - The prevailing meteorological conditions; and
 - The orientation of City zoning with regards to residential and other ecologically sensitive areas.
- Project Manager for the Maputo Port Upgrade Project, Mozambique, which entailed baseline data collection (air quality and noise) and predictive modelling (air quality and noise) for future port expansion plans to the year 2030. In addition, the project included a detailed dust management plan for bulk handling operations.
- Project Manager for the Zambese Coal Mine Project (Mozambique), this project entailed air quality and noise baseline data collection, predictive modelling of mining related impacts (air quality and noise), and associated impact assessment.
- Project Manager for the Machipanda Railway (Mozambique) Air Quality and Noise Scoping Phase Assessments
- Project Manager for the Shell Bonga South West / Aparo Field Development Project, Nigeria. Undertook dispersion modelling and impact assessment of the Floating Production, Storage and Offloading (FPSO) unit as part of the ESIA.
- Project Manager for the Aje Field Development Plan, offshore Lagos, Nigeria. Undertook air dispersion modeling and impact assessment for the FPSO unit and offshore assets as part of the ESIA.
- Project Manager for the Brass Liquefied Natural Gas (LNG) Facility Air Quality and Noise Impact Assessments, Delta State Nigeria. The Project has a reputed capital value of over 20 Billion US dollars and will entail a two train 10 million metric tonne per year facility.
- Project Manager for the Okoro Full Field Development Offshore Nigeria. Managed the team that undertook the air dispersion modelling and impact assessment for the mobile offshore production unit (MOPU).
- Natref Clean Fuels II Project South Africa. Project Managed the NATREF Clean Fuels II Project which entailed a refinery wide Air Dispersion Model and air quality impact assessment.
- Abu Dhabi Dubai Highway Project – Undertook the Construction and Operation Phase Air Quality Impact Assessment Using USEPA AERMOD and Caline 4 Roads model

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E-mail: pckkwrc@yahoo.co.uk

PETER CUNNINGHAM

EDUCATION

1996 University of Stellenbosch, South Africa

Masters of Science in Nature Conservation (MSc)

- Research thesis: Prospects for Sustained Harvesting of Mopane (*Colophospermum mopane*) on the Venetia Limpopo Nature Reserve and its Implications for Browsing Ungulates.
- Financial support: De Beers Consolidated Mines & University of Stellenbosch.

1992 University of Stellenbosch, South Africa

Honours Bachelors of Science in Nature Conservation (BSc Hons)

- Research project: Time Allocation and Spatial Distribution of Blesbok (*Damaliscus dorcas phillipsi*) and Springbok (*Antidorcas marsupialis*) on an Enclosed Area in the South Western Cape.

1989 University of Stellenbosch, South Africa

Bachelors of Science in Nature Conservation (BSc)

- Management plan: Sasolburg Municipality 1985-1986.

1982 De Aar High School, South Africa

Grade 12

- Subjects: English First Language, Afrikaans First Language, Geography, Biology, Mathematics, and Accountancy.
- Graduated with matriculation exemption.

OTHER QUALIFICATIONS

2001 University of Natal & Centre for Environmental Development, South Africa
Certificate in Wilderness Concepts and Practice (Basic Course)

2018 FSC Auditing to ISO19011 certificate

2018 FSC Forest Management certificate

Soil Association & Forest Stewardship Council (FSC)

- Head of Department – Curator – for mammals.
- Ensured the provision and maintenance of habitat for all mammals.
- Ensured the health, good nutrition and general well being of all mammals.
- Provided and implemented solutions to enable the successful breeding of all endangered mammals.
- Conducted applied research.

LECTURER
Polytechnic of Namibia

YEARS EMPLOYED: 1996 TO 1998
Windhoek, Namibia

- Lecturer.
- Responsible for: Animal Studies II, Animal Studies III, Game Farm Management, Veld Management.
- Curriculum development of the above mentioned courses.
- Other duties included: applied research, practical demonstrations, student excursions, setting & marking papers & assignments, moderating papers and taking minutes during Departmental meetings.

TEMPORARY RESEARCH ASSISTANT
University of Stellenbosch

YEARS EMPLOYED: 1994
Stellenbosch, South Africa

- Conducted research towards MSc degree on the Venetia Limpopo Nature Reserve, South Africa.

GAME RANCH MANAGER
Verdwaal Wildlife Sanctuary

YEARS EMPLOYED: 1989 TO 1990; 1992
Windhoek District, Namibia

- Manager.
- General farm management and overall maintenance of installations and equipment (e.g. vehicles, pumps, water installations, fences, roads, etc), culling of game, overall wildlife management, soil and vegetation management.

ENVIRONMENTAL AWARDS

1. Sheikh Mubarak bin Mohammed Natural History Prize – 2001.

“Individual contribution towards the conservation of the United Arab Emirate’s (UAE) environment and wildlife.”

2. Certificate of recognition as **Best Researcher** in the School of Natural Resources & Tourism, Polytechnic of Namibia during the academic year 2002.

3. National Science Awards of Namibia: Biologist of the Year – 2004.

“In recognition of his numerous studies of Namibian fauna, most notably its reptiles, and also his work in training research students. His work in the popularisation of science is acknowledged; as editor of Roan News, as author of a variety of popular articles and in numerous lectures to the lay community.”

EXPERIENCE: ENVIRONMENTAL CONSULTING

2023

- *Environam* – Hope & Goreb Mine Project, EPL 5796 (Homeb area) – specialist report (**Vertebrate Fauna & Flora**).
- *SLR* – Osino Water Supply i.e., Dam & Pipelines (Karibib area) – specialist report (**Ecology, Vertebrate Fauna & Flora**)
- *FAO/i-dealX* – Bush thinning in certain communal areas: Kavango East: Livayi & Dosa; Etosha Landscape: Omuthiya & Oshivelo – specialist report (**Resource assessment**)
- *GIZ/i-dealX* – Charcoal potential in certain communal areas: Otjinene, Okakarara, Otjituuo, Nkurenkuru, Oshivelo – specialist report (**Resource assessment**)
- *NamPower* – Ecology and flora associated with Auas-Kokerboom 400kV transmission line – specialist report (**Ecology & Flora**).
- *Excel Dynamics Solutions* – City of Windhoek SEA (Windhoek town lands) – specialist report (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning* – Trekpoort Solar PV Project (Rosh Pinah area) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy* – Craton ML197 Copper Project (Hoshveld/Steinhausen) – specialist report (**Vertebrate Fauna & Flora**).
- *Soil Association, UK* – FSC audit Carbo Namibia Charcoal, Grootfontein area (**Charcoal Audit**).
- *Risk-Based Solutions CC* – PEL 73 Well Sites D1-6 & G1-6 (Kavango East Area) – specialist report (**ID, Plot & Mark Protected tree species**).

2022

- *Soil Association, UK* – FSC audit Carbo Namibia Charcoal, Grootfontein area (**Charcoal Audit**).
- *Nanci & GIZ* – Devil's claw Standard field test (Zambezi Region & Otjiwarongo) – field test the draft DC Standard (**Devil's claw**).
- *Risk-Based Solutions CC* – PEL 73 Well Sites D1-6 & G1-6 (Kavango East Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Soil Association, UK* – FSC audit Jumbo Charcoal, Gobabis/Hochveld/Okahandja areas (**Charcoal Audit**).
- *Excel Dynamics Solutions* – EPL's 7646, 7907 & 8084 – base metals (Arandis area) – specialist report (**Vertebrate Fauna & Flora**).
- *Lana Environmental Consulting* – Omdel-Wlotzkasbaken Pipeline Replacement Project (Wlotzkasbaken area) – specialist report (**Vertebrate Fauna**).
- *Knight Piésold* – Meob Bay Tourism Development Project - update (Meob Bay area) – specialist report (**Vertebrate Fauna & Flora**).
- *SRK* – Green Hydrogen Demonstration Project (Walvis Bay) – specialist report (**Vertebrate Fauna & Flora**).
- *Nanci & GIZ* – Devil's claw training (Kavango & Zambezi Regions) – training resource assessments (**Devil's claw**).
- *Environmental Compliance Consultancy* – Navachab Gold Mine TSF3 Project (Karibib) – specialist report (**Vertebrate Fauna & Flora**).
- *NamPower* – Ecology and flora associated with various central, coastal & northern Namibia transmission lines (Khan-Lithops, Khan-Rössing, Rössing-Lithops, Lithops-Walmund, Lithops-Kuiseb, Walmund-Kuiseb, Walmund-Ruby, Kuiseb-Langer Heinrich, Walmund-Swakopmund, Khan-Henties Bay, Khan-Trekopie, Trekopie-Wlotzkasbaken, Kuiseb-Walvis, Lithops-Husab, Otjikoto-Tsumeb, Otjikoto-Tschudi, Otjikoto-Copper, Marble-Khan, Marble, Karibib, Marble-Navachab, Omatando-Efundja, Efundja-Onjiva, Okapya-Oshakati, Okapya-Efundja, Omatando-Oshakati, Etunda-Baobab, Etunda-Calueque, Etunda-Ruacana, Gerus-Whale Rock, Gerus-Electrode 1&2, Marble-Khan, Marble-Navachab, Marble-Karibib, Omaere-Buitepos; Various Retics: Buitepos, Talismanis, Gobabis, Witvlei, Ombotozu, Swakoppoort, Osona, Okahandja Army Base, Ongeama Retic, Hochfeld Retic, Abbatoir Retic, Kunene-Omatando, Airport Retic, Otjihase, Brakwater, Otjihavera, Brakwater, Döbra, Nubuamis, Kutako, Von Bach Base 1-Poultry, Von Bach Base 2-Poultry, Groot Aub, Dordabis, Aris, Leutwein, Nauaspoort, Matchless, Gollschau, Klein Aub, Seës North, Otjivero, Hoachnas, Oanob, Tsumis) specialist reports (**Ecology & Flora**).

- *Urban Green Town & Environmental Planning* – Kransberg-Tsumeb Rail Link Upgrade (Kransberg-Omaruru-Otjiwarongo-Tsumeb-Grootfontein) – specialist report (**Vertebrate Fauna & Flora**).
- *NamPower* – Biodiversity presentations (Namibia wide) – presentations (**Important habitats, protected tree species**).
- *LM Consulting* – Otavifontein No. 794, O&L Fresh Produce Pty (Ltd) – Agriculture & PV Project (Otavi Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Excel Dynamics Solutions* – EPL’s 7167, 8115 & 8531 – base/rare/precious metals, dimension stone, nuclear fuels, industrial minerals (Arandis area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – PEL 73 Well Sites P23, P32, P33 & 3.4 & Gcana 2.7 (Kavango East Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – PEL 93 Seismic lines (Oshikoto Region) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy* – Uis Tin Project (Uis) – specialist report – dry & wet season comparisons (**Vertebrate Fauna & Flora**).
- *Nanci & GIZ* – Devil’s claw Pilot Resource Assessment (Zambezi Region) – Resource Assessment (**Devil’s claw**).
- *Urban Green Town & Environmental Planning* – Emesco Solar PV Projects: Farm Schonau (Warmbad) and Kokerboom (Keetmanshoop) – specialist report (**Vertebrate Fauna & Flora**).

2021

- *Soil Association, UK* – FSC audit Carbo Namibia, Grootfontein (Charcoal Audit).
- *Environmental Management Consultants* – Opuwo-Okangwati-Epupa-Baynes HPP Road Upgrade Project (Opuwo-Epupa) – specialist report (**Vertebrate Fauna, Flora & Ecology**).
- *Environmental Compliance Consultancy* – Farm Gai Kaisa No.159 33kV Transmission Line Project (Kombat) – specialist report (**Vertebrate Fauna & Flora**).
- *Excel Dynamics Solutions* – EPL’s 7989-7995 – dimension stone (Aus-Helmeringhausen) – specialist report (**Vertebrate Fauna & Flora**).
- *ASEC CC* – Bannerman Water Supply Pipeline Project (Swakopmund) – specialist report (**Vertebrate Fauna**).
- *Lund Consulting Engineers* – Review NamPower Otjikoto Biomass Plant Documents (FSC Group Scheme & Biomass Fuel Supply/Harvesting Study) and assist with templates for Monitoring + Aftercare (Tsumeb) – Review reports and develop templates (**Biomass**).
- *Environmental Compliance Consultancy* – Uis Tin Project (Uis) – specialist report (**Vertebrate Fauna & Flora**).
- *Soil Association, UK* – FSC core Labour Requirements – CoC (Namibia wide) – updated CoC country requirements (**CoC Labour Requirements**).
- *Environmental Compliance Consultancy* – Osino Gold Project (Karibib) – updated infrastructure layout specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Seismic line extensions & Firebreaks (Kavango East Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Excel Dynamics Solutions* – City of Windhoek SEA -Phase 1 (Windhoek town lands) – specialist report (**Vertebrate Fauna & Flora**).
- *Nanci & GIZ* – Devil’s claw GACP+ Standard Development (Namibia wide) – Standard development (**Devil’s claw**).
- *Environmental Compliance Consultancy* – Osino Gold Project (Karibib) – specialist report – summer & winter 2021 (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – PEL 73 Well Sites 3.4 & 5.2 (Kavango East Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Deep Yellow/Reptile Uranium* – Tumas Development Project - Phase 2 (Swakopmund Area) – specialist report (**Vertebrate Fauna**).
- *Urban Green Town & Environmental Planning* – Rosh Pinah Solar PV Project & 66kV Transmission Line (Rosh Pinah area) – specialist report (**Vertebrate Fauna & Flora**).
- *Zutari* – MET Mast sites (Oranjemund area) – specialist report (**Vertebrate Fauna & Flora**).
- *Excel Dynamics Solutions* – EPL 7720 – base metals (Karibib) – specialist report

(Vertebrate Fauna & Flora).

- *Excel Dynamics Solutions* – EPL 7874 – precious stones (Lüderitz) – specialist report **(Vertebrate Fauna & Flora)**.
- *NNF/NamPower* – Ecology and flora associated with various southern Namibia transmission lines (Lüderitz-Namib; Lüderitz-Kolmanskop; Namib-E-Bay; Obib-Scorpion; Obib-Lorelei; Spitskop-Lorelei; Lorelei-Aurus; Aurus-Zincum; Zincum-Sendelings Drift; Lorelei-Orange River; Mariental-Hardap; Hardap-Stampriet; Stampriet-Aranos; Konkiep-Bethanie; Schlangkopf-Weir; Schlangkopf-Dam; Schlangkopf-T/Off; Keetmanshoop-Keetmanshoop; Keetmanshoop-Kokerboom; Keetmanshoop-Naute; Aussenkehr-Aussenkehr; Khurub-Noordoewer; Khurub-Aussenkehr; Harib-Schonau; Harib-Aggeneis; Harib-Khurub; Karas T/Off-Grünau; Karas T/Off-Karasburg; Ariamsvlei-Rock; Rock-Stolzenfels; Harib-Rock; Kokerboom-Aries; Kokerboom-Hardap; Kokerboom-Harib; Kokerboom-Nabas; Kokerboom-Tses; Nabas-Aroab; Nabas-Koës; Nabas-Rietfontein; Koichab Pan; Aus; Namib-Lorelei; Kokerboom-Obib; Kokerboom-Namib) specialist reports **(Ecology & Flora)**.
- *Environmental Compliance Consultancy* – Osino Gold Project (Karibib) – specialist report – summer 2021 **(Vertebrate Fauna & Flora)**.
- *Namibian Environmental Consultants* – Otjikoto-Masivi 220kV Transmission Line (Tsumeb-Rundu Area) – specialist report **(Avifauna & Vegetation Impacts)**.

2020

- *Risk-Based Solutions CC* – PEL 73 Seismic Survey (Kavango East Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *Environmental Compliance Consultancy* – Farm Gai Kaisa No.159 Mechanical Harvesting Developments (Kombat) – specialist report **(Vertebrate Fauna & Flora)**.
- *Urban Green Town & Environmental Planning* – Ongos 66kV transmission line (Windhoek area) – specialist report **(Avifauna)**.
- *Urban Green Town & Environmental Planning* – Timbila Lodge Developments (Kalkveld area) – specialist report **(Vertebrate Fauna, Flora & Ecology)**.
- *NNF/NamPower* – Presentations & Booklet – habitats and transmission lines **(Habitats)**.
- *Risk-Based Solutions CC* – Uranium Project Wings: Leonardville Mine (Leonardville Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *Risk-Based Solutions CC* – Uranium Project Wings: Gobabis Sulphuric Acid Plant & Transmission Line (Gobabis/Leonardville Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *Deep Yellow/Reptile Uranium* – Tumas Mining License (Swakopmund Area) – specialist report **(Vertebrate Fauna)**.
- *Risk-Based Solutions CC* – Erongo Waste Disposal Site (Arandis Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *Risk-Based Solutions CC* – 66kV Desert Lion Transmission Line (Karibib Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *NNF/NamPower* – Bush thickening problems associated with various Transmission lines (Van Eck-Auas, Van Eck-Kuiseb, Van Eck-Finke, Finke-Bismark, Finke-Otjihase, Bismark-Rehoboth, Rehoboth-Klein Aub, Rehoboth-Blumfelde, Osona-Von Bach Booster, Osona-Okahandja, Omatako Booster-Omatako Base, Omatako T/Off-Omatako Booster, Omaeke-Witvlei, Gobabis-Witvlei, Gobabis-Omaere) specialist reports **(Flora & Herbicides)**.

2019

- *Soil Association/SABS* – FSC Charcoal Audits –Carbo Namibia (Grootfontein, Tsumeb areas) as auditor/specialist **(Woodland Management Issues)**.
- *LM Consulting* – Desert Fresh Foods (Pty) Ltd – Aquaponics Project (Swakopmund Area) – specialist report **(Vertebrate Fauna & Flora)**.
- *NNF/NamPower* – Bush thickening problems associated with various Transmission lines (Gerus-Matemba, Gerus-Ombika, Gerus-Otjiwarongo, Gerus-Paresis, Gerus-Platveld, Gerus-Welwitchia, Gerus-Zambezi, Gobabis-Kroonster; Gobabis-Otjinene; Windhoek-Naruchas; Windhoek-Kokerboom; Mariental-Gibeon; Mariental-Maltahohe; Omburu-Gerus; Omburu-Khan; Omburu-Marble; Omburu-Uis; Otjikoto-Berg Aukas; Otjikoto-Asis West; Rundu-Mahangu, Stampriet-Glave-Gochas, Welwitchia-Kamanjab, Zambezi-Katima, Zambezi HVDC) specialist reports **(Flora & Herbicides)**.

- *Knight Piésold – Meob Bay Tourism Development Project* (Meob Bay area) – specialist report (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning – Kuiseb Delta Water Supply Project* (Walvis Bay area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – Oranjemund Airport Upgrade* (Oranjemund Area) – specialist report (**Vertebrate Fauna & Flora**).
- *GIZ/FSC/NCA – Namibian Standard for forest products development* (National) specialist section (**Ecology**).
- *Aurecon – ANNA (Angola-Namibia) 400KV_a Powerline Project* (Lubango-Ruacana) specialist report (**Vertebrate Fauna & Flora**).
- *Mutchler Consulting Services – GET FiT Bush-To-Electricity Programme for Namibia* (Tsumeb Area) – specialist report (**Vertebrate Fauna & Flora**).

2018

- *Aurecon – ANNA (Angola-Namibia) 400KV_a Powerline Project* (Lubango-Ruacana) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – PEL 73 – Oil & Gas* (Kavango East Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – Namib Naukluft Park EPL 3600 – Base & Rare metals, Nuclear fuels* (NNP Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Mutchler Consulting Services – GET FiT Bush-To-Electricity Programme for Namibia* (Tsumeb Area) – specialist report (**Vertebrate Fauna & Flora**).
- *GIZ/FSC/NCA – Namibian Standard for forest products* (National) field test draft National Standard – field visit (**Assist with Auditing the Draft National Standard**).
- *LM Consulting – Sandverhaar-Buchholzbrunn Rail Link* (Goageb Area) – specialist report (**Vertebrate Fauna, Flora & Ecology**).
- *Risk-Based Solutions CC – Hoachanas/Kalkrand EPL's 5353, 5354 & 5358 - Lithium* (Hoachanas/Kalkrand Area) – specialist report (**Vertebrate Fauna & Flora**).
- *South African Bureau of Standards (SABS) – FSC Timber Audits* – (SAPPI Group & Main Scheme, KwaZulu-Natal; TWK Group/Main Schemes, Mpumalanga; Merensky: Singisi Forest Products & Northern Timbers, Eastern Cape/KwaZulu-Natal & Limpopo) as auditor/specialist (**Plantation Management Issues**).
- *Soil Association/Woodmark UK – FSC Charcoal Audits –Carbo, CMO, Direct Charcoal, Etosha Charcoal, Friedheim Timbers, Jumbo Charcoal* (Gobabis, Grootfontein, Hochveld, Okahandja, Otjiwarongo, Outjo, Tsumeb areas) as auditor/specialist (**Woodland Management Issues**).
- *LM Consulting – NNDC ML 156/EPL 2633 Kunene River* (Kunene River mouth) – specialist report (**Vertebrate fauna & Estuary ecology**).
- *GIZ/FSC/NCA – Namibian Standard for forest products development* (National) specialist section (**Ecology**).

2017

- *Risk-Based Solutions CC – Karibib Marble Mine ML/EPL 5536* (Karibib Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Nam-Geo Enviro Solutions – ML24a (EPL4388)* (Uis/Khorixas Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – 132kV Powerline project between Whale Rock Cement Plant and Gerus Substation* (Otjiwarongo Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – ML82(a-f) Project - salt* (Cape Cross Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy – Okangwati Pipeline & Powerline Developments* (Okangwati) – specialist report (**Vertebrate Fauna & Flora**).
- *GIZ/FSC/NCA – Namibian Standard for forest products* (National) specialist section (**Ecology**).
- *Urban Green Town & Environmental Planning – Eastern National Water Carrier Powerlines* (Waterberg area) – specialist section (**Ecology**).
- *Aurecon – Walvis Bay Waste Water Treatment Works* (Walvis Bay/Dune 7 area) specialist report; pipeline & powerline issues (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning – EPL 5235 – granite* (Aus-Rosh Pinah

- area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Helikon & Rubicon Lithium Project – lithium (Karibib Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Aurecon* – Shepherd’s Lodge Powerline (Oranjemund) specialist report; vegetation & bird management plans (**Vertebrate Fauna & Flora**)
- *South African Bureau of Standards (SABS) & Woodmark* – FSC Charcoal Audits – Carbo Namibia, Friedheim Timbers, Jumbo Charcoal, Direct Charcoal (Grootfontein, Hochveld, Okahandja, Otjiwarongo areas) as auditor/specialist (**Woodland Management Issues**).
- *Risk-Based Solutions CC* – EPL 6271 – precious stones (Lüderitz Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy* – Fibre Optic Cable Developments (Katima Mulilo to Ngoma) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy* – B2Gold (Otjikoto Mine) PV Solar Developments (Otjiwarongo/Otavi) – specialist report (**Vertebrate Fauna & Flora**).
- *South African Bureau of Standards (SABS) & Woodmark* – FSC Timber Audits – (Merensky Timber, Limpopo, SAPPI Group & Main, Mpumalanga & KwaZulu Natal, TWK, Mpumalanga & Swaziland) as auditor/specialist (**Plantation Management Issues**).
- *Environmental Compliance Consultancy* – Otjiwarongo Urban Developments (Extensions 10-15) (Otjiwarongo) – specialist report (**Vertebrate Fauna & Flora**).
- *Environmental Compliance Consultancy* – Fibre Optic Cable Developments (Buitepos to Walvis Bay) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Bird Monitoring: E-Bay 150-500MW Wind Farm (Elizabeth Bay) – specialist report No 4 (**Bird monitoring**).

2016

- *Risk-Based Solutions CC* – EPL’s 3738, 3739, 5117, 5196, 5439, 5649 (Karibib); EPL 5880 (Usakos) & EPL 5678 (Omaruru) (Karibib/Usakos/Omaruru Areas) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Whale Rock Cement Plant (Otjiwarongo Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Gecko/SLR* – Gecko Salt Aggregate Quarry (Wlotzkasbaken) – specialist report (**Vertebrate Fauna & Flora**).
- *Aurecon* – Kalkveld Water Supply Extension (Kalkveld) specialist report (**Pylon & Pipeline issues**).
- *Risk-Based Solutions CC* – WindNam 400kV Pylon (Rosh Pinah/Keetmanshoop to Elizabeth Bay) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Bird Monitoring: E-Bay 150-500MW Wind Farm (Elizabeth Bay) – specialist reports No’s 1 to 3 (**Bird monitoring**).
- *South African Bureau of Standards (SABS) & Woodmark* – FSC Charcoal Audits – Carbo Namibia; Direct Charcoal; Etosha Charcoal; Friedheim Timbers; Jumbo Charcoal & Makkara Charcoal (Gobabis, Grootfontein, Hochveld, Kalkveld, Okahandja, Otjiwarongo areas) as auditor/specialist (**Woodland Management Issues**).
- *Aurecon* – Devils Fork to Collector 2 Reservoir Pipeline (Rooibank/Walvis Bay Area) specialist report (**Vertebrate Fauna & Flora**)
- *Risk-Based Solutions CC* – E-Bay 150-500MW Wind Farm (Elizabeth Bay) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Namdeb 8-10MW Wind Farm (Elizabeth Bay) – specialist report (**Vertebrate Fauna & Flora**).
- *EcoCore Environmental Consultants* – Kongola-Singoveka Water Supply Phase 3 (Kongola Area) – specialist report (**Vertebrate Fauna & Flora**).
- *South African Bureau of Standards (SABS) & Woodmark* – FSC Timber Audit – (TWK Main & Group, Piet Retief, South Africa; Usutu Timber Products, Bunya, Swaziland) as auditor/specialist (**Plantation Management Issues**).
- *Aurecon* – Kupferberg Landfill Development (Windhoek) specialist report (**Vertebrate fauna; Flora & Habitat survey**).
- *Risk-Based Solutions CC* – EPL 4590 prospecting (Maltahöhe Area) – specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – EPL 4589 prospecting (Fransfontein Area) – specialist report

(Vertebrate Fauna & Flora).

- *Urban Green Town & Environmental Planning – Farm Nordland Urban Developments (Otavi area) specialist section (Ecology).*

2015

- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audits – Etosha & Direct Charcoal (Outjo, Grootfontein & Otjiwarongo areas) as auditor/specialist (Woodland Management Issues).*
- *EcoCore Environmental Consultants – Rehoboth to Windhoek Commuter Train Service Route (Rehoboth-Windhoek) – specialist report (Vertebrate Fauna & Flora).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Timber Audit – (Merensky, Tzaneen, South Africa; Sappi, Ixopo, South Africa; Shiselweni, Swaziland) as auditor/specialist (Plantation Management Issues).*
- *Urban Green Town & Environmental Planning – Leonardville Urban Developments (Leonardville) specialist section (Ecology).*
- *Risk-Based Solutions CC – Outjo, Otavi, Tsumeb 3 & 5MW Solar PV Power Plants (Outjo, Otavi, Tsumeb) – specialist reports (Vertebrate Fauna & Flora).*
- *Risk-Based Solutions CC – Aquaculture Development (Walvis Bay) – specialist report (Vertebrate Fauna & Flora).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audits – Friedheim Timber & Jumbo Charcoal (Otjiwarongo & Hochveld areas) as auditor/specialist (Woodland Management Issues).*
- *Urban Green Town & Environmental Planning – Kuiseb Estate Urban Developments (Friedenhau Dam area) specialist section (Ecology).*
- *Urban Green Town & Environmental Planning – Ncaute BTS MTC Site (Ncaute) specialist section (Ecology).*
- *Urban Green Town & Environmental Planning – Oanob BTS MYC Site (Oanob Dam) specialist section (Ecology).*
- *NamPower – Ruacana Airport Problems (Ruacana) specialist report (Flora & Herbicides).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Timber Audit (Merensky, Kokstad, South Africa & NHR Investments; Swaziland) as auditor/specialist (Plantation Management Issues).*
- *Africa Planning Forum CC – Ondangwa Urban Developments – Portion 30 & Erf X (Portion 7) (Ondangwa) – specialist report (Vertebrate Fauna & Flora).*
- *Risk-Based Solutions CC – PET No. 68 – Blocks 2219 & 2319 Petroleum Exploration (Aranos to Gobabis area) – specialist report (Vertebrate Fauna & Flora).*
- *Africa Planning Forum CC – Otjiwarongo Truck Port (Otjiwarongo) – specialist report (Vertebrate Fauna & Flora).*
- *NamPower – Bush thickening problems associated with various Transmission lines (Otjikoto-Ohorongo; Otjikoto-Rundu; Otjikoto-Okatope; Rundu-Mpasi; Okatope-Okongo; Omatando-Ruacana; Ruacana-Opuwo; Ruacana-Omburu) specialist reports (Flora & Herbicides).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audits – Jumbo Charcoal (Hochveld area; Grootfontein/Otavi area) as auditor/specialist (Woodland Management Issues).*
- *Urban Green Town & Environmental Planning – Oranjemund Quarry Site C (Oranjemund) specialist report (Flora & Habitat survey).*
- *Risk-Based Solutions CC – Grootfontein & Otjozondjupa 5MW Solar PV Power Plants (Grootfontein) – specialist report (Vertebrate Fauna & Flora).*
- *Turnix Environmental Consulting CC – Oanob Dam Lifestyle Village (Rehoboth) – specialist report (Vertebrate Fauna & Flora).*
- *Risk-Based Solutions CC – Blocks 1718 & 1818 prospecting (Etosha Basin – Kavango Region) – specialist report (Vertebrate Fauna & Flora).*

2014

- *Risk-Based Solutions CC – Noordoewer/Ramansdrif EPL 3822 (Noordoewer area) – specialist report (Vertebrate Fauna & Flora).*
- *Risk-Based Solutions CC – Sinclair EPL's 4202, 4203, 4822 (Helmeringhausen area) – specialist report (Vertebrate Fauna & Flora).*

- *NEHC (National Environmental Health Consultants) – Namib Plaas exploration (Arandis-Usakos Area) (**Reptiles & Avifauna**).*
- *Risk-Based Solutions CC – Otjiwarongo 5MW Solar PV Power Plant (Otjiwarongo) – specialist report (**Vertebrate Fauna & Flora**).*
- *Aurecon – Auasblick Residential Development (Windhoek) specialist report (**Vertebrate Fauna & Flora**).*
- *ERM (Environmental Resources Management Pty (Ltd) Southern Africa) – Baynes Hydropower Project: Linear and Associated Infrastructure (Walvis Bay to Baynes Dam area) (**Biophysical Issues**).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audits – Direct; Friedheim & Etosha Charcoal (Grootfontein; Hochveld; Otjiwarongo & Outjo areas) as auditor/specialist (**Woodland Management Issues**).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Timber Audit (BedRock, Tzaneen; Masonite, Pietermaritzburg; TWK, Piet Retief – South Africa) as auditor/specialist (**Plantation Management Issues**).*
- *Aurecon – Amas-Karasburg Transfer Pipeline Project (Karasburg area) specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – Tobacco & Maize Developments (Katima Mulilo area) – specialist report (**Vertebrate Fauna & Flora**).*
- *Aurecon – Swakopmund Base Station to C14 Pipeline: Eastern Route (Swakopmund-Walvis Bay) specialist report (**Vertebrate Fauna & Flora**).*
- *Urban Green Town & Environmental Planning – Oranjemund Quarry Sites A & B (Oranjemund) specialist report (**Vertebrate Fauna & Flora; Construction & Operational Management Plan; Rehabilitation Plan**).*
- *NEHC (National Environmental Health Consultants) – Desert Rose Urban Development (Swakopmund-Walvis Bay Area) (**Vertebrate Fauna & Flora**).*
- *LM Environmental Consulting – Eiseb River EPL's 4640, 4641, 4642, 4644 & 4646 (Otjinene Area) specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – Lüderitz Wind Farms – Penguin & Seal (Lüderitz area) – specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – Lorelei EPL 4234 (Rosh Pinah area) – specialist report (**Vertebrate Fauna & Flora**).*
- *EcoCore Environmental Consultants – Omuthiya to Ongwediva Road Upgrade (Oshakati area) specialist report (**Vegetation Assessment**).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Timber Audit (Sappi; Piet Retief area, South Africa) as auditor/specialist (**Plantation Management Issues**).*
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audit (Grootfontein, Otjiwarongo areas) as auditor/local specialist (**Woodland Management Issues**).*
- *Aurecon – Solar PV project (Gross Barmen; Mariental & Omaruru areas) specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – LAM TM470 Flight wreckage recovery operation (Bwabwata NP area) – specialist report (**Vertebrate Fauna & Flora**).*
- *Aurecon – Swakopmund to Mile 7 Water Supply Phase 2 (Swakopmund-Walvis Bay) specialist report (**Vertebrate Fauna & Flora**).*
- *EcoCore Environmental Consultants – Okahao Township Developments (Okahao) specialist report (**Vertebrate Fauna & Flora**).*

2013

- *Marenica Energy Namibia – Review of Environmental Reports (Spitzkoppe area) – status report (**Environmental & Status Report**).*
- *Risk-Based Solutions CC – Solar Power Plant (Gross Barmen area) – specialist report & site visit (**Vertebrate Fauna & Flora**).*
- *Aurecon – Orange Falls Hydro Electric Power (Onseepkans area) – specialist report (**Vertebrate Fauna & Flora**).*
- *Namdeb – Aris Drif & Auchas Lower (Oranjemund area) – vertebrate fauna baseline survey (**Vertebrate Fauna**).*
- *EcoCore Environmental Consultants – Oshikuku Township Developments (Oshikuku) specialist report (**Vertebrate Fauna & Flora**).*

- *South African Bureau of Standards (SABS) & Woodmark – FSC Forestry Audit* (Hazyview & White River areas – Bedrock Fiber Resources, South Africa) as environmental auditor (**Plantation Management Issues**).
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audit* (Hochveld, Otjiwarongo, Outjo, Tsumeb areas) as auditor/local specialist (**Woodland Management Issues**).
- *Risk-Based Solutions CC – Karibib Lithium* (Karibib area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – EPL’s 4323 & 4324* (Conception to St Francis Bay area) specialist report (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning – Various MTC BTS Towers* (Kapani; Mata-Mata; Omatako Valley, Onawa; Onkombula; Otjiyarwa) specialist reports (**Vertebrate Fauna & Flora**).
- *CENR CC – Mudumu Solid Waste Disposal Site (Caprivi)* specialist report (**Vertebrate Fauna & Flora**).
- *LM Environmental Consulting – Jimmey Northern Industrial/Business Park (Urban Development)* (Windhoek) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – EPL 4688* (Witvlei area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – EPL 4742* (Dobra/Brakwater area) specialist report (**Vertebrate Fauna & Flora**).
- *NamPower – Bush thickening problems associated with various Transmission lines* (Van Eck-Omburu 1 & 2; Auas-Omaere; Gerus-Otjikoto & Aranos/Stampriet area) specialist reports (**Flora & Herbicides**).
- *LM Environmental Consulting – Otjosondo EPL 4704 (Manganese) Prospecting* (Hochveld Area) vegetation & habitat assessment (**Flora**).
- *Risk-Based Solutions CC – Elbe EPL 4232 (Zinc/Copper/Gold/Lead)* (Okahandja Area) specialist report (**Vertebrate Fauna & Flora**).
- *Namdeb – Karingarab EPL 3749 (Rare Earth Elements)* (Oranjemund area) – vertebrate fauna baseline survey (**Vertebrate Fauna**).
- *SLR – Walvis Bay Salt Works extension* (Walvis Bay) avifauna specialist report (**Avifauna**).
- *Urban Green Town & Environmental Planning – Aus Sewerage Works Project* (Aus) site assessment (**Flora**) and specialist report (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning – Ujams Sewerage Works Project* (Windhoek) site assessment & pre-construction report (**Flora**).
- *Enviro Management Consultants Namibia (EMC Namibia) – Grootfontein-Otjinene Road Link Project* (eastern Namibia) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – Offshore ML 0010 Blocks 1910A, 1911 & 2011A (Oil)* (Henties Bay to Kunene River) specialist report (**Vertebrate Fauna & Flora**).
- *EnviroSolutions – Erongo Red Power Lines - Walmund* (Swakopmund Area) specialist report (**Vertebrate Fauna & Flora**).
- *Aurecon – Kalkveld Water Supply Extension* (Kalkveld Area) specialist report (**Vertebrate Fauna & Flora**).
- *Softchem & Reptile Uranium Namibia – EPL Ongolo & Tumas (Uranium) mining development* (Swakopmund area) specialist report (**Vertebrate Fauna & Flora**).

2012

- *LM Environmental Consulting – Otjosondo EPL 4704 (Manganese) Prospecting* (Hochveld Area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – Key Fauna & Flora in Protected Areas Network, Namibia* (Namibia) specialist report (**Key Vertebrate Fauna & Flora spp.**).
- *Namdeb – Reptile & Small Mammal Capture & Relocation Operation* (Sendelingsdrift area) (**Capture & Removal**).
- *Elmarie Du Toit Town Planning Consultant – Baumgartsbrunn Township Development* (Windhoek Area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC – Rainbow Salt Works* (Wlotzkasbaken Area) specialist report (**Vertebrate Fauna & Flora**).
- *NamPower – Kunene Transmission Substation Development* (Ruacana area) specialist

- report (**Vertebrate Fauna & Flora**).
- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audit (Grootfontein, Hochveld, Otjiwarongo & Outjo areas) as auditor/local specialist (**Woodland Management Issues**).*
 - *Enviro Management Consultants Namibia (EMC Namibia) – Aus/Bethanie-Solitaire-Walvis Bay Road Link Project (western Namibia) specialist report (**Vertebrate Fauna & Flora**).*
 - *Urban Green Town & Environmental Planning – Namibian Crocodile Project (Kongola, Caprivi) specialist report (**Vertebrate Fauna & Flora**).*
 - *Urban Green Town & Environmental Planning – Bowker Hill MTC developments & CEMP (Windhoek area) specialist report (**Site assessment; construction monitoring; Construction EMP [CEMP]; Rehabilitation Management & Monitoring Plans**).*
 - *Risk-Based Solutions CC – Solar Power Plants (Keetmanshoop, Mariental & Omaruru areas) specialist report & site visit (**Vertebrate Fauna & Flora**).*
 - *South African Bureau of Standards (SABS) & Woodmark – FSC closeout Audit (Okahandja area) as auditor/local specialist (**Woodland Management Issues**).*
 - *Urban Green Town & Environmental Planning – Elisenheim bulk services developments (Windhoek area) specialist report (**Status Report**).*
 - *Caprivi Parks Consultants (CPC) & MET – Design & present a Savannah Ecology Training Course for MET staff (Northeast Parks) (**Ecology Course**).*
 - *Urban Green Town & Environmental Planning – Erf Re 3/2/49 Farm Dobra rezoning: residential to industrial - Brakwater (Windhoek area) specialist report (**Flora**).*
 - *Risk-Based Solutions CC – Coal Bed Methane (CBM) Prospecting – Block 2418 (Aranos Basin) specialist report (**Vertebrate Fauna & Flora**).*
 - *Risk-Based Solutions CC – Coal Bed Methane (CBM) Prospecting – Block 2114 (Huab Basin) specialist report (**Vertebrate Fauna & Flora**).*
 - *Risk-Based Solutions CC – Diaz Point Phosphate Plant (Lüderitz) specialist report (**Vertebrate Fauna & Flora**).*
 - *Strengthening Protected Areas Namibia (SPAN) & Ministry of Environment & Tourism (MET) – Alignment & completion of Park Management Plans (Sperrgebiet, Waterberg, /Ai-/Ais & Mangetti National Parks) (**Management Plans**).*
 - *Risk-Based Solutions CC – Lüderitz Basin Offshore Exploration (petroleum) (Lüderitz to Walvis Bay area) specialist report (**Vertebrate Fauna & Flora**).*
 - *Risk-Based Solutions CC – Orange Basin Offshore Exploration (petroleum) (Oranjemund to Lüderitz area) specialist report (**Vertebrate Fauna & Flora**).*

2011

- *South African Bureau of Standards (SABS) & Woodmark – FSC Charcoal Audit (Outjo, Otjiwarongo, Tsumeb areas) as auditor/local specialist (**Woodland Management Issues**).*
- *Risk-Based Solutions CC – Khorixas EPL 4174 (copper & iron) (Khorixas area) specialist report (**Vertebrate Fauna & Flora**).*
- *Urban Green Town & Environmental Planning – Sewerage Works (Omitara & Warmbad) specialist report (**Vertebrate Fauna & Flora**).*
- *Urban Green Town & Environmental Planning – Elisenheim Urban Development (Windhoek) specialist report (**Status Report**).*
- *Risk-Based Solutions CC – Lüderitz Phosphate Plant (Lüderitz) specialist report (**Vertebrate Fauna & Flora**).*
- *Urban Green Town & Environmental Planning – Lodge & Nature Estate developments (Kamanjab area) specialist report (**Flora**).*
- *Risk-Based Solutions CC – Wlotzkasbaken Salt Works (Wlotzkasbaken area) specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – Coastal/Offshore Block 1811 (oil & gas) prospecting (Angra Fria area) specialist report (**Vertebrate Fauna & Flora**).*
- *Risk-Based Solutions CC – Aus EPL 4425 (dimension stone) mining development (Aus area) specialist report (**Vertebrate Fauna & Flora**).*
- *Enviro Dynamics & Namwater – Swakop South Pipeline (Swakopmund area) (**Vertebrate Fauna Movement**).*
- *University Central Consultancy Bureau (UCCB) – Tourism development in the Kuiseb*

Delta and Dune Belt area (Walvis Bay & Swakopmund areas) specialist report (**Vertebrate Fauna & Flora**).

- African Wilderness Restoration (AWR) & Okorusu Fluorspar Mine – Okorusu Fluorspar Mine (Otjiwarongo area) specialist report (**Flora Survey, Ecology, Waste Rock Dump Site Selection**).
- *Enviro Dynamics* – NBC Towers site location effect on amphibians, reptiles & mammals (throughout Namibia) (**Sensitivity Ratings**).
- Urban Green Town & Environmental Planning – MR 125 road upgrading between Kongola-Liselo-Singalamwe (Caprivi region) specialist report (**Vertebrate Fauna & Flora**).
- Urban Green Town & Environmental Planning – Daan Viljoen Game Park luxury suites (Windhoek) specialist report (**Flora**).
- Urban Green Town & Environmental Planning – Amusement Park (Windhoek) specialist report (**Vertebrate fauna & Flora**).
- Urban Green Town & Environmental Planning – Erf Re 137/48 rezoning: residential to industrial - Brakwater (Windhoek area) specialist report (**Flora**).
- Urban Green Town & Environmental Planning – Erf Re 13/48 rezoning: residential to industrial - Brakwater (Windhoek area) specialist report (**Flora**).
- Urban Green Town & Environmental Planning – Erf Re 486 subdivision – Kapps Farm (Windhoek area) specialist report (**Flora**).
- Urban Green Town & Environmental Planning – Otjimbingwe water/pipeline provision (Otjimbingwe) specialist report (**Vertebrate Fauna & Flora**).
- Urban Green Town & Environmental Planning – Erf Re 35 rezoning: residential to industrial - Brakwater (Windhoek area) specialist report (**Flora**).
- Geo Pollution Technologies – EPL (gas & oil) mining development (Huab Block - Damaraland) specialist report (**Vertebrate Fauna & Flora**).
- *Enviro Dynamics & Navachab Gold Mine* – Navachab Biodiversity Inventory (Karibib) (**Vertebrate Fauna**).

2010

- Urban Green Town & Environmental Planning – MTC Hoffnung cell phone tower (Windhoek area) specialist report (**Vertebrate Fauna & Flora**).
- *NEMRU, Gobabeb & Swakop Uranium* – Rapid habitat and basic ecological assessment of the Husab Sand Lizard (*Pedioplanis husabensis*) at the Husab Uranium Mine (Swakopmund area) (**Reptile study**).
- *Risk-Based Solutions CC* – Mwale Mwiya Park urban development (Katima Mulilo) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Zhonghe EPL (uranium) mining development (Arandis/Swakopmund area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – EPL (gold) mining development (Okahandja/Gross Barmen area) specialist report (**Vertebrate Fauna & Flora**).
- *LM Environmental Consulting* – Desert Star Studios Phase 1 development (Ariamsvlei/Orange River) specialist report (**Vertebrate Fauna & Flora**).
- *Geo Pollution Technologies* – SABMiller breweries development (Okahandja) specialist report (**Flora**).
- *Softchem & Reptile Uranium Namibia* – EPL (uranium) mining development (Swakopmund area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – EPL (copper) mining development (Rehoboth area) specialist report (**Vertebrate Fauna & Flora**).
- *LM Environmental Consulting & International Development Consultancy (IDC)* – Housing development – Finkenstein (Windhoek) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – EPL (semi precious stones) mining development (Brandberg area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – EPL (copper) mining development (Rosh Pinah area) specialist report (**Vertebrate Fauna & Flora**).
- *ERM & Enviro Dynamics* on: Baynes Hydroelectric Dam project (Epupa area) specialist report (**Small Mammals & Avifauna**).
- *CSIR & Enviro Dynamics* on: Sendelingsdrif diamond mining, Namdeb (Oranjemund)

- area) specialist report (**Reptiles & Small Mammals**).
- *SGS* on: CCF Bushblok audit (Otjiwarongo area) as auditor/specialist (**Woodland management issues**).
- *Urban Green Town & Environmental Planning* on: Goreangab Waterfront development (Goreangab Dam - Windhoek area) specialist report (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Wind Energy Facility development (Walvis Bay area) specialist report (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning* on: Site monitoring of biophysical issues (**Monitoring & Rehabilitation**) for MTC cell phone towers in Windhoek.
- *Urban Green Town & Environmental Planning* on: Water Treatment Plant development (Ujams - Windhoek area) specialist report (**Vertebrate Fauna & Flora**).

2009

- *Enviro Dynamics* – Amphibian, reptile & mammal biodiversity in Windhoek for City of Windhoek: specialist report, literature review (**Fauna**).
- *Urban Green Town & Environmental Planning* on: Biophysical issues (**Vertebrate Fauna & Flora**) & Namatanga Conservancy issues for SUNGATE Development, Windhoek Area.
- *Urban Green Town & Environmental Planning* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for King Nahale Gate Lodge, Etosha National Park area.
- *Risk-Based Solutions CC* – Glass factory development (Rehoboth area) literature review (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Small mining development (Karibib area) literature review (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Clay-Pottery development (Kavango River area) literature review (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Clay-Pottery development (Zambezi River area) literature review (**Vertebrate Fauna & Flora**).
- *Urban Green Town & Environmental Planning* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for MTC cell phone towers in Windhoek.

2008

- *Urban Green Town & Environmental Planning* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for the Farm Detmont urban development, Windhoek (Khomas Hochland) Area.
- *Urban Green Town & Environmental Planning* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for the Farm Sonnleiten urban development, Windhoek (Khomas Hochland) Area.
- *Enviro Dynamics* – 220kV Transmission Line [Omburu/Khan/Kuiseb] for NamPower: specialist report, literature review (**Vertebrate Fauna**).

2007

- *Risk-Based Solutions CC* – Copper Deposits in central western Namibia (Klein Aub area) literature review (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Supply Base & Landfill Site (Walvis Bay area) literature review (**Vertebrate Fauna & Flora**).
- *Risk-Based Solutions CC* – Oil Exploration (Kunene River Mouth area) literature review (**Vertebrate Fauna & Flora**).
- *Digby Wells & Associates* – Uranium mining (Valencia Uranium Mine, Westport Resources) (**Reptile Fauna**).
- *Risk-Based Solutions CC* – Base Metal Exploration (Goageb/Konkiep River area – EPL 3698) literature review (**Vertebrate Fauna & Flora**).
- *International Development Consultancy (IDC) PTY LTD* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for the Farm Rooisand urban development, Windhoek (Khomas Hochland) Area.

2006

- *International Development Consultants/Aigams Professional Services cc. & Lithon Project Consultants* on: Phase 2: IEE (Initial Environmental Examination) for Staff accommodation for a Hospital Facility in Lubango, Angola.
- *AgriBank Namibia* – Implementation & training towards the Environmental Policy.

- *Enviro Dynamics* – Trekkopje Uranium prospecting: specialist report (**Vertebrate Fauna**).
- *Risk-Based Solutions CC* – Cement factory & quarry: specialist report (**Vertebrate Fauna & Flora**).
- *International Development Consultancy (IDC) PTY LTD* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for the Farm Aris urban development Portion No 8, Windhoek Area.
- *International Development Consultancy (IDC) PTY LTD* on: Rapid Assessment: Biophysical issues (**Vertebrate Fauna & Flora**) for the Farm Finkenstein urban development, Windhoek Area.
- *Risk-Based Solutions CC* – Coal Deposits in southeastern Namibia (Aranos area) literature review (**Vertebrate Fauna & Flora**).

2005

- *International Development Consultants/Aigams Professional Services cc. & Lithon Project Consultants* on: Phase 1: IEE (Initial Environmental Examination) for a Hospital Facility in Lubango, Angola.
- *SGS* regarding a Forest Management Certification Audit – Savannah Charcoal, Outjo, Namibia.
- *AgriBank Namibia* – Environmental Policy – 2005/6.
- *SGS* regarding a Forest Management Certification Audit – Cheetah Conservation Fund, Otjiwarongo, Namibia.

2004

- *Namibian National Commission for UNESCO* on: proclaiming Twyfelfontein a World Heritage Site (Namibia) – **Reptiles & mammals** (Technical Committee).
- *International Development Consultants/Aigams Professional Services cc.* on: the Potential Environmental Impacts of establishing a Pharmaceutical Factory at Okahandja.
- *International Development Consultants/Aigams Professional Services cc. & Entheos Aquaculture Enterprises (Pty) Ltd* on: the Potential Environmental Impacts of establishing a Fish Farm in the Olushandja Dam area in Namibia.
- *International Development Consultants/Aigams Professional Services cc.* on: Assessment & Development of Northern Communal Areas in Namibia - environmental impacts of establishing Small-scale Commercial Farms in communal areas.

2003

- *WildHorus Ltd.* on Miombo Production Management – **Aging & Growth Rates** of Miombo – in Tanzania, Kilombero Valley area, Ifakara.

2002

- *Waldeck Farm* (Udo Stritter). Determining **Carrying Capacity** for game and veld condition assessment.
- *Anchor Environmental Consultants CC* at NAMDEB on: the influence of the Wet Overburden Mining System (WOMS) on **Reptile & Small Mammal** diversity.

1990's

- *International Development Consultants/Aigams Professional Services cc.* on **Bush Thicketening** and the potential of utilising this wood for charcoal production in Namibia - 1996.
- *Erongo Mining & Exploration Company Ltd* - Navachab Gold Mine (Karabib) on the **Rehabilitation** of the slimes and mine dumps - 1997.
- *International Development Consultants/Aigams Professional Services cc.* on the impact of Bush Control Measures on the ecological environment (biodiversity, habitat diversity and landscape considerations) in Namibia - 1997.

EXPERIENCE: OTHER ACTIVITIES

GUEST LECTURE

- Contract Lecturer in Desert Ecology at the University of Namibia (Zoology II) - 1997.
- Facilitator in environmental education workshop (!Nara workshop) for NGO trainees during 1997.
- Facilitator – Rangers Induction course for the Ministry of Environment and Tourism – Habitat & Animal Identification during 2001, 2002 & 2003.
- Presented a course on “Snakes” to the Namibian Academy of Tourism & Hospitality (NATH) during June 2003, March 2004, May 2005 & February 2006.

PUBLIC PRESENTATIONS

TALKS – GUEST SPEAKER FOR:

- Development Fund of Namibia – Bush thickening in Namibia, 1997.
- Namibian Wildlife Society – Baboons as problem animals, 1998.
- Presented talks for radio series on mammals of Namibia for the NBC, 1997-1998.
- Nature Conservation students at the University of Stellenbosch – Fauna of Arabia, 1999.
- Al Ain Natural History Group – Mammals of the UAE and Gulf States, 1999.
- Abu Dhabi Natural History Group – Desert Adaptations of Mammals & Reptiles, UAE & Gulf States, 2000.
- Dubai Natural History Group – Desert Adaptations of Mammals & Reptiles, UAE, 2000.
- Al Ain Natural History Group – Amphibians, Fish and Reptiles of the UAE, 2001.
- Namibian Wildlife Society – Natural History of the UAE, 2001.
- Al Ain Natural History Group – Spiny-tail Lizard ecology in the UAE, 2002.
- Al Ain Natural History Group – Namibia, 2003.
- Namibian Wildlife Society – Alien Invasive Species to Namibia with special reference to Fountain Grass (Joubert & Cunningham) 2004.
- Namibian Wildlife Society – Tortoises of Namibia, June 2005.
- St Paul’s College – Tortoises & Research possibilities, July 2007.
- Book Den – “Stemme agter die penne” – Tortoises, September 2007.
- St Paul’s College – Tortoises of Namibia, January 2010.
- SABS – Protected Tree Species in Namibia, July 2012.

MEDIA

TELEVISION

- NBC – Presentation on tortoise research in Namibia for the Namibian Broadcasting Corporation – April 2005.
- BBC – Presentation on the endemic Nama Padloper tortoise for the British Broadcasting Corporation “Wild in Africa” series – 2006.
- SABC – Interview on Nature Programme “50/50” (South African Broadcasting Corporation) regarding seal culling in Namibia – October 2006.
- NBC – Interview on “Good Morning Namibia” regarding NEWS & Gecko Vision Industrial Park – September 2011
- NBC – Interview on “Good Morning Namibia” regarding NEWS & rhino poaching + SRT activities – July 2012
- NBC – Interview on “Open File” regarding snakes and perceived problems with snakes around Rehoboth – February 2013

RADIO

- NBC – Presented a range of talks on wildlife issues (e.g. baboons as problem animals, Namibian ungulates, etc.) in Namibia for the Namibian Broadcasting Corporation – 1997.
- Radio 99 – Interview on tortoises of Namibia – August 2007.
- Radio Kudu – Interview on baboons as peri-urban problem animals – April 2013.
- Hit Radio Namibia – Statement regarding poaching in Etosha National Park – June 2013.
- Radio Kosmos – Statement regarding the culling of springbok in National Parks (August 2013); poisoning of elephants in Hwange National Park, Zimbabwe (September 2013); illegal logging issues (October 2013); ivory poaching issues (December 2013); whaling issues (January 2014); mining in protected areas (February 2014); world conservation (March 2014); hunting issues/ivory trade/protected species (April 2014); greenhouse emissions/rhino

poaching (June 2014); energy issues (July 2014); Baines Hydropower issues (August 2014); poaching in Africa (September 2014); Benguela ecology (October 2014); climate change (November 2014); rhino issues (December 2014); baboon problems (January 2015); cheetah issues (February 2015); deforestation (March 2015); poaching in Etosha (May 2015); wild dog issues (August 2015); fire ecology (October 2015); baboon problems (Feb 2016); suricate trade & rhino poaching (April 2016); cetacean capture in Walvis Bay & ivory trade (Sep 2016); global warming (November 2016); kudu/rabies (May 2017); gorilla issues (July 2017); sungazer lizard (August 2017); rhino poaching (October 2017); general poaching issues (November 2017); blue crane decline (December 2017); climate change, poaching, biodiversity issues (October 2018); species extinctions & wildlife trade (May 2019); sustainable utilisation issues (June 2019); captive elephants (August 2019); climate change (September 2019); greenhouse gas, elephant conflict, arctic ice, oil (November 2019); elephant problems (December 2019); ducks as bio-control (February 2020); wildlife markets (March 2020); COVID 19 + wildlife & bees (May 2020); dehorning rhino (June 2020); bees (July 2020); rhino poaching (August 2020); climate change, leopard attack, black rhino's (September 2020); economy & environment; plant extinction; fires; leopards (October 2020); USA elections & environment; farming with rhino horn (November 2020); MSC/FSC; live elephant sales; canned lion hunting (December 2020); wildlife & Covid; flamingos (January 2021); wetlands, climate change, beetles, Darwin (February 2021); greenhouse gasses, Earth Day (March 2021); Khorixas earthquake, Earth Day (April 2021); oceans', KAZA TFBP, honeybees, pesticides (May 2021); environment day, water (June 2021); global warming, sulphuric acid spill (July 2021); pangolin, climate change; EIA's; dams/evaporation (August 2021); climate change; ozone layer (September 2021); whale beaching; brown hyena/seals in Swakopmund (October 2021); KAZA elephant survey (November 2021); offshore oil drilling impacts; pollution issues; green energy (December 2021); climate change (January 2022); wetlands; tourist attitudes (February 2022); earth day (March 2022); mopane worms, WHO Earth Day (April 2022), COP 2022; quelea problems (May 2022); earth day, HWC (June 2022); poaching, carbon credits (July 2022); phosphate mining, climate change (August 2022); geology/biodiversity (September 2022); fire & rainfall; timber harvest (October 2022); COP27; water; green hydrogen (November 2022); steel industry; climate change (December 2022); sulphur spill (January 2023).

SCIENTIFIC PUBLICATIONS

SCIENTIFIC PAPERS

PEER REVIEWED (PAPERS, SHORT COMMUNICATIONS & NOTES)

2020

110. **Cunningham, P.L.** & Van Rooyen, J. 2020. First confirmed record of green turtle (*Chelonia mydas*) nesting along the Namibian coast. *Namibian Journal of Environment 4, Section B: 16-18.*

2019

109. **Cunningham, P.L.** 2019. Do swing gates prevent black-backed jackal from entering commercial sheep farms? *Namibian Journal of Environment 3, Section B: 1-7.*

108. **Cunningham, P.L.** & Thomas, C. 2019. Boomslang (*Dispholidus typus viridis*) diet. *African Herp News 70: 24-28.*

2018

107. **Cunningham, P.L.** 2018. *Trachylepis occidentalis* (Peters 1867). Western three-striped skink. Avian Predation. *African Herp News 67: 32-34.*

106. **Cunningham, P.L.**, Maartens, L. & Prickett, M. 2018. A contribution to the reptiles of the Kunene River mouth area. *Namibian Journal of Environment 2, Section B: 1-8.*

2017

105. **Cunningham, P.L.** & Detering, F. 2017. Determining age, growth rate and regrowth for a few tree species causing bush thickening in north-central Namibia. *Namibian Journal of*

Environment 1, Section A: 72-76.

2016

104. **Cunningham, P.L.** 2016. Encounters with common warthogs along the B1 highway in north-central Namibia. *Suiform Soundings* 14(2): 32-37.

2014

103. **Cunningham, P.L.** 2014. *Psammobates oculiferus* – dormancy. *African Herp News* 61: 19.

102. **Cunningham, P.L.** 2014. Bush thickening in Namibia – a historic perspective. *Journal of the Scientific Society of Namibia* 62: 164-185.

2013

101. **Cunningham, P.L.** 2013. *Meroles ctenodactylus* (Smith, 1838); Smith's Desert Lizard – Diet. *African Herp News* 60: 22-23.

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In Prep:

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2. Seasonal changes in herd size and time budget of springbok (*Antidorcas marsupialis*) in southern Namibia – African Journal of Ecology.
3. Diet of springbok (*Antidorcas marsupialis*) from southern Namibia
4. Status of *Harpagophyton zeyheri* (devils' claw) in the Zambezi Region, Namibia
5. *Chondrodactylus bibronii* (Bibron's gecko) – diet: cannibalism – Herpetological Review

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6. Cunningham, P.L. 2021. Identifying protected flora, problem species and important habitats under NamPower transmission lines. NamPower/NNF Strategic Partnership, Windhoek, Namibia.
5. Cunningham, P.L. & Jankowitz, W. 2010. A review of fauna and flora associated with coastal and inland saline flats from Namibia with special reference to the Etosha Pan. *Sabkha Ecosystems Volume III: Africa and Southern Europe*. DOI: 10.1007/978-90-481-9673-9_2. Springer Science & Business Media.
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24. Cunningham, P.L. 2009. Annotated checklist of the reptiles occurring in the Mahazat as-Sayd Protected Area. Internal KKWRC report, Thumamah.

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14. Cunningham, P.L. 2008. Monitoring Results: Uruq Bani M'arid, March & May 2008. Unpublished Report, KKWRC, Thumamah, KSA.
13. Van Hensbergen, H.J. & Cunningham, P.L. 2004. Preliminary report on miombo growth in the Kilombero Valley. Unpublished Report, Wildhorus Ltd., UK.
12. Cunningham, P.L. & Joubert, D.F. 2003. An environmental impact assessment on bush control methods proposed under the bush encroachment research monitoring & management project. IDC, 9 July 2003.
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9. Joubert, D.F. & Cunningham, P.L. 1999. The Distribution and Invasive Potential of *Pennisetum setaceum* (Fountain grass) in Namibia. Internal report, Polytechnic of Namibia, Department of Natural Resource Management and Tourism, Windhoek.
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5. Cunningham, P.L. 1997. Ecological Consequences of Bush Thickening with Special Reference to Namibia. Internal report, Polytechnic of Namibia, Department of Natural Resource Management and Tourism, Windhoek.
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2. Cunningham, P.L. 1996. Ongava Lodge Game Count Results. 24-Hour water point game census conducted on Ongava Lodge. Internal report, Polytechnic of Namibia, Department of Natural Resource Management and Tourism, Windhoek.
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5. Cunningham, P.L. 2006. Preliminary results on the movement, home range and diet of *Geochelone pardalis* & *Psammobates tentorius verroxii* in Namibia. *Chelonii* Volume 4, March 2006, 112-114. 2ND International Congress on Chelonian Conservation, 18-22 June

2003, Saly, SENEGAL

4. Hengari, G.M., Cunningham, P.L. & Adank, W. 2005. Raptors and traditional healers in Namibia. Proceedings of a workshop held at a Namibia Birds of Prey Workshop, 18-19 February 2005, Waterberg Plateau Park, Namibia, *Lanioturdus* 38(3/4): 22-29.

3. Cunningham, P.L.1997. Prospects of sustained utilisation of mopane (*Colophospermum mopane*) for charcoal production in the Venetia Limpopo Nature Reserve in South Africa. Management of Mopane in Southern Africa. Proceedings of a workshop held at Ongongo Agricultural College, Namibia, 26-29 November 1996.

2. Van Hensbergen, H.J. & Cunningham, P.L.1996. Sustainable Use Management *Colophospermum mopane*. WMA Symposium on Sustainable Use of Wildlife, Cape Town 1996.

1. Van Hensbergen, H.J. & Cunningham, P.L.1994. Utilisation of Renosterveld by Two Ungulate Species on an Enclosed Area in the South Western Cape.

CONFERENCES & WORKSHOPS

AUGUST 2008 Workshop to minimise mass mortalities of reintroduced animals in Mahazat as-Sayd Protected Area, 2-7 August, Taif, Saudi Arabia.

JULY 2007 5th Annual Symposium on the Conservation and Biology of Tortoises and Freshwater Turtles, 24-28 July, Atlanta, Georgia, USA.
PAPER PRESENTED: Distribution, status and threats to the tortoises of Namibia.

FEBRUARY 2005 Namibia Birds of Prey Workshop, 18-19 February, Waterberg Plateau Park, NAMIBIA
PAPER PRESENTED: Raptors and traditional healers in Namibia.

JUNE 2003 2nd International Congress on Chelonian Conservation, 18-22 June, Saly, SENEGAL
PAPER PRESENTED: Preliminary results on the movement, home range and diet of *Geochelone pardalis* & *Psammobates tentorius verroxii* in Namibia.

DECEMBER 2001 4th World Conference in Herpetology, 2-9 December, Colombo, SRI LANKA
PAPER PRESENTED: Feeding ecology of Spiny-tail Lizard, *Uromastix aegyptius microlepis*, from the United Arab Emirates.

APRIL 2000 2nd Arab International Conference and Exhibition on Environmental Biotechnology (Coastal Habitats) Abu Dhabi, UNITED ARAB EMIRATES.

JANUARY 2000 First International Symposium on Arid Zone Environments: Research and Management Options for Protected Areas. Abu Dhabi, UNITED ARAB EMIRATES.

NOVEMBER 1996 Workshop on Mopane Management in Southern Africa. Ongongo College, NAMIBIA.
PAPER PRESENTED: Prospects for the sustained utilization of mopane, *Colophospermum mopane*, for charcoal production in the Venetia Limpopo Nature Reserve, South Africa.

POSTERS

AUGUST 2011 Foraging behaviour and dietary adaption of the Arabian Sand Gazelle (Schultz, E., Fraas, S., Kaiser, T.M., Cunningham, P.L., Ismail, K. & Wronski, T.)

MAY 2011	How vulnerable is the Husab Sand Lizard to mining? (Wassenaar, T., Henschel, J., Cunningham, P.L., Herrmann, H-W. & Wilson, T.)
MAY 2009	Seasonal dietary preference of male <i>Gazella subgutturosa marica</i> Thomas 1897 along foraging trails from central Saudi Arabia (Cunningham, P.L.)
MAY 2009	Group dynamics of <i>Gazella subgutturosa marica</i> from central western Saudi Arabia (Cunningham, P.L.)
MAY 2009	Feeding ecology of <i>Gazella subgutturosa marica</i> from central western Saudi Arabia (Cunningham, P.L.)
SEPTEMBER 2007	An invasive alien plant road count as a useful monitoring tool: a proposal and some preliminary results Arid Zone Forum, Sutherland, SOUTH AFRICA (Joubert, D.F., Cunningham, P.L., De Cauwer, V. & Robertson, A.)
MAY 2007	Tortoises of Namibia (Information poster) (Cunningham, P.L.)
JANUARY 2000	Invasive Fountain Grass in Namibia: Cause for Concern Grassland Congress, ZIMBABWE (Joubert, D.F. & Cunningham, P.L.)

POPULAR PUBLICATIONS

53. Cunningham, P.L. 2020. Do swing gates keep jackals from entering commercial sheep farms? *AgriForum June 2020: 34-36.*
52. Cunningham, P.L. & Detering, F. 2017. Farming with trees – age, growth rate and regrowth of some bush thickening trees in Namibia? *AgriForum December 2017/January 2018: 42-44.*
51. Cunningham, P.L. & Detering, F. 2017. Farming with trees...is this the answer to bush thickening in Namibia? *AgriForum July: 48-52.*
50. Cunningham, P.L., Marais, A. & Van Zyl, N. 2015. Above-ground pipelines as wildlife barriers in the Namib Desert. *Roan News – Special edition on water 2015: 50-54.*
49. Cunningham, P.L. 2014. Prey selection of a domestic cat in a suburban Windhoek garden. *Newsletter of the Scientific Society of Namibia 55(1-4): 53-57.*
48. Cunningham, P.L. 2013. Warmbad – More than just a forgotten settlement. *Flamingo – April 2013: 36-37.*
47. Cunningham, P.L. 2012. Namibia's religious geological features. *Flamingo – February 2012: 42-43.*
46. Cunningham, P.L. & Joubert, D.F. 2011. Small birds favour small thorny shrubs. *Roan News – December 2011: 27-29.*
45. Cunningham, P.L. 2011. William Chapman - Reminiscences. *Flamingo – March 2011: 49.*
44. Cunningham, P.L. 2011. Otjimbingwe – the capital that never was. *Flamingo – March 2011: 44-45.*
43. Cunningham, P.L. 2010. Obituary: Ymke Warren, 1970-2010. *Roan News – December 2010: 6-8.*
42. Cunningham, P.L. 2010. Messages from Wlotskasbaken. *Flamingo – August 2010: 61.*

41. Cunningham, P.L. 2010. House names in Henties Bay – banal, balmy and mythological. *Flamingo* – July 2010: 41.
40. Cunningham, P.L. 2010. The intrepid people behind the names. *Flamingo* – January 2010: 52-53.
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35. Cunningham, P.L. 2008. Bountiful Bethanie. *Flamingo* – April 2008: 35-37.
34. Cunningham, P.L. 2007. Polytechnic Department of Nature Conservation – Annual Awards. *Travel News Namibia* 15(7): 29.
33. Sambu, J. & Cunningham, P.L. 2007. Use of Wildlife by Traditional Healers in the Caprivi Region. *Roan News* June 2007: 5-7.
32. Cunningham, P.L. 2007. Namibian stranglers. *Flamingo* – June 2007: 48-49.
31. Cunningham, P.L. 2007. Flightless birds of Windhoek. *Flamingo* – May 2007: 46-49.
30. Kuruseb, E. & Cunningham, P.L. 2006. Are we drowning our wildlife? *Roan News* (Issue 2): 12-13.
29. Kolberg, H., Brain, N., Cunningham, P.L., Kolberg, C., Scott, A., Scott, M., Shatumbu, G. & Shivute, B. 2006. Where have all the Blue Cranes gone? Second crane survey supplies more questions than answers. *Roan News* (Issue 2): 20-21.
28. Cunningham, P.L. 2006. Kunene Adventures. *Flamingo* – November 2006: 29-31.
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25. Cunningham, P.L. 2006. A wonderland of farm names. *Flamingo* – May 2006: 34-35.
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21. Cunningham, P.L. & Cunningham, A.I. 2005. A Forgotten Time in the Spergebied. *Flamingo* – May 2005: 48-49.
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14. Cunningham, P.L. 2003. Preliminary results on the diet of two tortoise species from Namibia. *Roan News* (Issue 2): 19-22.
13. Cunningham, P.L. & Adank, W. 2003. Flap-neck chameleon breeds in Windhoek garden. *Roan News* (Issue 1): 15-16.
12. Cunningham, P.L. 2002. The amazing sand-diving lizards. *Roan News* (Issue 3/4): 18.
11. Cunningham, P.L. 2002. Problems Caused by Chacma Baboons (*Papio ursinus*) in Windhoek – Questionnaire Results. *Roan News* (Issue 3/4): 12-16.
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9. Cunningham, P.L. 2002. Domestic cats as a threat to the environment in Namibia. *Roan News* (Issue 1/2): 11-13.
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3. **Vulture News:** Beilis, N. & Esterhuizen, J. The potential impact on Cape griffon populations due to the trade in traditional medicine in Maseru, Lesotho.
4. **5th International Conference on Entrepreneurship & Innovation** (24-25 October 2007, Windhoek, Namibia). Blind review. Corporate citizenship without business ethics: student's perceptions.
5. **Biodiversity and Conservation:** Stein, A.B., Fuller, T.K. & Marker, L.L. Occurrence and relative abundance of mammals and birds in and adjoining Waterberg Plateau Park, north central Namibia.
6. **6th International Conference on Entrepreneurship & Innovation** (5-6 November 2008, Maputo, Mozambique). Blind review. Tourism entrepreneurship and poverty alleviation in the face of HIV/AIDS – the case of Botswana.
7. **Dinteria:** Nordenstam, B. A second species of the Namibian genus *Dauresia* (Asteraceae-Senecioneae).
8. **Dinteria:** Joubert, D.F. The effects of “pebble mulch” on *Acacia mellifera* seedling responses to rain.
9. **Herpetological Conservation & Biology:** Soorae, P.S., Al Quarqas, M. & Gardner, A.S. An overview and checklist of native and alien herpetofauna of the United Arab Emirates
10. **Journal of Horticulture & Forestry:** Anon. Specifying dry duration and its relation to pasture products of desert zones, Iran.
11. **Journal of Hospitality Management & Tourism:** Ogunjemite, B.G., Ashimi, T.A. & Okeyoyin, O.A. The chimpanzee community of German-Fort, and the potential for the development of tourism-based management of Gashaka-Gumti National park, Nigeria.
12. **Mammalia:** XIA Canjun, YANG Weikang, David Blank, XU Wenxuan, QIAO Jianfang, LIU Wei. Diurnal time budget of goitred gazelles (*Gazella subgutturosa* Gldenstaedt, 1780) in Xinjiang, China.
13. **African Herp News:** Bourqin, O. The terrestrial reptiles of Sir Bani Yas Island, UAE.
14. **Journal of Arid Environments:** Robinson, M.D. & Barrows, C.W. Namibian and North American sand diving lizards.
15. **Mammalia:** Blank, D. et al. Grouping pattern of Goitered gazelle *Gazella subgutturosa* (Artiodactyla: Bovidae) in Kazakhstan.
16. **Folia Zoologica:** Xu, W. et al. Diet of *Gazella subgutterosa* (Gldenstaedt, 1780) and food overlap with domestic sheep in Xinjiang, China.
17. **Ethology, Ecology & Evolution:** Blank, D. & Yang, W. The Social Organization of the Goitered gazelle (*Gazella subgutturosa* Guld, 1780).
18. **Acta Theriologica:** Blank, D. & Yang, W. Sex ratio in goitered gazelles (*Gazella subgutturosa* Guld, 1780).
19. **Zoology in the Middle East:** Wronski, T. Population development of Arabian Gazelles (*Gazella arabica*) on the Farasan Islands, Saudi Arabia.
20. **Behavioural Processes:** Xia, C. et al. The energy-maintenance strategy of goitered gazelle (*Gazella subgutturosa*) during rut.
21. **Zoology in the Middle East:** Mohammed et al. First record of sand cat from Iraq.
22. **Turkish Journal of Zoology:** Grlr et al. Some morphological characteristics and neonatal weights of re-introduced gazelle (*Gazella subgutturosa*) in Turkey.
23. **Canid News:** Eid et al. Additional knowledge regarding Blanford's fox *Vulpes cana* from Jordan.
24. **Mammalian Biology:** Wronski, T. & Schulz, E. The Farasan Gazelle – a frugivorous browser in an arid environment?
25. **Italian Journal of Zoology:** Akbari et al. Seasonal changes in group size and composition of Chinkara (*Gazella bennettii*) in central Iran.
26. **Journal of Arid Environments:** Welch et al. Somewhere to hide: Home range and habitat selection of cheetahs in an arid enclosed system.
27. **Mammal Research:** Blank, D. & Yang, W. Strategy of goitered gazelle suckling behaviour and its adaptation to the environment.
28. **Mammalia:** Abgar et al. Social organization and demography of reintroduced dorcas gazelle (*Gazella dorcas neglecta*) in North Ferlo Fauna Reserve, Senegal

29. **Mammalian Biology:** Wronski, T., Sun, P. & Plath, M. Resource availability predicts the distribution of Arabian gazelles (*Gazella arabica*) on Farasan Islands.
30. **Saudi Journal of Biological Sciences:** Anon. Conservation in Saudi Arabia; from strategy to practice.
31. **Behavioural Processes:** Blank, D. Mother-young recognition in goitered gazelle during hiding period.
32. **African Journal of Ecology:** El Alami, A. Confirmation of the presence of Cuvier's gazelle in the regions of Ait Tamlil and Anghomar, southern slope of the central high Atlas, Morocco.
33. **Namibian Journal of Environment:** Zimmerman, I. et al. The influence of two levels of debushing in Namibia's thornbush savannah on overall soil fertility measured through bioassays.
34. **Zoology:** Blank, D. Alarm signals in goitered gazelle with special reference to stotting, hissing and alarm urination-defecation.
35. **Behavioural Processes:** Blank, D. The use of tail-flagging and white-rump patch in alarm behaviour of goitered gazelles.
36. **Journal of Arid Environments:** Al-Sayegh, M.T. et al. Impact of anthropogenic disturbance and vegetation composition on ecophysiology and activity behavior of *Uromastix aegyptia* (Forskål, 1775).
37. **Behavioural Processes:** Blank, D. Female-female aggression in goitered gazelles: the desire for loneliness.
38. **Mammalia:** Amed, S.A. & Al-Sheikhly, O.F. First record of Blanford's fox *Vulpes cana* (Blanford, 1877) from Iraq.
39. **Jordan Journal of Natural History:** Anon. Towards improving conservation strategies for the endangered Arabian wolf, *Canis lupus arabs*.
40. **Saudi Journal of Biological Sciences:** Anon. Thermoregulation and adaptation to oxidative stress in poikilothermic Dabb lizard, (*Uromastix microlepis*): An experimental study.
41. **Behavioural Processes:** Blank, D. Activity behaviour of goitered gazelle in an arid environment.
42. **Journal of Threatened Taxa:** Anon. Mammal species detection in arid habitats.
43. **Journal of Arid Environments:** Blank, D. Ungulate adaptations to counteract overheating and water deficit in arid environment.

BOOKS REVIEWED

1. **Copeia: The Amphibians and Reptiles of Oman and the UAE:** Gardner, A.S. 2013. Edition Chimaira. ISBN 9783899734331.

NEWSPAPER ARTICLES

- Cunningham, P.L. 2006. Do Domestic Cats Harm the Local Fauna in Windhoek? Republikein 8 June 2006: 8.
- Cunningham, P.L. 2006. Are Traditional Healers Causing the Decline of Vultures in Namibia? Republikein 22 June 2006: 9.
- Cunningham, P.L. 2006. Do baboons cause significant problems in and around Windhoek? Republikein 20 July 2006: 9.
- Cunningham, P.L. 2006. Wanted: Dead or Alive. Are we drowning our wildlife? Republikein 17 August 2006: 9.
- Laubsher, N. 2007. Wildlewe besig on stryd te verloor. Republikein 7 May 2007: 7. [Info supplied for article]
- Laubsher, N. 2007. Studente aangemoedig om natuurbewaring by Politegnikum te studeer. Republikein 10 May 2007: 8. [Info supplied for article]
- Laubsher, N. 2007. Jakkalsdraad om kleinveekampe maai onder reptiele. Republikein 4 June 2007: 4. [Info supplied for article]
- Laubsher, N. 2007. VSA-studente leer oor bewaring in Kavango. Republikein 26 June 2007: 5. [Info supplied for article]
- Laubsher, N. 2007. Nama padloper enig in sy soort. Republikein 11 July 2007: 7. [Info supplied for article]

- Cunningham, P.L. 2007. Polytechnic Department honours IRDNC. Namibian 27 July 2007: 7.
- Laubsher, N. 2007. Suutjies trap help nie altyd. Republikein 17 August 2007: 5. [Info supplied for article]
- Mulder, S. 2009. Anglo-Boereoorlog-dagboeke ná 'n eeu weer uit en tuis. Volksblad 3 November 2009 [Info supplied for article]
- Cunningham, P.L. 2010. NEWS spreads the news. Namibian 29 July 2010: 8.
- Cunningham, P.L. 2011. Latest Roan News magazine out. Namibian 20 January 2011: 8.
- Cunningham, P.L. 2014. FSC charcoal certification the answer for Namibian producers. Die Boer, June 2014: 4-5.
- Cunningham, P.L. 2014. An historic look at bush thickening in Namibia – Anecdotal evidence from the past. Die Boer, July 2014: 10.

EDITORIAL ACTIVITIES

NAMIBIAN ENVIRONMENT & WILDLIFE SOCIETY (NEWS) MAGAZINE [ROAN NEWS] (EDITOR)

- Issue 3 & 4 – 2002; Issue 1 & 2 – 2003; Issue 1 & 2 – 2004; Issue 1 & 2 – 2005; Issue 1 & 2 – 2006; Issue 1 – 2007

NAMIBIAN ENVIRONMENT & WILDLIFE SOCIETY (NEWS) NEWSLETTER (EDITOR)

- Issues 1 to 5 – August to December 2007; Issues 1 to 10 – March to December 2010; Issues 1 to 12 – January to December 2011; Issues 1 to 12 January to December 2012; Issues 1 to 12 – January to December 2013; Issue 1 – January 2014

SCIENTIFIC SOCIETY OF NAMIBIA BOTANICAL JOURNAL - DINTERIA (EDITOR)

- Issue 30 – 2008; Issue 31 – 2010 (Co-editor); Issue 32 – 2012; Issue 33 – 2013; Issue 34 – 2014; Issue 35 – 2015

KING KHALID WILDLIFE RESEARCH CENTRE – QUARTERLY REPORT (COMPILE & EDIT)

- 2008: Issue 1 – January to March 2008; Issue 2 – April to June 2008; Issue 3 – July to September 2008
- 2009: Issue 1 – January to March 2009; Issue 2 – April to June 2009; Issue 3 – July to September 2009

ORGANISATIONS, GROUPS & MEMBERSHIPS

Namibia Environmental & Wildlife Society (NEWS)

- Committee Member (2002-2007; 2010-current), Vice Chairperson (2007) & Chairperson (2010-2014)
- Editor – Roan News (2002-2007 & 2014); Editor – NEWS-letter (2007, 2010 to January 2014)
- Member 2002 – 2007; 2010-current

Raptor Working Group - Namibia

- Involved with Raptor Road Counts throughout Namibia
- 2005 – 2007; 2010-2014

NANGOF Trust

- Trustee on NANGOF council
- November 2010-February 2013

ECO-Awards

- Assessor – lodges
- Lodges assessed: NamibRand Family Hideout; Kroone Camp (Wilderness Safaris); Namib Desert Lodge (Gondwana Collection); Dústernbrook Guest Farm; Ngepi Lodge, River Dance Lodge, Fish River Canyon Lodge; The Stiltz; Desert Breeze Lodge; Hakos Guest Farm; Heimat Guest Farm; Alte Kalköfen Guest Farm; Kulala Desert Lodge; Little

Kulala; Kulala Adventure Camp; Gondwana Canyon Lodge; Gondwana Canyon Village; Gondwana Roadhouse.

- 2011-2017

Game Rangers Association – Namibian Chapter

- 2012-2021

Namibian Bird Club

- 2002 – current

Namibian Botanical Society

- 2002-2018

Emirates Natural History Group (ENHG)

- Committee Member – Al Ain Branch
- 1999-2003

Technical Committee: Implementation of the World Heritage Convention in Namibia: Twyfelfontein Dossier

- Committee Member
- 2004-2007 (Twyfelfontein Proclaimed Namibia's 1st World Heritage Site)

National Inter-sectoral committee on the Okavango River Basin

- Committee Member
- 2005-2007

Crane Working Group - Namibia

- Involved with Blue Crane research in Etosha NP
- 2005-2007

Advisory Board – Fisheries Inspectors & Observers Course (FIOC), Ministry of Fisheries & Marine Resources

- Advisory Board Committee member
- 2006-2007

Membership (past & present)

- Herpetological Association, Africa
- Environment and Wildlife Society, Namibia
- Game Rangers Association, Namibia
- Bird Club, Namibia
- Botanical Society, Namibia

COMPUTER LITERACY

General Computer Programmes

- Microsoft Office, Excel & Publisher

Other Programmes

- Statgraphics, Sigma Stat, Systat
- Integrated System for Plant Dynamics (ISPD)
- Biomass Estimate from Canopy Volume (BECVOL)
- Mopane harvesting programme (MOPHIN)

REFERENCES

Dr. E.R. Robinson (Director, KKWRC)

King Khalid Wildlife Research Centre
Thumamah, P. O. Box 61681, Riyadh 11575
Kingdom of Saudi Arabia

Or

Rangeland Ecologist – Conservation Programmes
Zoological Society of London
Regent's Park, London NW1 4RY
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Mobile. + 966 507843943
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Dr. W.J. Jankowitz (ex Dean, PON)

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Ashley Meyer

BEng.

Environmental Consultant



Ashley Meyer is a qualified Mechanical Engineer (BEng. Mech. Mechanical Engineering). His responsibilities include the management and execution of projects including environmental baseline assessments, engineering emissions inventory development, computational air dispersion modelling and noise modelling, and impact assessments for projects globally. Ashley's areas of expertise include industrial noise modelling and noise impact assessments, acoustically induced vibration and flow induced vibration. Ashley has been involved in projects across sectors including oil and gas, petrochemical, energy, manufacturing and mining. He has excellent knowledge of national and international laws, regulations and guidelines associated with environmental and occupational noise studies and assessments.

EDUCATION

- BEng: Mechanical Engineering (University of Pretoria), (2012)

COUNTRIES OF WORK EXPERIENCE

Africa: South Africa, Mozambique, Democratic Republic of Congo, Kenya, Zambia and Nigeria.

Asia: Indonesia, Malaysia, Oman, Iraq, Pakistan, Saudi Arabia, United Arab Emirates, Vietnam, and Turkmenistan.

LANGUAGES

English, Afrikaans

CAREER SUMMARY

- 2019 onwards
Senior Consultant, WKC Group
- 2013 – 2018
Environmental Engineer, WKC Group
- 2012 – 2013
Graduate Engineer, ACEND Consulting Engineers

FIELDS OF SPECIAL COMPETENCE

- Noise Impact Assessment
- Acoustically Induced Vibration Assessment
- Air Quality Impact Assessment

KEY EXPERIENCE

Noise Studies

- Final Noise Study for the EPC phase of the chemical and refining integrated Singapore project (CRISP) which involves the expansion of ExxonMobil's refinery in Singapore.
- Preliminary Noise Modelling Study for the Al-Zour Refinery in Kuwait owned by Kuwait Integrated Petro-chemical Industries Company's (KIPIC). The noise modelling study was undertaken using internationally recognised noise modelling software: SoundPLAN. Overall, the project entailed the complete noise model development, and assessment of occupational and environmental noise associated with five (5) separate Engineering, Procurement and Construction (EPC) packages.
- Preliminary Noise Modelling Study for the Refinery and Petrochemicals Integrated Development (RAPID) Package 3 Project, located in Indonesia. The study involved noise modelling and impact assessment of Hydrotreating units, Catalytic Reforming Unit, Hydrogen Production Units, Saturated Gas Plant, interconnection and flare for the Refinery.
- Preliminary Noise Modelling Study and AIV Assessment for the Satah Al-Razboot (SARB) Plant Facilities Project, owned by the Abu Dhabi National Oil Company (ADNOC), and located in the Arabian Gulf, UAE. The noise modelling assessment consisted of the noise model

development of the twin artificial islands (SARB-1 and SARB-2), and the Zirku island where the processing facility is located. The assessment included occupational and environmental noise, as well as an AIV assessment.

- Noise Modelling and impact assessment for the Garraf Simple Cycle Project – Power Generation Phase I for PETRONAS, forming part of the larger Garraf Operations in Iraq.
- Noise Modelling and Noise Impact Assessment for the Jazan Economic City (JEC) located in Jazan Saudi Arabia. The JEC is one of four economic cities currently under development in the Kingdom and is planned to be a large integrated city of over 150,000 residents, supporting over 78,500 jobs across various economic sectors and includes plans for residential areas, green space, light, medium and heavy industries as well as utilities provision.
- Noise modelling and impact assessment of the extension of the Green Line Red Line mass rapid transit (MRT) system in Dubai, UAE. (Green Line Red Line Expansion project)
- Noise baseline monitoring and Noise Impact Assessment of the proposed Advanced Water Treatment Demonstration Project located in Durban, South Africa. The project involves the construction of a demonstration plant, which combines seawater desalination by (means of reverse osmosis) and wastewater recycling. The assessment considered the construction and operations phases of the project.
- Noise baseline monitoring and Noise Impact Assessment of the proposed Floating Dry Dock Project located in Port of Richards Bay, South Africa. The assessment focused on the four phases of the construction of the supporting infrastructure including dredging, construction of a revetment, construction of mooring dolphins and jetty, and the construction of land-based facilities.
- Baseline noise monitoring and Noise Impact Assessment for the Primary Copper ESIA for the Kinsevere Copper Mine in the Democratic Republic of Congo. The assessment considered the extension of the mine and new processing facilities required to mine and process the sulphide ore.
- Noise baseline monitoring for the Northern Aqueduct Augmentation Project in Durban. The Project involved the development of the Phase 5 aqueduct from the Durban Heights to the Duffs Road connecting to the Phase 4 Northern Aqueduct.
- Preliminary Noise Modelling Study for the Karbala Refinery Project (KRP) located in Iraq. The study was undertaken for the EPC phase of the project which was awarded to the HDGSK Joint Venture (including HEC, GS E&C and SK E&C).
- Baseline noise monitoring and Noise Impact Assessment (including detail noise modelling) for Mamatwan Manganese Mine in the Northern Cape, South Africa. The assessment focused operational phase of the proposed new tailings dam and associated infrastructure.
- Final Noise Modelling Study for the Rabigh II Refining and Petrochemical Project CP 3/4 – Noise Modelling – Current
- Final Noise Modelling Study for the Attock Refinery Limited Upgrading Project in Morgah Rawalpindi, Pakistan – Noise Modelling
- Final Noise Modelling Study for the SADARA Isocyanates Projects in Jubail, Saudi Arabia – Noise Modelling.

KEY EXPERIENCE (Continued)

- Noise modelling and impact assessment of the Ba al Ghailam and Al Sader residential developments located in Abu Dhabi, UAE.
- Noise Impact Assessment for the Umgungundlovo Composting Facility in Pietermaritzburg, South Africa – Baseline Noise Measurements and Noise Modelling
- Preliminary Noise Modelling Study for the GASCO Early Nitrogen Rejection Units Project in Saudi Arabia – Noise Modelling
- Preliminary Noise Modelling Study for Rabigh II Refining and Petrochemical Project CP 2 – Noise Modelling
- Preliminary Noise Modelling Study for the Carbon Black Delayed Coker Project in the Ruwais Industrial Complex in the UAE – Noise Modelling.
- Preliminary Noise Modelling Study for the PTC Polysilicon Manufacturing Facility in Jubail, Saudi Arabia – Noise Modelling.
- Noise Impact Assessment for the proposed Corobrick Platforms in Durban North, South Africa – Baseline Noise Measurements.
- Preliminary Noise Modelling Study and AIV Assessment for the Turkmenistan GTPOGT Expansion and Modification Project in Turkmenistan – Noise Modelling and AIV Assessments
- Screening Noise Assessment for the Kinangop Wind Farm in Kenya
- Preliminary Noise Modelling Study for the Attock Refinery Limited Upgrading Project in Morgah Rawalpindi, Pakistan – Noise Modelling
- Noise Modelling Study for the Saudi Elastomers Project in Jubail, Saudi Arabia – Noise Modelling.
- Preliminary Modelling Noise Study for the Shell Majnoon First Commercial Production Project in Iraq – Noise Modelling of Flares, Central Processing Facility and Gas Processing Plants
- Biannual Environmental Noise Surveys over a period of four (4) years for the Kinsevere Copper Mine in the Democratic Republic of Congo – Environmental Noise Survey

AIV and FIV Studies

- AIV Assessment for the Satah Al-Razboot (SARB) Plant Facilities Project, owned by the Abu Dhabi National Oil Company (ADNOC), and located in the Arabian Gulf, UAE. The noise modelling assessment consisted of the noise model development of the twin artificial islands (SARB-1 and SARB-2), and the Zirku island where the processing facility is located.
- Project management of the Acoustic Induced Vibration (AIV) and Flow Induced Vibration (FIV) Assessment, Package 1 of the gas-oil separator plants (GOSP) located in the Marjan oil and gas fields off the eastern coast of Saudi Arabia - Conducted an acoustic induced vibration (AIV) assessment in order to identify potential sources of acoustic fatigue in the project.
- Acoustic Induced Vibration (AIV) and Flow Induced Vibration (FIV) Assessment, Package 4 of the gas-oil separator plants (GOSP) located in the Marjan oil and gas fields off the eastern coast of Saudi Arabia - Conducted an acoustic induced vibration (AIV) assessment in order to identify potential sources of acoustic fatigue in the project.
- Acoustic Induced Vibration (AIV) and Flow Induced Vibration (FIV) Assessment, EPIC for WHP-U08C topside, pipelines, umbilical & brownfield modification at ps1k (phase 5-1b).

Air Quality

- Air Quality Impact Assessment for the Block 3 & 4 Development Project in Oman. Aspects of the project assessed included modelling of the Power Plant, Central Processing Facility, and well test flaring at various sites throughout the field.
 - Air Quality Impact Assessment for the NEOM Saudi Arabian 'mega-city' development – NEOM. The assessments were carried out for the following components of the NEOM development:
 - NEOM Silver Beach
 - NEOM Airport
 - NEOM Contractor Support Areas
 - NEOM UAH Jetties Construction GHG Inventory
 - Air Quality Impact Assessment for the Etihad Rail Realignment Project in the UAE. The assessment included the air dispersion modelling of the proposed rail network stretching across the UAE from the Saudi Arabian border to the Oman in the east and to the north of the UAE.
 - Air Quality Impact Assessment for the Shahd Oil Field Development in Oman. Aspects of the Project included modelling remote early production facilities at various well locations, as well as the operation of the Saiwan permanent processing facilities.
 - Air Quality Impact Assessment for the Aje Field Development Plan off the coast of Nigeria. The study involved the assessment of the operation of a Floating Production, Storage and Offloading (FPSO) facility and the impact to onshore air quality.
 - Air Quality Impact Assessment for the Okoro Further Field Development Project off the coast of Nigeria. The study involved the assessment of the operation of a Mobile Offshore Production Unit and the impact to onshore air quality.
 - Air Quality Impact Assessment for the MPDC Maputo Port Development Project located in Maputo, Mozambique. The Project involves the upgrade of port facilities to accommodate the increased Port traffic. The Air Quality Impact Assessment included a baseline air quality campaign, and a specialist dust study.
 - Air Quality Assessment for the Nghi Son Refinery Project in Vietnam – Air Dispersion Modelling. Nghi Son refinery will have a designed capacity of 10 million tons of crude oil per year with possibility to increase the capacity to 20 million tons. The refinery project will also include petrochemical complex, energy facilities, pipeline and storage systems, and an informatics system. In addition to LPG, unleaded gasoline, kerosene, jet fuel, diesel and FO, the refinery is projected to produce bitumen, propylene and BTX as a raw material for the petrochemical industry.
 - Air Quality Monitoring for the Kinsevere Copper Mine in the Democratic Republic of Congo – Passive and Active Air Sampling
 - Air Quality Impact Assessment for the Primary Copper ESIA for the Kinsevere Copper Mine in the Democratic Republic of Congo.
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John Kinahan

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Qualifications: PhD, University of the Witwatersrand, 1989.

Affiliation: Adjunct Faculty Member, School of Evolution & Social Change, Arizona State University; Honorary Research Fellow, School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, South Africa; Honorary Curator of Archaeology, National Museum of Namibia; Advisory editorial board member *Southern African Field Archaeology*.

Professional profile: My primary research interest is in the archaeology of Holocene hunter-gatherer and nomadic pastoral adaptations to hyper-arid environments. I have worked in the Namib Desert since 1979 but have also worked in ten different African countries carrying out independent research as well as archaeological surveys and assessments for development projects, and also as a consultant to ICOMOS and IUCN, focusing on nomination and management of World Heritage sites.

Working in the field of contract archaeology, I have carried out over 350 field surveys and assessments of mining, infrastructure and related projects during the last twenty-five years. I have worked primarily in Namibia but have also worked in ten other African countries including Botswana, Malawi, Tanzania, Angola, Uganda and Ethiopia. I am familiar with all current international standards of archaeological assessment including those of the IFC (World Bank) and am also familiar with domestic heritage legislation and regulations in a range of African countries.

I have published more than 70 peer-reviewed research articles (see most recent below); and have a current Google Scholar h-index rating of 20 (1819 citations in total, including 625 citations since 2018). A book publication (Wallace & Kinahan 2011 *A History of Namibia*, London: Hurst) was recognized with an Outstanding Academic Text (OAT) Award by the American Association of Libraries. My latest book *NAMIB: the Archaeology of an African Desert* was published by the University of Namibia Press, republished in the UK by James Currey, and in South Africa by Wits University Press in 2021. *Namib* was awarded the Society of Africanist Archaeologists book prize in 2023.

My current research focus is on the application of isotope chemistry to the reconstruction of social networks in the Namib Desert. This research seeks to determine variability within archaeological assemblages of pottery and ostrich eggshell beads from hunter-gatherer and nomadic pastoralist contexts spanning the last 5000 years. The bead isotope data are analysed against the background of a 60000km² isoscape based on vegetation samples. The research is carried out in collaboration with the Department of Geological Sciences at the University of Cape Town and funded by a National Science Foundation grant (Award #2018010) to Arizona State University.

I regularly present new research findings at international conferences, most recently in Spain, Chile and Australia. I will be presenting a paper entitled *Social networks among Namib Desert nomads: isotopic signatures of recent pottery assemblages* at the Society of Africanist Archaeologists conference in Houston, Texas in 2023. Together with Jill Kinahan I will be organizing the 6th *Southern Deserts Conference* to be held in Namibia in 2024. The Southern Deserts Group is an informal organization of archaeologists working in the deserts of South America, Australia and southern Africa.

Selected recent publications:

Kinahan, J. 2023. *Archaeology of the last 2000 years in Namibia*. *Oxford Research Encyclopedia, African History* (oxfordre.com/africanhistory). Oxford University Press.

Kinahan, J.H.A. and Kinahan, J. 2022. Constructed emptiness: The Namib Desert as terra nullius 1786-2018. In Brown, S. and Goetchus, C. eds. *Routledge Handbook on Cultural Landscape Practice*.

Kinahan, J. 2020. *Namib: the Archaeology of an African Desert*. Windhoek: University of Namibia Press.

Kinahan, J. 2019. The Origins and Spread of Pastoralism in Southern Africa. *Oxford Research Encyclopedia, African History* (oxfordre.com/africanhistory). Oxford University Press.

Kinahan, J. 2018. Holocene human adaptation in the Namib Desert: a model based on the concept of Holling's Loop. *Journal of Arid Environments* <https://doi.org/10.1016/j.jaridenv.2018.05.003>

Kinahan, J. 2018. A ritual assemblage from the third millennium BC in the Namib Desert, and its implications for the archaeology and rock art of shamanic performance. *Azania* vol 53

Kinahan, J. 2017. The dancing kudu: women's initiation in the Namib Desert during the second millennium AD. *Antiquity* 358: 1043-1057.

- Kinahan, J. 2017. The solitary shaman: itinerant healers and ritual seclusion in the Namib Desert during the second millennium AD. *Cambridge Archaeological Journal* 27 (3): 553-569.
- Kinahan, J. 2016. Human responses to climatic variation in the Namib Desert during the last one thousand years. *African Archaeological Review* 33 (2): 183-203.
- Kinahan, J. 2016. Archaeological evidence of domestic sheep in the Namib Desert during the first millennium AD. *Journal of African Archaeology* 14 (1): 7-17.
- Kinahan, J. 2014. Cattle paths and the choreography of late pre-colonial contact and trade on the Namib Desert coast. *South African Archaeological Bulletin* 69 (199): 96-102.
- Kinahan, J. 2013. The acquisition of ceramics by hunter-gatherers on the middle Zambezi in the first and second millennium AD. *Journal of African Archaeology* 11 (2): 197-207
- Kinahan, J. 2013. The sixteenth-century ritual precinct at Koticha Kesi in the Gilgel Gibe valley, southern Ethiopia. *Azania: Journal of the British Institute in Eastern Africa* 48 (2): 355-379.
- Kinahan, J. 2013. The use of skeletal and complementary evidence to estimate human stature and identify the presence of women in the recent archaeological record of the Namib Desert. *South African Archaeological Bulletin* 68 (197): 72-78.
- Kinahan, J. 2011. From the beginning: the archaeological evidence. In Wallace, M. and Kinahan J. *A history of Namibia: from the beginning to 1990*. London, Hurst & Co.
- Kinahan, J. & Kinahan, J.H.A. 2017. Post-Pleistocene archaeology and geomorphological processes on the Namib Desert coast of south-western Africa. *Journal of Island and Coastal Archaeology* 12 (1): 65-77.
- Kinahan, J. H. A. and Kinahan, J. 2009. "A thousand fine vessels are ploughing the main" : archaeological traces of the 19th century "Guano Rage" on the south-western coast of Africa. *Australasian Historical Archaeology* 27: 43-54.
- Kinahan, J. & Kinahan, J. 2006. Preliminary report on the late Holocene archaeology of the Awasi-Gorras Basin complex in the southern Namib Desert. *Studies in the African Past* 5: 1-14.
- Kinahan, J. 2005. Late Quaternary human ecology of the Namib Desert. In Smith, M. and Hesse, P. eds. *23rd: Archaeology and Environmental History of the Southern Deserts*. Canberra, National Museum of Australia.
- Kinahan, J. 2000. Fifteenth century agropastoral responses to a disequilibrium ecosystem in eastern Botswana. In Barker, G. and Gilbertson, D. eds *Living on the margins: the archaeology of drylands*. London: Routledge, pp 233- 251.



1. **Name of Consultant:** Ernst Arthur Simon
2. **Profession:** Town and Regional Planner
3. **Date of Birth:** 25 October 1959
4. **Nationality:** Namibian
5. **Membership of Professional Bodies:**

Past Chairperson – Namibia Council for Town and Regional Planners
Past President – Namibia Institute of Town and Regional Planners
Corporate Member of the Namibia Institute of Town and Regional Planners
Past Treasurer of the Namibia Council of Town and Regional Planners

6. Key Qualifications (relevant to the project):

<i>Selected Experience related to Local Economic Development and Strategic Structure Plans</i>	
<i>Detailed Tasks Assigned</i>	<i>Relevant Projects</i>
Planner and Technical Team Leader	Preparation of an Urban Structure Plan for the City of Blantyre, Malawi. Blantyre City Council, 2023 - current
Planner and Technical Team Leader	Preparation of the Walvis Bay Urban Structure Plan 2022 to 2042, Municipality of Walvis Bay, 2022 - 2023
Planner and Technical Team Leader	Preparation of the Windhoek Urban Structure Plan 2022 to 2042, City of Windhoek, 2020 - current
Planner and Spatial Specialist	Preparation of the Windhoek Local Economic Development Strategy as well as the Investment Incentives Strategy for the City of Windhoek, 2019 - 2020.
Project Director and Technical Team Leader	Preparation of the Urban Structure Plan for Kombat, 2018-2019
Project Director and Technical Team Leader	Preparation of an Integrated Regional Land Use Plan for the Otjozondjupa Region, 2015 - 2017
Urban Planner	Second five year revision of the 20 year Physical Development Plan for the Dukhan Oil Fields and QP Concession Area, Qatar. 2015 – 2016
Project Director and Technical Team Leader	Preparation of an Integrated Urban Spatial Development Framework for Henties Bay, 2013 - 2015
Sociologist	Preparation of the Integrated Urban Spatial Development Framework for Walvis Bay responsible for surveys and population projections for the plan period. 2011 - 2013
Sociologist and Urban and Regional Planner	Part of the team for the preparation of the Walvis Bay Local Economic Development Strategy, 2009 - 2010
Physical Planner and Technical Team Leader	First Five Year revision of the 20 year Physical Development Plan for the Dukhan Oil Fields, Qatar. 2008 - 2010
Sociologist	Preparation of a Spatial Development Framework for Katima Mulilo, 2005 - 2007
Physical Planner and Technical Team Leader	Preparation of a 20 year Physical Development Plan for the Mesaieed QP NGL Complex, Qatar. 2005 - 2006

Physical Planner and Technical Team Leader	Preparation of a 20 year Physical Development Plan for the Dukhan Oil Fields and the QP Concession Area, Qatar. 2002 - 2003
Project Director and Technical Team Leader	Preparation of an Integrated Development Plan and a Structure Plan for Oshakati, 1999 - 2001
Full time on site Urban Planner	Preparation of an Urban Structure Plan and Integrated Development Plan for the City of Blantyre, Malawi. 1998 - 1999
<i>Selected Town Planning Experience related to Township Establishments</i>	
<i>Detailed Tasks Assigned</i>	<i>Relevant Projects</i>
• Project Supervisor	Layout design, Environmental Clearance and Township Establishment of Ongha, consisting of Proper and Ext 1 to 7, 2016 to current
• Project Supervisor	Layout design, Environmental Clearance and Township Establishment of Okahao Ext 8, 11 and 12, 2016 to current
• Town Planner and Project Supervisor	Layout design, Environmental Clearance and Township Establishment of 12 Extensions in the Oshitayi Area, Ondangwa, 2015 to 2017
• Town Planner and Project Leader	Layout design, Environmental Clearance and Township Establishment of Onayena Ext 1, 2014 to 2016
• Town Planner and Project leader	Layout design, Environmental Clearance and Township Establishment of Okahandja Extension 18 on consolidated portion 54 of Okahandja Town and Townlands no 277, 2015 to 2017
• Town Planner and Project Leader	Layout design, Environmental Clearance and Township Establishment of Royal Gardens Project on Portion 105, Klein Windhoek Town and Townlands no 70
• Project Coordinator (with A Anderson)	Layout design, Environmental Clearance and Township Establishment of Oshakati Extension 16,
• Project Coordinator (with J Opperman)	Layout design, Environmental Clearance and Township Establishment of Othingo Proper and Ext 1, ,
• Project Coordinator (with J Opperman)	Layout design, Environmental Clearance and Township Establishment of Ompumbo Proper and Ext 1 to 6.
<i>Selected Experience related to Social Impact Assessments and Socio-Economic Research</i>	
<i>Detailed Tasks Assigned</i>	<i>Relevant Projects</i>
• Public Consultation Lead	Environmental and Social Impact Assessment for the 3D Seismic Surveys for Petroleum Exploration Licence area 82 and 83 (PEL82 and PEL 83) off the Namibian Coast, 2017
• Project Director and Technical Team Leader	Evaluation of the socio-economic impact of the construction of three labour based roads in Northern Namibia. The project is a true impact evaluation with a counterfactual and before and after surveys. Roads Authority, 2011 – 2018
• Technical team leader.	Both Qualitative and Quantitative studies for the impact evaluation of the Break the Chain HIV/AIDS campaign in Rehoboth, Oshikuku and Onandjokwe, 2011
• EAP	Environmental Assessment Practitioner for the EIA's for township establishment projects for Ondangwa, Oshakati, Onesi, Onayena, Katwitwi, and Okalongo, 2012 – 2017
• SIA Specialist	Social Impact Assessor for the feasibility study on the provision of bulk water supply to irrigation activities around Olushandja Dam, 2014 – 2016

• SIA Specialist	Social Impact Assessor for the SEA on the proposed extension of the Walvis Bay Harbour, Erongo Region, Namibia, 2014 – 2015.
• SIA Specialist	Social Impact Assessor for the proposed 400KV transmission line from Ruacana to Oshivelo, traversing the Omusati, Oshana and Oshikoto Regions, Namibia, 2014.
• SIA Specialist	Social Impact Assessor for the proposed construction of a 132KV transmission line from Rundu to the new Cuito Substation in the Kavango Region, Namibia, 2013
• SIA Specialist	Independent Public Consultation Lead for the Research project on environmental flow requirements of the Fish River and the Orange-Senqu River Mouth, Orange-Senqu River Commission Secretariat, Governments of Botswana, Lesotho, Namibia and South Africa, 2012/13
• SIA Specialist	Social Impact Assessment for the construction of the Kunene Transmission Station and 33kV line from Etoto to the transmission Station, 2012
• SIA Specialist	Independent Facilitator for the public consultation process for the proposed construction of a Coal Fired Power station at Arandis in the Erongo Region, 2011 – 2012.
• SIA Specialist	Social Impact Assessor for the proposed construction of a freeway link between Windhoek and the Hosea Kutako International Airport, 2011 – 2012
• Social Impact Assessor and public consultation lead	Environmental and Social Impact Assessment for the proposed Baynes Hydropower Scheme in the Kunene River on the border between Namibia and Angola, 2009 - 2011
• SIA Specialist	Social Impact Assessor for the construction of a 132 kV transmission line from Onuno to Ondjiva, 2011
• SIA Specialist	Social Impact Assessment for the proposed construction of the Neckartal Dam in the !Kharas Region, 2010 – 2011
• SIA Specialist	Social Impact Assessor for the proposed construction of a dike and other flood mitigation measures at Oshakati in the Oshana region of Namibia, 2011 – 2012.
• SIA Specialist	Social Impact Assessor on the CSIR team for the EIA of the proposed development of a seawater desalination plant at mile 6 near Swakopmund. January 2009 to December 2010.
• Social and Environmental Lead	Preparation and negotiation of the MCA Namibia Compact which was agreed between the USA and Namibia with a programme value of US\$ 304 000 000. Member of the Government Negotiating team that negotiated the detail of the compact in Washington DC during July 2008.
• Sociologist	Execution of a Community Needs Assessment Survey for the Kuisebmond Community inclusive of the primary survey work and data analysis in Walvis Bay, Namibia. 2004
• Sociologist	Walvis Bay Housing Demand and Affordability Study, comprising primary surveys, data analysis and reporting to determine the housing demand and affordability of households in Walvis Bay, (Population 40 000, sample size 2200), 1996
• Sociologist	Windhoek Household Census – 1995 – Household

	census for Windhoek together with the data analysis using Statistica Software with a sample size of more than 9000 households, 1995
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7. Education:

Institution	UOFS
Date: from (month/year) to (month/year)	1983
Degree(s) or Diploma (s) obtained	Hons. B.Soc.Sc (Sociology) Cum Laude

Institution	UOFS
Date: from (month/year) to (month/year)	1986
Degree(s) or Diploma (s) obtained	M TRP (Town and Regional Planning) Cum Laude
Student Award:	Best Town and Regional Planning Student, 1986, awarded by the Free State Chapter of the South African Institute of Town and Regional Planning

8. Employment Record

Date: from (month/year) - to (month/year)	From 1998 - Current
Employer	Urban Dynamics Africa (Pty) Ltd
Position(s) held	Director

Date: from (month/year) - to (month/year)	1993 - 1998
Employer	TRP Associates
Position(s) held	Partner/ Town and Regional Planning Consultant

Date: from (month/year) - to (month/year)	1988 - 1992
Employer	National Housing Enterprise
Position(s) held	Social Services/Assistant General Manager

Date: from (month/year) - to (month/year)	1985 - 1987
Employer	UOFS
Position(s) held	Lecturer: Urban Development, Sociology and Research Methodology

Date: from (month/year) - to (month/year)	1984
Employer	Potchefstroom University
Position(s) held	Junior Lecturer: Sociology


9. Language Skills, excellent, good, fair, poor:

Language	Reading	Speaking	Writing
English	Excellent	Good	Excellent
Afrikaans	Excellent	Excellent	Excellent

10 Certification

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications and experience.

Signature:



A handwritten signature in black ink, appearing to read 'Ernst Arthur Simon', is written over a horizontal line.

Ernst Arthur Simon

Date: 9/08/2022

Surname: *Heidri Estellè Bindemann-Nel*
Profession: *Environmentalist*
Date of Birth: *29 March 1977*
Nationality: *South African, PR number N6723/94*

Membership in Professional Bodies:

- *Member of the Namibia Council of Town and Regional Planners*
- *Member of the Namibia Institute of Town and Regional Planners*
- *Member of the Environmental Assessment Professionals of Namibia*

KEY QUALIFICATIONS: (RELEVANT TO THE PROJECT)

SELECTED TOWN PLANNING EXPERIENCE RELATED TO ENVIRONMENTAL CLEARANCE	
ENVIRONMENTAL CLEARANCE:	
DETAILED TASKS ASSIGNED:	RELEVANT PROJECTS:
SCOPING REPORTS FOR ENVIRONMENTAL CLEARANCE FROM THE MINISTRY OF ENVIRONMENTAL AND TOURISM:	<p>Environmental Clearance for Township Establishment at, Tungo within the Rundu Town and Townlands No. 1329 (approved 2014),</p> <p>Environmental Clearance for Township Establishment at, Ozondje within the Omaruru Town and Townlands No. 85 (approved 2014),</p> <p>Environmental Clearance for Township Establishment at Onesi Town and Townlands No. 992 (approved 2015),</p> <p>Environmental Clearance for Township Establishment at Onayena Town and Townlands No. 985 (approved 2015),</p> <p>Environmental Clearance for Township Establishment at Portion 154, within the Consolidated Farm Okahandja Town and Townlands No. 277 (approved 2015),</p> <p>Environmental Clearance for Townships Establishments for the development of 18 New Township Extensions in Oshitayi, within the Ondangwa Town and Townlands No.882 (approved 2016),</p> <p>Environmental Clearance for Township Establishment on Portion 1 of Farm 1115, within the Opuwo Townlands No. 876. (approved 2017),</p> <p>Environmental Clearance for creating a street on the Remainder of Erf 3093, Tsumeb, Extension 4 (approved 2017),</p> <p>Environmental Clearance for the Amendment of Conditions of Title from Residential to Industrial and the Existing Charcoal Storage and Packing Facility on Portion 149 (Randte), within the Remainder of Farm Outjo Townlands No. 193 (approved 2019),</p> <p>Environmental Clearance for the Rezoning of Erf 680, Swakopmund, From "General Residential 2" to "General Business" (approved 2019),</p> <p>Environmental Clearance for Odila Lodge within the Ohangwena Region" (approved 2019),</p> <p>Environmental Clearance for the Establishment of Townships at Okandjenedi South within the Remainder of Farm Oshakati Townlands No. 880 (approved 2019),</p>

<p>SCOPING REPORTS FOR ENVIRONMENTAL CLEARANCE FROM THE MINISTRY OF ENVIRONMENTAL AND TOURISM:</p>	<p>Environmental Clearance for the creation of a street and construction and other activities within a watercourse floodline on the Remainder of Erf 3526, Extension 7, Katima Mulilo (approved 2019),</p> <p>Environmental Clearance for the Establishment of Land Hold Titles at Onawa, Oshakati – As defined by the Flexible Land Tenure Act, 2012 (Act 4 of 2012 (approved 2019),</p> <p>Environmental Clearance for the establishment of erven within existing Extension 1 and 2 Okalongo - Closure of public open spaces and portions of public open spaces, and Closure of public street and portions of public streets (approved 2019),</p> <p>Environmental Clearance for the Establishment of Townships at Okahao within the Remainder of Farm Okahao No. 989 and Okahao Extended Townlands No. 1213 (approved 2019),</p> <p>Renewal of Environmental Clearance for public roads created through the subdivision of Erf 1055, Oshakati Extension 3 Oshana Region (approved 2019),</p> <p>Renewal of Environmental Clearance for public roads created through the subdivision of Erf 3122, Oshakati, Extension 3, Oshana Region (approved 2020),</p> <p>Environmental Clearance for constructing and operating a water-based paint manufacturing plant on Erf 2, Nubu Industrial Park, Windhoek (approved 2020).</p> <p>Environmental Clearance for the Establishment of Brukaros Proper on Portion A of the Remainder of Keetmanshoop Town and Townlands No 150 within the //Kharas Region (approved 2021),</p> <p>Environmental Clearance to Establish Townships on Portion B of the Remainder of Farm Opuwo Townlands No. 1115 and Portion Y of the Remainder of Opuwo Townlands No. 876 (approved 2021),</p> <p>Renewal of the Environmental Clearance for the alignment and construction of public roads and infrastructure through Township Establishment at Ozondje (Extension 6 - 11), in Omaruru within the Erongo Region Client: Municipality of Omaruru (approved 2021),</p> <p>Environmental Clearance Application for Kubu & Kwena (approved 2021),</p> <p>Renewal of the Environmental Clearance to establish the Ongha Townlands within the Ohangwena Region (approved 2022),</p> <p>Renewal and transferring of ECC for a Charcoal Storage and Packing Facility on Portion 149 (Randte), within the Remainder of Farm Outjo Townlands No. 193 (approved 2023),</p> <p>Environmental Clearance for the Amendment of conditions of establishment at Eheke settlement in the Oshana Region (approved 2023),</p> <p>Environmental Clearance for Township Establishment at Onawa (to be known as Onawa Proper) in the Oshana Region (approved 2023),</p>
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FIELDWORK OR SURVEYS:	
COLLECTED AND ANALYSED DATA:	Field study for the development of 18 New Township Extensions in Oshitayi, within the Ondangwa Town and Townlands No.882 (2014),
COLLECTED DATA:	Field study at Portion 154, within the Consolidated Farm Okahandja Town and Townlands No. 277. (2015).
	Socio-Economic impact study on the DR 3670, DR 3671 and DR 3672. (2017),
	Socio-Economic Study for Okalongo (2020),
	Kavango West Feasibility Study (2020); and
	Kavango East Feasibility Study (2023).

EDUCATION:

INSTITUTION:	DATES ATTENDED:	DEGREES OBTAINED:
Stellenbosch University	2006 to 2008	B.A in Environmental Studies
Stellenbosch University	2009 to 2010	Honours in Geography and Environment
University of Pretoria	2012 to 2014	Master's Degree in Town and Regional Planning

EMPLOYMENT RECORD:

JULY 2014 – CURRENT:	Urban Dynamics (Pty) Ltd - Windhoek-Namibia
	Position held: Environmental Practitioner and Town and Regional Planner in training.
	Responsibilities include Compiling Scoping Reports for Environmental Clearance, consolidations, subdivisions and drafting locality and site plans.
FEBRUARY 2013 – JULY 2014:	Bindemann Associates, Land Surveyors- Walvis Bay-Namibia
	Position held: Office Assistant.
	Responsibilities include: Compiled applications for consolidations and subdivisions and drafted locality and site plans.
MAY TO DECEMBER 2012:	Silberbauer Welman Design – Grabouw –South Africa
	Position held: Assisting draftsperson.
	Responsibilities include: I drafted house and site plans and submitted building plans and environmental clearance applications to the local governments regarding the Koberg Biosphere. Projects were located in Grabouw and Hermanus, South Africa.

LANGUAGE:

	Speaking	Reading	Writing
English	<i>Good</i>	<i>Good</i>	<i>Good</i>
Afrikaans	<i>Excellent</i>	<i>Good</i>	<i>Good</i>

CERTIFICATION:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and experience.

Date: 21 /06 /2023

Signed:



Bindemann

Heidri Estelle Bindemann-Nel