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## **ENVIRONMENTAL SCOPING REPORT**

Planned Irrigation Expansion Project on Farm Tsumore 761

PREPARED FOR  
OSHIKOTO LAKE GREENS (PTY) LTD

DECEMBER 2018

## TITLE AND APPROVAL PAGE

<b>Project Name:</b>	Planned irrigation project on the Farm Tsumore 761, unit B, Oshikoto Region
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**ENVIRONMENTAL COMPLIANCE CONSULTANCY**



**DECLARATION OF INDEPENDENCE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER**

I, **Stephan Bezuidenhout**, declare that –

**General declaration:**

- I act as the independent environmental practitioner in this application/tender
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations



**SIGNATURE**

1<sup>st</sup> January 2018

**DATE**

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## EXECUTIVE SUMMARY

Oshikoto Lake Greens, a project developed by Hangula Foods (Pty) Ltd (hereafter referred to as 'The Developer') plans to expand their existing irrigation scheme to grow more crops. The Developer plans to increase abstraction from the Oshikoto Lake and increase the area under irrigation.

The project site is located on the Farm Tsumore 761 Unit B, Portion 48, Oshikoto Region, Namibia. The Farm is near the Otjikoto Lake and the primary landuse is crop farming. The nearest urban community is Tsumeb to which the produce from the farm is taken primarily.

The expected increase in water abstraction from the Lake is from 200 000 cubic metres to 370 000 cubic metres. This increase in water usage will be for the expansion of the land area under irrigation. The area under drip irrigation will increase by 25 hectares and that under centre pivot irrigation will increase by 28 hectares. The project will entail the clearing and preparation of 53ha of previously disturbed land, the construction of small access tracks and agricultural infrastructures such as fences, pumphouses and additional water conveyance and irrigation systems.

The project's construction phase shall commence immediately after the statutory permits have been issued. Operations are expected to be fully functional within one year after construction commences. The project shall operate sustainably for an indefinite period for as long as the Lake's water levels are not impacted, that is as long as the fluctuations in water levels do not exceed typical cyclical patterns.

Direct benefits of the project include:

1. Namibia's arid climate is not conducive for widespread crop production on a commercial scale. The arable land that does exist often depends on annual rainfall for crop production. Where borehole water is limited crop production cannot be carried out on a large scale. Thus, this project affords the beneficial off take of surface water for a medium sized irrigation scheme.
2. Employment for local unskilled labour with opportunities for training on the job skills in the agricultural sector. 15 new job opportunities are planned.

Indirect benefits of the project include:

1. Diversification of land use
2. Economic growth and development within the Oshikoto Region.
3. Potential increased independence on food imports.
4. Potential technological development in the agriculture sector.

The planned project triggers Listed Activities in terms of the Environmental Management Act, 2007 (Act No. 7 of 2007), therefore an Environmental Clearance Certificate is required.

These activities are:

1. The abstraction of surface water for industrial or commercial purposes
2. Irrigation schemes for agriculture excluding domestic irrigation

As part of the Environmental Clearance Certificate application, an environmental impact assessment has been undertaken to satisfy the requirements of the Environmental Management Act, 2007. This Environmental Scoping Report and the Draft Environmental Management Plan shall be submitted as part of the application for the Environmental Clearance.

The farm area earmarked for clearing was at some point in the past cleared for crop production and is now predominantly covered with encroacher and invader bush plant species. The surrounding area consists of similar

vegetation. The farm is primarily a crop production farm but there are some cattle and game on the farm. The site is located in the Arid Savanna Biome, and the vegetation is classified as Mountain Savanna and Dolomite Karstveld. Due to the relatively high rainfall and unique dolomite lithology of the area, it is recognised as a centre of plant species diversity in Namibia. Various invertebrates, amphibians and reptiles reside across the site. The fertility of soils on Farm Tsumore is expected to be typical of the area where they are considered generally low largely as a result of low clay and silt /fractions combined with extremely low percentages of organic matter and nitrogen, low cation exchange capacities and low trace element values. This needs to be confirmed through soil sample analysis as prescribed by the Ministry of Agriculture, Water and Forestry (MAWF) who is the competent authority for the planned activities. Soil quality could be reduced further as a result of bad farming practices and therefore the success of the planned project and potential long-term impacts on the environment could be affected. With additional mitigation measures in place, the effects on soil quality would be reduced.

The environmental and social impact assessment was undertaken using a methodology developed by Environmental Compliance Consultancy which is based on the International Finance Corporation standard for impact assessments. Through the scoping process, a review of the site and surrounding environment was completed by undertaking a desktop review. Limited sensitive receptors were identified during this phase, the only potential environmental risks that may require further investigation was surrounding the potential effects on soil quality and the sustainable abstraction of surface water from the lake.

A summary list of the recommendations that were made throughout the report is provided as follows:

- All construction and operational components of the planned project development are to be included and accepted for clearance;
- The best practicable control methods to lessen the environmental impacts associated with the project must be implemented;
- The performance and compliance of operational personnel in applying such controls must be monitored and audited by an independent party; and
- Appropriate environmental training must be provided to all construction and operational personnel.

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

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## DEFINITIONS AND ABBREVIATIONS

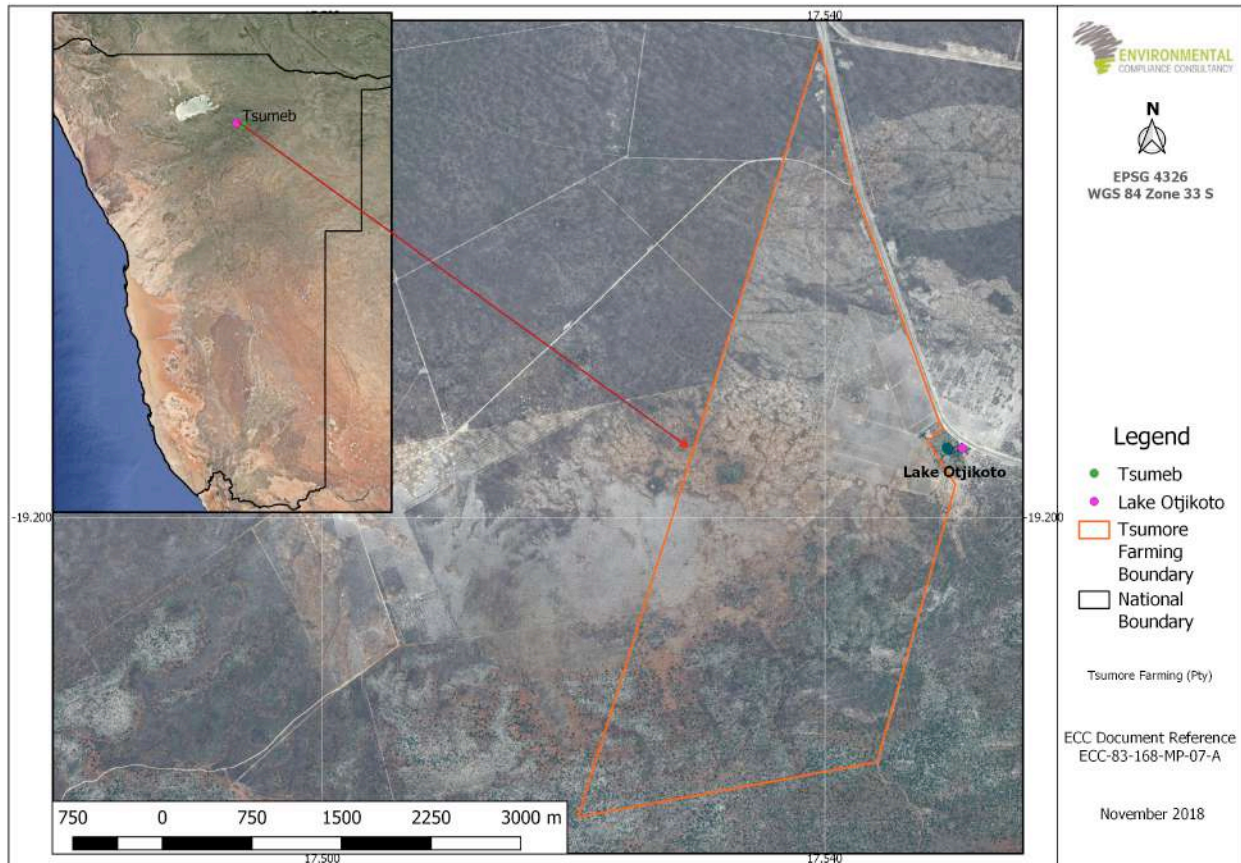
DEA	Directorate of Environmental Affairs
DoF	Department of Forestry
EAP	Environmental Assessment Practitioner
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
IFC	International Finance Cooperation
I&AP	Interested and affected parties
IUCN	International Union for Conservation of Nature
MAWF	Ministry of Agriculture Water and Forestry
MET	Ministry of Environment and Tourism
NDP5	Fifth National Development Plan



# 1. INTRODUCTION

## 1.1. LOCATION OF THE PLANNED PROJECT

The Farm Tsumore 761 Unit B, Portion 48, is located in the Oshikoto Region of Namibia. The Farm is near the Otjikoto Lake and the primary land use is crop farming. The developers have secured the necessary permission to abstract water from the lake. The nearest urban community is Tsumeb to which the produce from the farm is taken primarily. Figure 1 renders a map of the location of the project in relation to the Lake and to Tsumeb.



**Figure 1 –Project location**

## 1.2. ENVIRONMENTAL REQUIREMENTS

The Environmental Management Act, 2007 stipulates that an Environmental Clearance Certificate is required to undertake listed activities under the Act and associated Regulations. Listed activities triggered by the planned project are as follows:

- **WATER RESOURCE DEVELOPMENTS**

- 8.1 The abstraction of surface water for industrial or commercial purposes
- 8.7 Irrigation schemes for agriculture excluding domestic irrigation

To a lesser extent the following activities play a role

- **FOREST ACTIVITY**

- 4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorization in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.

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- **AGRICULTURE AND AQUACULTURE ACTIVITIES**

- 7.5 Pest control.

In accordance with the Environmental Management Act, 2007, an Environmental Impact Assessment (EIA) of the planned project is required, and subsequent report submitted as part of the application for Environmental Clearance. ECC was appointed by the Developer to carry out the EIA.

### 1.3. PURPOSE OF THIS REPORT & TERMS OF REFERENCE

The purpose of this report is to present the findings of the EIA for the planned project on the Farm Tsumore. The EIA has been undertaken in accordance with the requirements of the Environmental Management Act, 2007 and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (Act No. 7 of 2007) (referred to herein as the EIA Regulations). This Scoping EIA Report and appendices will be submitted to the competent authority which for this project is the Directorate of Forestry (DoF) at Ministry of Agriculture, Water and Forestry (MAWF). A copy of the submission will be submitted to the Directorate of Environmental Affairs (DEA) at the Ministry of Environment and Tourism (MET) for review as part of the Environmental Clearance Certificate application.

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

The report has been prepared to provide information to Authorities, the public and stakeholders to aid in the decision-making process for the planned project. The objectives of this Scoping EIA Report were to:

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

In addition to the environmental assessment, a Draft Environmental Management Plan (EMP) (**Appendix A**) was drawn up as required under the Environmental Management Act, 2007. A Draft EMP has been developed to provide a management framework for the planning and implementation of construction and operational activities so that potential environmental and social impacts are prevented, mitigated or minimised as far as reasonably practicable, and that statutory requirements and other legal obligations are fulfilled.

### 1.4. ENVIRONMENTAL CONSULTANCY

ECC, a Namibian consultancy registration number 2013/11401, has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector.

ECC is independent to the proponent and has no vested or financial interest in the planned project. The CVs of the authors of this report are contained in **Appendix B**.

All compliance and regulatory requirements regarding this document should be forwarded by email or post to the following address:

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## 1.5. REPORT STRUCTURE

**Table 1 - ESIA Report Sections**

SECTION	TITLE	CONTENT
-	Executive Summary	Executive summary of the Environmental Scoping Report
-	Acronyms	A list of acronyms used during the report
<b>1</b>	Introduction	This section introduces the EIA and provides background information on the planned project, proponent, and purpose of the report
<b>2</b>	Regulatory Framework	This chapter describes the Namibian environmental regulatory framework applicable to the project and how it has been considered in the assessment and the Scoping Report and EMP.
<b>3</b>	Project Description	Presents the need of the project, the alternatives considered and a description of the planned project and how the planned project will be operated.
<b>4</b>	Receiving Environment	Presents information on the receiving environment that may be affected by the project.
<b>5</b>	Impact Assessment and Mitigation	This chapter presents the methodology applied to the assessment and the predicted potential environmental and social effects arising from the planned project, and the mitigation and management strategies to be applied to avoid or reduce the effects.
<b>6</b>	Conclusions	Conclude the findings of the EIA
<b>7</b>	References	A list of reference used for this report

This report has the following supporting appendices:

- Appendix A: Draft Environmental Management Plan
- Appendix B: ECC CVs
- Appendix C: EIA Method
- Appendix D: Project Registration
- Appendix E: Evidence of Public Consultation (Adverts, Background Information Report, Site notice, Consultation feedback)

## 2. REGULATORY FRAMEWORK

This chapter outlines the regulatory framework applicable to the planned project. Table 2 provides a list of applicable legislation and the relevance to the project.

**Table 2 – Legal Compliance**

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
<b>Namibian Constitution First Amendment Act 34 of 1998</b>	<p>The Constitution of the Republic of Namibia, 1990 clearly defines the Country's position in relation to sustainable development and environmental management. The Constitution refers that the State shall actively promote and maintain the welfare of the people by adopting policies aimed at the following:</p> <p><i>"Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present, and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory."</i></p>	<p>The planned project has taken this into consideration during the design phase. The planned project shall provide local jobs as well as Namibian grown produce, thereby supporting the local economy in various ways.</p>
<b>Environmental Management Act, 2007 (Act No. 7 of 2007) and associated regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011)</b>	<p>The Act aims to promote sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment.</p> <p>It sets the principles of environmental management as well as the functions and powers of the Minister. The Act requires certain activities to obtain an environmental clearance certificate prior to project development. The Act states an EIA may be undertaken and submitted as part of the environmental clearance certificate application.</p> <p>The MET is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs under the MET is responsible for the administration for the EIA process.</p>	<p>This Environmental Scoping Report (and EMP) documents the findings of the environmental assessment undertaken for the planned project, which will form part of the environmental clearance application. The assessment and report have been undertaken in line with the requirements under the Act and associated regulations.</p>
<b>Water Act, No 54 of 1956 Water Resources Management Act, 2004</b>	<p>This Act provides for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects, of the use of sea water for certain purposes; and for the control</p>	<p>The Act stipulates obligations to prevent pollution of water. The EMP sets out measures to avoid polluting the water environment.</p>

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
<b>Water Resources Management Act 2013</b>	of certain activities on or in water in certain areas. The MAWF Department of Water Affairs is responsible for administration of the Water Act.	Whilst the 2013 Act is not enforced, it is best practice to adhere to the stipulations. A water abstraction permit must be in place and the monitoring requirements for a permit will apply.
<b>Soil Conservation, 1969 (Act 76 of 1969) and the Soil Conservation Amendment Act (Act 38 of 1971)</b>	Makes provision for the prevention and control of soil erosion and the protection, improvement and the conservation, improvement and manner of use of the soil and vegetation.	Through vegetation removal there may be the risk of affecting soil quality. Measures shall be taken to avoid this which are set out in the EMP.
<b>The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) and amendments</b>	Provides for the registration of fertilizers, farm feeds, agricultural remedies and stock remedies; regulates or prohibits the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; to provide for the designation of technical advisers and analysts, and to provide for matters incidental thereto.  All chemical products (including weed killers) used in Namibia are obliged to be registered with the Registrar of this Act. The Act makes it possible to prohibit the use or import of any remedy that could be an environmental risk.	Fertilisers or pesticides may be used for the planned project. The storage, use and application of fertilisers and/or pesticides shall be compliant with the Act as well as best practice – all set out in the EMP.
<b>Forest Act 12 of 2001 Forest Act Regulations 2015</b>	To provide for the protection of the environment and the control and management of forest. The regulations have the following stipulations that may be relevant to the planned project: <ul style="list-style-type: none"> <li>– Harvesting Licence is required to harvest forest produce.</li> <li>– 9(1) a holder of a licence for the removal of forest produce must report on the species and the actual quantity of the forest produce removed when submitting the next licence application or at the end of the financial year in the form of Form 20 of Annexure 1.</li> <li>– Tree species and any vegetation within 100m from a watercourse may not be removed without a permit</li> <li>– Provision for the protection of various plant species. This includes the proclamation of protected species of plants and the conditions under which</li> </ul>	There shall be some vegetation removal as part of the planned project, therefore an application to clear forest products in accordance with Section 22, Regulation 5 of the Forest Act, 2001 has been made. The proponent shall undertake all activities in line with the conditions stipulated in the Permit and a valid permit shall be obtained throughout vegetation clearance activities.

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
	<p>these plants can be disturbed, conserved, or cultivated.</p> <ul style="list-style-type: none"> <li>- Aerial spraying of arboricides is now a prohibited activity</li> </ul>	
<p><b>National Heritage Act, No. 27 of 2004.</b></p>	<p>The Act provides provision of the protection and conservation of places and objects with heritage significance.</p>	<p>There is potential for heritage objects to be found on the site, therefore the stipulations in the Act have been taken into consideration and are incorporated into the EMP.</p>

### 3. PROJECT DESCRIPTION

#### 3.1. NEED FOR THE PLANNED PROJECT

The fifth National Development Policy (NDP5) lists five game changers that aim to move Namibia from a reactive, input-based economy towards a proactive, high performing economy. One of these game changers are ‘*increasing productivity in agriculture, especially for smallholder farmers*’. The agricultural sector contributes approximately 3.8% to the GDP. In 2015, Namibia imported about 76%, 98% and 91% of its demand for maize, millet and wheat respectively. Therefore, the productivity of small, medium and large-scale farms needs to be maximised to support the Namibian economy and ensure food security for all. In addition, local jobs shall be produced through the development of smallholder farming. In 2014, the number one occupation was skilled agriculture in Namibia. This has dropped to fourth position according to the labour force survey 2016 (Namibia Statistics Agency, 2017).

Namibia’s arid climate is not conducive for widespread crop production on a commercial scale. The arable land that does exist often depends on annual rainfall for crop production. Where borehole water is limited crop production cannot be carried out on a large scale. Thus, this project affords the beneficial off take of surface water for a medium sized irrigation scheme.

Benefits associated with the irrigation scheme are summarised in Table 3.

**Table 3 – Benefits of the Project**

DIRECT	INDIRECT
<ul style="list-style-type: none"> <li>- Employment</li> <li>- Increase in national food security</li> <li>- Increase in agricultural skills</li> <li>- Technological development in the agricultural sector</li> <li>- Export potential and replacement of Imports – increased earnings and foreign exchange</li> </ul>	<ul style="list-style-type: none"> <li>- Diversification of land use activities and income</li> <li>- Economic growth and development of the Oshikoto Region</li> </ul>

In addition to the above, the planned project is also in line with multiple objectives of the Namibia Agricultural Policy (Ministry of Agriculture, Water and Forestry, 2015):

- To increase agricultural production and productivity;
- To promote skills development in agricultural production;
- To promote food safety;
- To develop and diversify agricultural production;
- To contribute towards improved food and nutrition security at household and national levels;
- To increase income from agricultural production at household and national levels; and
- To safeguard the sustainable existence of Namibia’s agricultural sector.
- To utilise development opportunities and cooperation between land owners, the community and the Mining operator – Namibian Mineral policy

#### 3.2. ALTERNATIVES CONSIDERED

##### 3.2.1. WATER SOURCE

In line with the Environmental Management Act, 2007, alternatives to the project were reviewed as part of the EIA. The planned expansion of the irrigation project would not be feasible without the water from the Oshikoto Lake; no

other economically viable sources of water have been identified that would sustainably support the planned expansion. Therefore, the 'no-go' option was the only alternative option to be considered.

The plants / crops that shall be grown on the additional land is still being planned.

### 3.2.2. BIOMASS MATERIAL

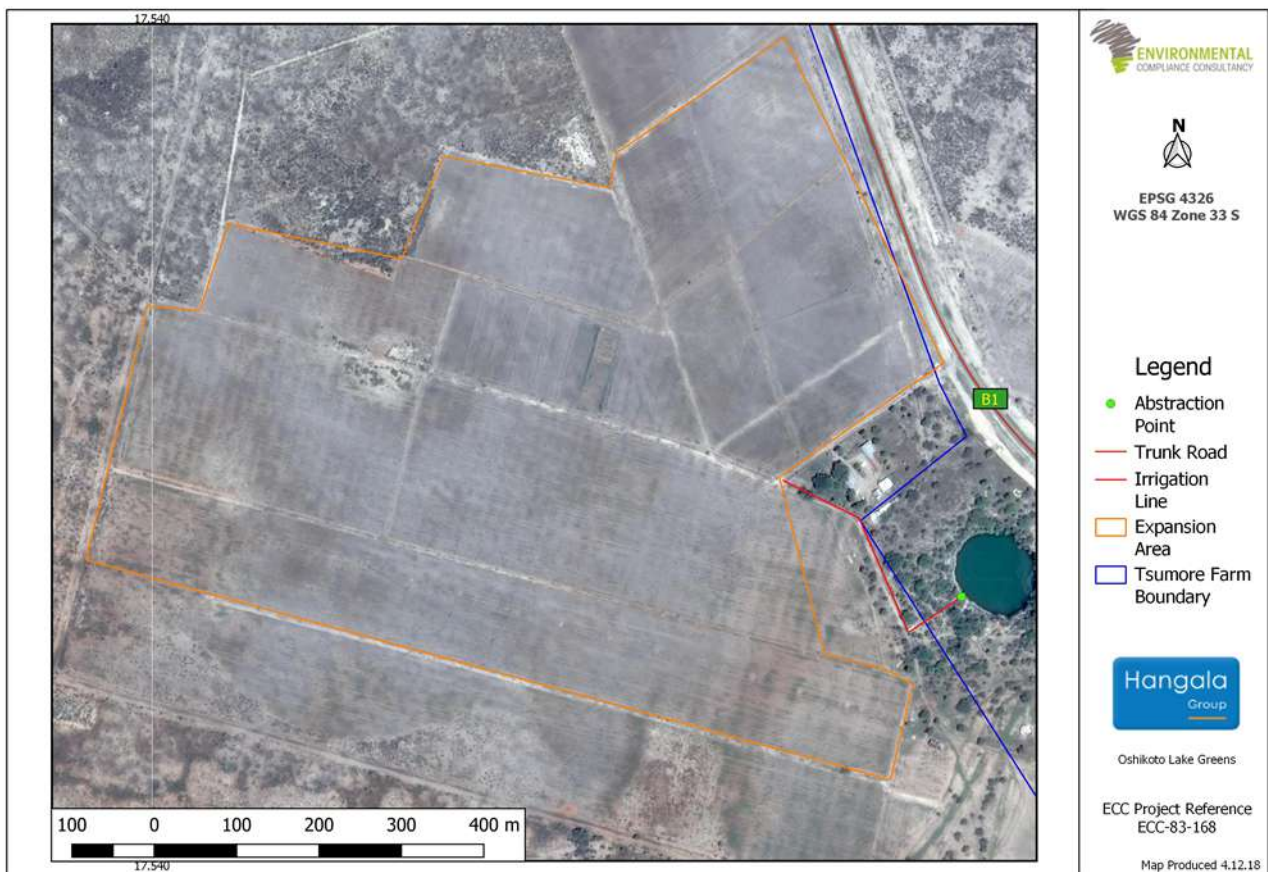
As a result of clearing the land, a substantial volume of biomass shall be produced. It is the intention for this to be stock piled and transported to be used and not wasted. It can be used as organic biomaterial to generate electricity. If this is not feasible or an option at the time, then the biomass could be sent to Ohorongo Cement to be used as a fuel for their incinerator or it could be used as firewood or to create charcoal. The latter is not economically feasible due to the required equipment to be used on site and the distance to the nearest charcoal production facility. The biomass option is the preferred option and it shall provide an additional source of income for the Farm to support the planned expansion, as well as support the local economy with a renewable source of power.



### 3.3. PLANNED PROJECT

#### 3.3.1. PROJECT SITE

Farm Tsumore is located in the Oshikoto Region, about 20 kilometres north west of Tsumeb. Adjacent to the farm is the Otjikoto Lake. Figure 2 renders a map of the Farm showing the area to be cleared and developed and the proximity to the lake. It is obvious from the map that the land clearing is to be carried out on previously cleared land.



**Figure 2. Map of the irrigation scheme expansion area with the Otjikoto Lake clearly shown.**

#### 3.3.2. PROJECT COMPONENTS

The planned expansion of the irrigation project on Farm Tsumore for commercial agricultural purposes includes the following components:

- Maintenance of the pump, pipeline and connections to the pump at the lake's edge;
- Re-clearing of the arable land and earthworks for creating the pivot and drip irrigation infrastructure;
- Assembly of the pivot and drip irrigation infrastructure, namely, hoses, pipes, irrigation controllers, sprinkler heads, additional pumps, nets, poles;
- Refurbish infrastructure for sorting, preparing, storing and packaging produce.

All material shall be sourced locally where possible. Existing harvesting and farming equipment shall be utilised.

### 3.3.3. CONSTRUCTION

The planned area needs no construction of buildings. Limited earthworks is needed and basic mobile farming equipment is needed to clear the previously farmed land. The area shall be cleared of vegetation using manual and mechanical means and shall take three months to complete. The amount of biomass cleared may be too minimal to make it viable to transport offsite for use elsewhere.

Once the site is cleared, the land shall be prepared ready for sowing the preferred crops, which shall involve minor earth works with the aim of creating narrow strips of tilling (soil disturbed and turned). All works shall be undertaken with standard farm plant equipment and machinery.

The existing pipeline and pumps may need refurbishment or general maintenance prior to commissioning the expansion. No water storage within the farm's boundary will be required as the lake is only 400m from the farm boundary.

Approximately 15 personnel will be hired during the construction period. These personnel shall be sourced from the local community and the Tsumeb area. No residential or living quarters shall be provided, as all personnel live nearby. The proponent shall provide transport if necessary.

Minor volumes of waste shall be produced during construction, which shall be disposed of via existing waste management procedures.

### 3.3.4. OPERATIONS

The operation of the irrigation scheme and agriculture project shall become part of the farm's normal operations. Operation activities are to include: preparation of land; maintenance of pumps, lines, and irrigation system; planting and harvesting of crops; application of fertilisers and pesticides; and transporting crops to markets.

Approximately 370 000 cubic metres of water per year (1000m<sup>3</sup>/day) shall be used to operate the irrigation scheme as well as various fertilisers, herbicides and pesticides. All herbicides pesticides will be applied according to regulations and product prescribed methods.

Planting and harvesting shall be undertaken with standard farm plant, equipment and vehicles. Once harvested, crops shall be transported via road in suitable transport. The crop/s to be planted are not specified at this stage, however is likely to be maize, citrus, lucerne and vegetables. Harvesting periods, quantity of the harvested crops and thus the number of vehicles to transport the harvested crops and location is unknown. Smaller trucks will be used to transport seed, pesticides and fertiliser to the site.

Appropriate farm infrastructure shall be used, including storage rooms for chemicals and tools and facilities for employees. Existing gravel roads and tracks shall be used, and a new perimeter fence shall be erected around the irrigation area. Limited waste shall be produced during operations, the majority of it be organic and shall be managed through existing waste management arrangements.

Approximately 15 additional full time jobs shall be required during the operations stage, and up to an additional 15 seasonal workers. Employees shall work six days a week and hours may alter depending on the season and harvesting schedule. No residential or living quarters shall be provided, as all employees are local. The proponent shall provide transport if necessary.

### 3.3.5. PROJECT SCHEDULE

The planned project shall commence as soon as all of the relevant permits are in place. The first stage of works shall be the preparatory works, which shall include bringing plant and equipment to site, followed by three months of clearing all the land. Once land is cleared, irrigation infrastructure shall be installed, and crops sown; the clearance and sowing of crops shall be in stages. The first produce should be ready within one year from commencement of the expansion.

The irrigation scheme is expected to operate indefinitely provided there is sufficient water is available. Therefore, an end date and decommissioning / reinstatement plan cannot be defined at this stage.

### 3.4. LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

A number of limitations and uncertainties were acknowledged during the EIA process, which are summarised in Table 4 along with the assumptions made to manage them. In line with EIA best practice, assumptions have been made based on realistic worst-case scenarios, thereby ensuring that the worst-case potential environmental impacts are identified and assessed.

**Table 4 – Limitations, Uncertainties and Assumptions**

LIMITATION / UNCERTAINTY	ASSUMPTION
– The long-term sustainability of the irrigation system and agriculture project is unknown.	– It is assumed that sufficient water shall be supplied to Farm Tsumore for the use of irrigation from the lake.
– The effect of the increased volume of water to be abstracted is unknown.	– It is assumed that the lake can sustain the increased abstraction and the aquifer will not be negatively affected.
– The quality of the groundwater.	– It is assumed the groundwater is of suitable quality to be used for the irrigation of crops. The quality has not changed over time.
– The crop to be planted is not specified at this stage, so harvesting periods, quantity of the harvested crops and thus the number of vehicles to transport the harvested crops and location to be transported to, is unknown.	<ul style="list-style-type: none"> <li>– Existing vehicles shall be used, and the number of journeys transporting harvested crop or material to support the scheme will not cause a significant increase of vehicles on the road and shall be infrequent (not all year round).</li> <li>– The type of crop shall be based on the conclusion of the Agricultural report and suitable for the conditions.</li> </ul>
– Decommissioning / reinstatement stage	– Due to the reliance on the water available from the lake, an end date of when the scheme may cease is unknown. It is assumed the life of the project is indefinite.

### 3.5. SITE AND SURROUNDINGS ENVIRONMENT

A summary of the environment of the site and surrounding area is provided in Table 5.

**Table 5 – Summary of the Environment**

SUMMARY OF LOCAL ENVIRONMENT	
<b>Land Ownership</b>	The Hangala Foods (Pty) Ltd manage and own the project.
<b>Land Use</b>	<ul style="list-style-type: none"> <li>– The site is severely encroached by invader bush species</li> <li>– The farm is used for crop production primarily though there are cattle and game on the farm.</li> <li>– Otjikoto Lake is located on private farm land and is a popular tourist destination and is considered a premier diving site in Namibia. Near the lake is a restaurant and “zoo”, which offer employment to a few people (The Namibian newspaper, 2017). In the past the waters of the lake were used for mining, irrigation and even the construction of a road in “ovambo land” (Penrith, 1978). Currently, in</li> </ul>

<b>SUMMARY OF LOCAL ENVIRONMENT</b>	
	Northern Tsumeb area, 83 farms abstract groundwater to grow maize, vegetables, wheat, Lucerne, cotton and citrus. More than 0.3Mm <sup>3</sup> /a is pumped from Otjikoto and Guinas Lakes for irrigation (Schmidt & Plothner, 2000). The total current abstraction is unknown.
<b>Location of Lake</b>	– Otjikoto Lake famously called the “Lake of Gold” for the rumoured lost gold at the bottom of this lake is situated in Oshikoto region. It is found on the B1 road, approximately 20km’s North-west of the town Tsumeb.
<b>Climate</b>	<p>Climatic data obtained from the Tsumeb Weather Station, data period 2016 – 2018:</p> <ul style="list-style-type: none"> <li>– Subtropical climate, with an average monthly temperature of 22°C.</li> <li>– Average annual low/high temperature of 9°C/35°C</li> <li>– The average soil temperature 24°C</li> <li>– The average annual rainfall is 520mm.</li> <li>– The average monthly evaporation rate is estimated to be 174mm</li> </ul> <p>Lake Otjikoto is situated in the subtropical bushveld. The mean annual rainfall in the area is 535mm, with occasional thunderstorms during the summer rainfall months (October-March) while the average monthly temperature in summer exceeds 33°C.</p>
<b>Topography</b>	<p>The planned project site is relatively flat with an increased elevation towards the north of the site.</p> <p>The elevation range is 1200 - 1300m above sea level across most of the site and is greater than 1300 in the north of the site.</p> <p>Located in the northern section of the central Namibian Plateau on the north of the Otavi Mountains, which is characterised by a typical karst landscape. Regionally, the topography dips in a northerly direction towards the Omuramba Owambo River, which drains into the Etosha Pan.</p>
<b>Surface &amp; Groundwater</b>	<p>Three different aquifer types can be distinguished within the locality of the site, including a Dolomite Aquifer, a Kalahari Aquifer and aquifers associated with dyke and fault zones. These are most likely hydraulically connected. The groundwater is approximately 68m below surface in the dolomite aquifer and the water table is approximately 1214 – 1222 metres above mean sea level.</p> <p>No major surface runoff occurs in the region and the drainage system is described as poorly developed. No rivers are on the site or surrounding area.</p> <p>During the rainy season, surface water drains from the north to the south of the site. The soil is permeable, and drainage is considered good on the site.</p> <p>Section 6.7 of the (Synergistics Environmental Services, 2013)</p> <p>Figure 3 below renders a map showing the aquifers and the lake in relation to the greater karst system. The boundaries of the GKA (Grootfontein Karst Aquifer) and TKA (Tsumeb Karst Aquifer) numerical models are depicted.</p>

SUMMARY OF LOCAL ENVIRONMENT

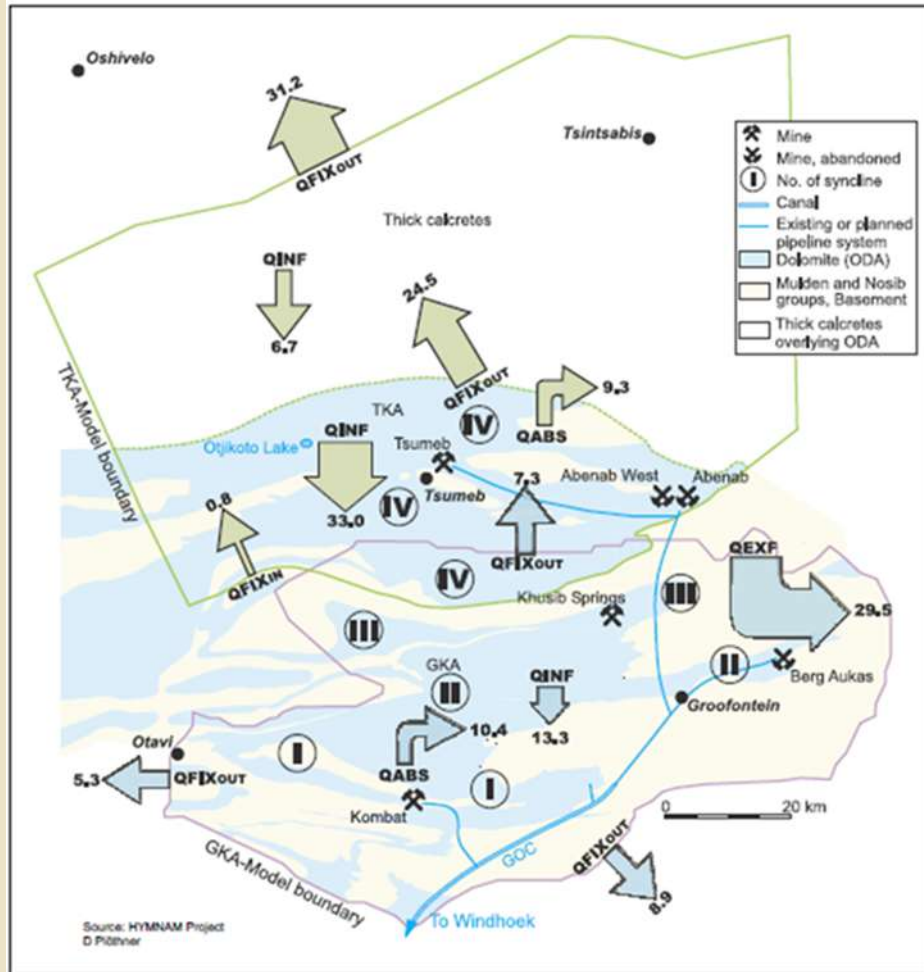


Figure 3. Aquifer model boundaries

The Otavi mountain Land is a dolomitic massive rising up to 2090m above sea level, which is 500m above the surrounding plains. The dolomitic rocks contain interbedded layers of limestone, marl and shale. The strata were moderately folded during the Pan-African Orogeny into several synclines and anticlines generally trending east-west (Bäumle, Himmelsbach & Bufler, 2001).

The Otavi Mountain Land represents a watershed draining westward into Ugab River catchment, northward into the Etosha Pan, south and eastward into the Omatako Omuramba. The permeable phyllites and quartzites of the Tschudi Formation (Tsumeb area) constitute the fractured Mulden Group Aquitard (MGA) with transmissivity values of 3m<sup>2</sup>/d. The dolomites of the Elandshoek and Huttenberg Formation have the highest average transmissivity values of 300 and 1700 m<sup>2</sup>/d respectively and are therefore the most important aquifers in the Tsumeb area.

**Biodiversity and Vegetation Type**

The Karstveld around the Tsumeb area is one of the notable zones of high diversity. The plant diversity in the area has between 400 – 499 species due to the area receiving higher rainfall than other areas in Namibia and the hilly terrain of the surrounding area.

There is potential for various invertebrates, amphibians and reptiles to be found across the site. A total of 169 birds are known to occur within the area, with 14 being

SUMMARY OF LOCAL ENVIRONMENT	
	<p>endemic to the region and three as vulnerable status. 87 mammal species are expected in the area, including eight species of formal Namibian conservation status being confirmed in the area, the Wild Cat (<i>Felis lybica</i>), Damara Dik-Dik (<i>Madoqua kirkii</i>) and Eland (<i>Taurotragus oryx</i>) are common within the vicinity of the site, and three endemics, including the Black Mongoose.</p> <p>Section 6.9 of the (Synergistics Environmental Services, 2013)</p> <p>The vegetation of the surroundings belong to the Mountain Savannah and Karstveld (Giess, 1998), with typical bushveld tree genera such as <i>Combretum</i>, <i>Terminalia</i>, <i>Sclerocarya</i>, <i>Lirkia</i>, <i>Ficus</i>, <i>Peltophorum</i>, <i>Dombeya</i>, <i>Ximenia</i>, <i>Commiphora</i>, <i>Acacia</i>, <i>Croton</i>, <i>Dichrastachys</i>, and <i>Boscia</i> among others. Due to the vertical sides of bare rock there is practically no vegetation directly associated with the lake (Scott, Coorremans, de Wet &amp; Vogal 1991).</p> <p>Many alien fish species have been introduced to Lake Otjikoto. <i>Tilapia guinasana</i> a species of cichlid fish is one example of an alien introduced from the nearby Guinas Lake. <i>Oreochromis mossambicus</i>, <i>Tinca tinca</i>, <i>Poecilia reticulata</i> and <i>Xiphophorus helleri</i> were further introduced to the lake. Other fish species found are <i>Stygobarnardia caprellinoides</i> and <i>Trogloleleupia eggerti</i>, dwarf bream (<i>Pseudocrenilabrus philander philander</i>) and cichlid. The mollusc <i>lymnaea columella</i> is also present in Lake Otjikoto.</p> <p>The only living creatures to inhabit the surrounding rocks are numerous bats (Irish, 1990) while some wild animals such as Kudu's and small antelopes can be found further away from the lake. Occasionally, there is evidence of mega herbivores such as the Elephants that come from the Etosha National Park, due to its proximity to the lake and predators.</p>
<b>Soils and Geology</b>	<p>Geology consists of a succession of predominantly carbonate rocks (limestone and dolomite) of the Otavi Group, underlain and overlain by the Damara supergroup and the Gariiep complex.</p> <p>Lake Otjikoto is a collapsed sinkhole (dolina) in the dolomites of the Maieberg Formation and is one of two only permanent lakes in Namibia. The lake has a diameter of 100m and a depth of more than 75m (although in some places the depth exceeds 100m), covers a surface area of 7 075m<sup>2</sup> and varies in depth from 62m at the sides to 71m at the centre. It continues to weather at the slow pace of eternity and provides direct contact to the groundwater. The Lake falls within the Karstveld area, which is an area in Northern Namibia where the geology consists mainly of outcrops and sub-crops of dolomite and limestone of the Otavi Group (Damara sequence). Lake Otjikoto is found within the Karstveld proper, which is the area that comprises the Otavi mountains and the country westwards through the northern parts of Outjo District as far as Otjovasandu (Irish, 1990).</p> <p>A generalised geological map of the Otavi Mountain Land is rendered in Figure 4 below.</p>



## 4. ENVIRONMENTAL IMPACT ASSESSMENT

### 4.1. PURPOSE OF AN EIA

The EIA process in Namibia is governed and controlled by the Environmental Management Act, 2007 and the EIA Regulations No. 30 of 2012, which is administered by the Office of the Environmental Commissioner through the DEA of the MET.

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

### 4.2. THE ASSESSMENT PROCESS

The EIA methodology applied to this EIA has been developed using the IFC standards and models, in particular, Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012); Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 25 years of combined EIA experience. ECC's methodology is presented in Appendix C and referred to in the following sections.

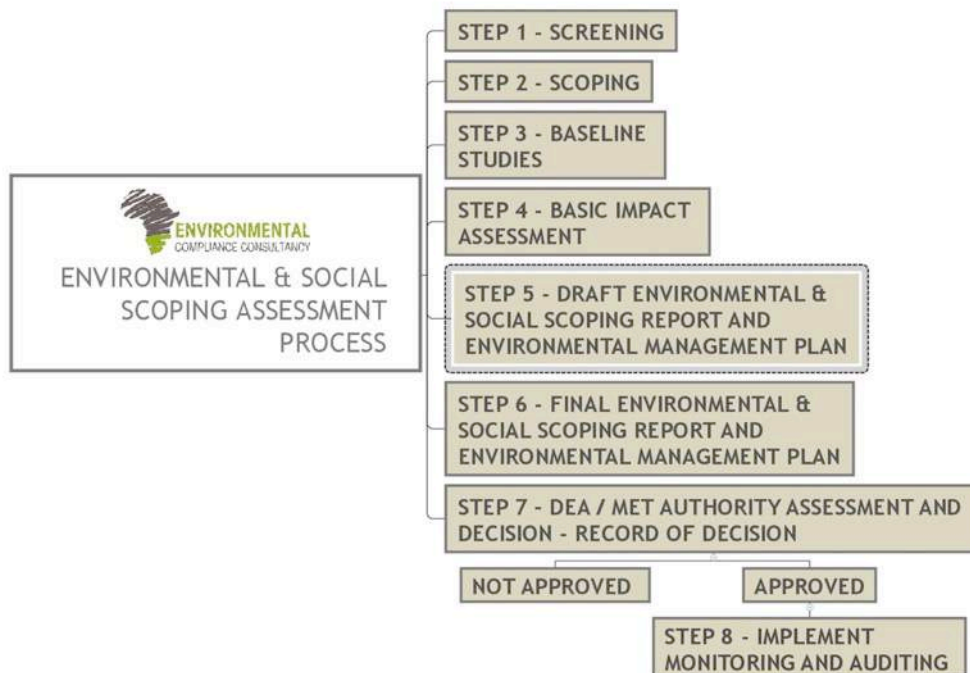


Figure 5 – EIA Process



#### 4.2.1. SCREENING OF THE PLANNED PROJECT

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

Through screening, the planned project was identified as a Listed Activity; however, significant effects will unlikely arise as a result of project activities. Therefore, it was concluded that an EIA Scoping Report was required and deemed sufficient, and no further work (detailed assessment) would be required, however, this would be confirmed during the scoping assessment stage.

The project registration and accompanying notification letter that sets out the approach of the EIA for the planned project was made to the MAWF and MET DEA, which can be found in Appendix D on the 12<sup>th</sup> December 2018.

#### 4.2.2. SCOPING OF THE ENVIRONMENTAL ASSESSMENT

The purpose of the scoping stage in the EIA process is to identify the scope of assessment; undertake a high-level assessment to identify potential effects; confirm if further investigation is required to assign the severity of potentially significant effects and appropriate mitigation; and if not, determine if an Environmental Clearance Certificate should be granted.

This report presents the findings of the scoping phase and high-level assessment and confirms that no further investigation is required. This conclusion is presented in Section 4.4.

##### 4.2.2.1. BASELINE STUDIES

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

For the planned project, baseline information was obtained through a desk-based study, focussing on environmental receptors that could be affected by the planned project, as well as engaging with the proponent who owns the farm. The baseline was presented in Section 3.5.

##### 4.2.2.2. IMPACT PREDICTION AND EVALUATION

Impact prediction and evaluation involves predicting the possible changes to the environment as a result of the development/project. The methodology presented in Appendix C was applied to determine the magnitude of impact and whether or not the impact was considered significant or if further investigation was required. The findings of the high-level assessment are presented in Section 4.4.

### 4.3. CONSULTATION

Public participation and consultation is a requirement stipulated in Section 21 of the Environmental Management Act, 2007 and associated regulations for a project that requires an Environmental Clearance Certificate. Consultation is a compulsory and critical component in the EIA process in achieving transparent decision-making and can provide many benefits.

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

Evidence of public consultation is contained in Appendix E.

#### 4.3.1. NEWSPAPER ADVERTISEMENTS

Notices regarding project and associated activities were circulated in two newspapers namely the 'Namibian' on the 26<sup>th</sup> September and 3<sup>rd</sup> October in the 'Informanté' on the 13<sup>th</sup> to 19<sup>th</sup> of September. The purpose of this was to commence the consultation process and enable I&APs to register an interest with the project.

#### 4.3.2. BACKGROUND INFORMATION DOCUMENT

The Background Information Document (BID) presents a high-level description of the planned project; sets out the EIA process and when and how consultation is undertaken, and contact details for further enquiries and is made available to all registered I&APs.

#### 4.3.3. SITE NOTICES

A site notice ensures neighbouring properties and stakeholders are made aware of the planned project. The notice was set up at the main entrance of the farm as illustrated in the photos in Appendix E.

#### 4.3.4. CONSULTATION FEEDBACK

Three people registered as I&APs during the above consultation process. Two farmers registered for the project, comments and responses from the registered I&AP on the scoping report and EMP will be addressed in the preparation of the final documents. They will provide input during the public review period.

### 4.4. ENVIRONMENTAL ASSESSMENT FINDINGS

#### 4.4.1. SCOPING ASSESSMENT FINDINGS

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

- Surface water and groundwater (including geomorphology)
- Soils and geology
- Landscape (visual impacts, change in landscape, sense of place)
- Socio-economics (employment, local businesses, community, demographics & tourism, land use)
- Noise
- Ecology (aquatic, fauna & flora)
- Human environment (infrastructural services, traffic, and transport)
- Air Quality (including dust)
- Cultural Heritage and Palaeontology resources

The source-pathway-receptor model was applied to evaluate the potential impacts of the planned project and determine if further assessment is required.

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

Table 6 sets out the findings of the scoping assessment phase. Activities that could be the source of an impact have been listed, followed by receptors that could be affected and then the potential effect/s. The pathway between the source and the receptor has been identified where both are present. Where an activity and/or receptor have not

been identified, an impact is unlikely, thus no further assessment or justification provided. Where the activity, receptor, and pathway have been identified, a justification has been provided documenting if further assessment is required or not required.

**Table 6 – Scoping Assessment Findings**

ASPECT	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
Surface and Groundwater	<ul style="list-style-type: none"> <li>- Vegetation clearing and ground preparations</li> <li>- Operations - use of plant and equipment potential loss of containment</li> </ul>	<ul style="list-style-type: none"> <li>- Local drainage of the site</li> <li>- Surface / Groundwater resource</li> </ul>	<ul style="list-style-type: none"> <li>- Pollution entering the environment from plant and equipment</li> <li>- Pollution entering the environment from the use of fertilisers and pesticides</li> <li>- Direct changes to the topography, land use and drainage patterns from the mechanical preparation of the area.</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for changes to natural drainage leading to increased surface runoff during rainfall events may lead to localised flooding.</li> <li>- Loss of hydrocarbons could contaminate surface / groundwater</li> <li>- Accumulation of herbicides / pesticides entering the groundwater</li> </ul>	<ul style="list-style-type: none"> <li>- Through appropriate land management for crop production e.g. tilling, the risk of this effect occurring is considered to be very low.</li> <li>- No likely effects on the recharge of groundwater due to the geology of the area, and plant uptake of water. The irrigation method will ensure that maximum water uptake through plant absorption is as effective as possible to ensure minimal water loss through inefficient irrigation processes.</li> <li>- Unlikely for hydrocarbons, herbicides, pesticides and fertilisers to reach the groundwater due to depth and hydrogeology. Furthermore the use of fertilisers will be well controlled to ensure maximum efficiency and waste minimisation. Fertiliser wastage is not economical and therefore wasteful practices that have cost implications to the farmer are unlikely.</li> <li>- Mitigation measures implemented through the EMP to avoid loss of containment specifically relating to chemicals and hydrocarbons.</li> <li>- No surface water features present.</li> <li>- Additional use of surface water from the lake will optimize benefits and reduce economic risks. Environmental risk in the form of unsustainable abstraction is not in the best interest of the proponent so mitigation and monitoring procedures will be in place to provide early warning signs of unsustainability.</li> </ul>

ASPECT	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
					<ul style="list-style-type: none"> <li>- <b>No further assessment required, as the probability of significant impacts from this project relating to surface and groundwater are considered low.</b></li> </ul>
Soils and geology	<ul style="list-style-type: none"> <li>- Growing crops</li> <li>- Use of plant and equipment potential</li> <li>- Minor earthworks (pits)</li> <li>- Vehicle movements on the irrigation site and local gravel roads</li> </ul>	<ul style="list-style-type: none"> <li>- Ground and soil (contamination)</li> <li>- Reduction of soil quality</li> </ul>	<ul style="list-style-type: none"> <li>- Wind-blown erosion on bare soil after land clearing and prior to planting of crops</li> <li>- Surface water runoff from rainfall events</li> <li>- Pollution entering environment and spilling on to ground</li> </ul>	<ul style="list-style-type: none"> <li>- Wind and rainfall events may lead to soil erosion</li> <li>- Changes to the drainage of the site may result in surface water runoff leading to soil quality reduction</li> <li>- Use of chemicals may contribute to soil quality reduction</li> </ul>	<ul style="list-style-type: none"> <li>- Mitigation measures recommended in the EMP to avoid loss of containment and best practice measures for fertilizers, herbicides and pesticides shall be applied.</li> <li>- <b>A detailed assessment is not required, however, due to the uncertainty surrounding the risk of reducing soil quality, further investigation is recommended as part of the monitoring programme.</b></li> </ul>
Landscape	<ul style="list-style-type: none"> <li>- Change of land use to agriculture from current bush encroached land</li> </ul>	<ul style="list-style-type: none"> <li>- Farming activities</li> </ul>	<ul style="list-style-type: none"> <li>- Views from the access road</li> </ul>	<ul style="list-style-type: none"> <li>- Changes of land use</li> </ul>	<ul style="list-style-type: none"> <li>- Views from the road shall not be affected as the land was previously cleared for crop production.</li> <li>- It is not considered as a sensitive receptor.</li> <li>- <b>Due to the lack of sensitive receptors, no further investigation is required.</b></li> </ul>
Socio-economics	<ul style="list-style-type: none"> <li>- Change of land use</li> <li>- Creation of local jobs</li> <li>- Production of crops / food</li> </ul>	<ul style="list-style-type: none"> <li>- Local community</li> <li>- Local and national economy</li> <li>- Population</li> </ul>	<ul style="list-style-type: none"> <li>- Direct and indirect pathways on society and economy</li> </ul>	<ul style="list-style-type: none"> <li>- Benefit effect on the local and regional economy</li> <li>- Increased local food production and reduce reliance in imports</li> </ul>	<ul style="list-style-type: none"> <li>- <b>No further assessment required, as there is a low probability of significant adverse impacts to the economy and society occurring. Positive impacts are anticipated for the project; as such no further assessment on positive impacts is required.</b></li> </ul>

ASPECT	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
				<ul style="list-style-type: none"> <li>- New jobs and indirect local spends</li> <li>- Increased agricultural skills in the area</li> <li>- Reduce bush encroachment in local area and optimize land use</li> <li>- Diversification of land use activities and income.</li> </ul>	
Noise	<ul style="list-style-type: none"> <li>- Vegetation clearance and ground preparation operations</li> <li>- Use of farm and harvesting equipment</li> <li>- Vehicle movements on the irrigation site and local gravel roads</li> <li>- Some vehicle movements off site to transport produce</li> </ul>	<ul style="list-style-type: none"> <li>- People/communities</li> <li>- Ecological receptors</li> </ul>	<ul style="list-style-type: none"> <li>- Noise carrying to receptors within 200m</li> </ul>	<ul style="list-style-type: none"> <li>- Neighbours are engaged in similar farming activities</li> </ul>	<ul style="list-style-type: none"> <li>- Nearest human receptors are farm houses similar to those on Farm Tsumore.</li> <li>- Nearest community is outside the farm area &gt;15km, where perceptible noise changes would not be heard</li> <li>- Sensitive animals, birds and insects etc. can move away from the area.</li> <li>- Short duration, isolated and small change to the baseline are anticipated. Neighbouring farmers are unlikely to hear operations on site.</li> <li>- <b>No further assessment required, as there is a low probability of noise emission significantly impacting sensitive receptors.</b></li> </ul>
Ecology	<ul style="list-style-type: none"> <li>- Vegetation clearance and ground preparations</li> </ul>	<ul style="list-style-type: none"> <li>- No known protected species of flora and fauna</li> </ul>	<ul style="list-style-type: none"> <li>- NA</li> </ul>	<ul style="list-style-type: none"> <li>- None identified</li> <li>- Previously cleared ground is being re-</li> </ul>	<ul style="list-style-type: none"> <li>- Sensitive animals, birds and insects etc. can move away from the area.</li> <li>- Habitat is not considered a disturbed and</li> </ul>

ASPECT	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
	<ul style="list-style-type: none"> <li>operations</li> <li>- Changes to vegetation</li> <li>- Vehicle movements</li> </ul>	<ul style="list-style-type: none"> <li>- Limited biodiversity</li> </ul>		cleared.	<ul style="list-style-type: none"> <li>previously affected site. Unlikely for any loss of biodiversity or displacement of animals.</li> <li>- Minimal impacts on habitat connectivity.</li> <li>- Protected species shall be identified and measures for conservation or removal shall be recorded in the Harvesting Permit as issued by the MAWF.</li> <li>- <b>No further assessment required, as there is a low probability of significant impacts to the ecological receptors occurring.</b></li> </ul>
Air Quality – Dust	<ul style="list-style-type: none"> <li>- Vegetation clearance and ground preparations operations</li> <li>- Use of farm and harvesting equipment</li> <li>- Vehicles movements on gravel roads</li> <li>- Exposed soils after harvesting</li> </ul>	<ul style="list-style-type: none"> <li>- People/communities</li> <li>- Flora &amp; Fauna</li> </ul>	<ul style="list-style-type: none"> <li>- Dust limit to travel &lt;1km</li> </ul>	<ul style="list-style-type: none"> <li>- None identified</li> </ul>	<ul style="list-style-type: none"> <li>- Nearest human receptor is the national road.</li> <li>- Nearest urban community more than 20km to the south east.</li> <li>- Any dust created shall be localised and not affect potential receptors.</li> <li>- During times when the ground is left fallow and west winds predominate dust suppression using water may be necessary. This will prevent any dangerous driving conditions on the national road.</li> <li>- <b>No further assessment required, as there is a low probability of aerial emission significantly impacting sensitive receptors.</b></li> </ul>
Cultural Heritage and Palaeontology resources	<ul style="list-style-type: none"> <li>- Ground preparation activities</li> </ul>	<ul style="list-style-type: none"> <li>- No known artefacts or heritage remains.</li> </ul>	<ul style="list-style-type: none"> <li>- NA</li> </ul>	<ul style="list-style-type: none"> <li>- None identified</li> </ul>	<ul style="list-style-type: none"> <li>- Chance find procedures contained in the EMP.</li> <li>- <b>No further assessment required, as there is a low probability of significant impacts on sensitive heritage receptors.</b></li> </ul>

ASPECT	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
Cumulative Effects	The combined environmental effects as a result of the activities of the planned project are considered low and would not result in a significant adverse effect on any receptor identified above. The effects of the planned project in combination with other projects on the farm or projects outside of the farm boundary are considered to be low due to the limited number of other projects in the area and likely effects on the same sensitive receptors.				

Due to the nature and scale of the planned project and the absence of sensitive receptors, the predicted effects arising from the anticipated activities would most likely be localised and would not fundamentally alter the surrounding environment, thus not be considered as a significant effect. The only area where uncertainty remained during the scoping phase was the potential effect on soil quality due to the planned activities. Further consideration of the potential effects on soil quality was therefore undertaken and is presented in the next section.



#### 4.4.2. FURTHER CONSIDERATION: SOIL QUALITY MONITORING

In Namibia, soils are generally rich in material derived from physical weathering and tend to contain little organic matter because of the water-holding capacity. According to the FAO Unesco Soil Map of the World (FAO-Unesco, 1974), about one-third of Namibia is covered by extremely erodible Leptosols, soils on which the majority of the commercial farmland is situated.

The fertility of the soils on the planned project site and local area are need to be assessed. The clay and silt fractions, organic matter, nitrogen, cation exchange capacities and trace element values need to be assessed. The Ministry of Agriculture, Water and Forestry (MAWF) need to advise on the assessment that needs to be carried out and at what frequency. The requirements need to be included in the Draft EMP once the ministry, as the competent authority have reviewed the EIA Report and Draft EMP during the public review period.

Soil quality could be affected as a result of the change of land use. Through changing land use, the following shall occur which could contribute to a reduction in soil quality (reduction in nutrients and microorganisms, accumulation of chemicals or contamination):

- Vegetation clearing;
- Soil tilling to achieve suitable conditions to grow crops;
- Change to natural drainage and local topography altering surface runoff (water soil erosion and sedimentation);
- Chemical use (fertilisation, herbicides and pesticides);
- Harvesting activities and practices, including the use of heavy plant and equipment (soil erosion, loss of containment), exposed soil after harvesting (wind erosion) and poor soil management; and
- Poor harvesting practices.

The following monitoring and assessment measures have been identified in addition to those presented in the EMP. These need to be reviewed by the competent authority and any additions need to be included in the Draft EMP prior to submission to MET for an application for environmental clearance. The importance of these aspects will be communicated to the proponent to ensure environmental effects are minimised as reasonably practicable.

- Plant crops suitable to the soil quality and climate;
- Obtain water quality results through quarterly sampling; and
- Sample soil every three years and have it tested for nutrient levels and other characteristics to ensure maximum yield potential as well as to detect soil deficiencies or overburdening.

#### 4.5. ENVIRONMENTAL MANAGEMENT PLAN

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

The management measures should be adhered to during the various phases of the agricultural processes. All personnel taking part in the operations of the planned project should be made aware of the contents of the EMP, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

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

#### 4.6. ASSESSMENT CONCLUSIONS

The scoping assessment focussed on the environmental and social receptors that would likely be affected by the planned project. Due to the nature and scale of the project and associated activities, the sensitivity of the receiving environment and the predicted magnitude of change to the receiving environment, it is unlikely that significant environmental and social impacts will occur. Through the implementation of mitigation measures set out in the Draft EMP (see Appendix A) and additional ones presented in Section 4.4.2 above any minor environmental and social impacts can be avoided or reduced or assessed on an ongoing basis.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The environmental assessment that was undertaken for the planned project followed ECC's EIA Methodology to identify if there is potential for significant effects to occur as a result of the planned project. Through the scoping process, the two risks to the environment were the potential for soil quality and the lake's sustainable yield to be affected. All other social and environmental receptors were deemed unlikely recipients of significant effects. Various best practice and mitigation measures have been identified to avoid and reduce effects as far as reasonably practicable, as well as ensure the environment is protected and unforeseen effects are avoided.

**On this basis, it is of the opinion of ECC that an Environmental Clearance Certificate could be issued, on conditions that the management and mitigation measures specified in the Draft EMP are implemented and adhered to. This report is issued to all IAPs and any recommendations or concerns will be considered. Any required changes to the report and Draft EMP will be made prior to submission of the report to the environmental commissioner for approval of the environmental clearance.**

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## **APPENDIX A: ENVIRONMENTAL MANAGEMENT PLAN**



**ENVIRONMENTAL**  
COMPLIANCE CONSULTANCY



ECC DOCUMENT CONTROL: ECC-83-168-REP-08-A

# **Environmental Management Plan**

**Planned Irrigation Project on Farm Tsumore 761**

*PREPARED FOR*

**OSHIKOTO LAKE GREENS (PTY) LTD**

DECEMBER 2018

## TITLE AND APPROVAL PAGE

<b>Project Name:</b>	Planned irrigation project on the Tsumore Farm, using water from the Otjikoto Lake, Oshikoto Region
<b>ECC Project Reference:</b>	ECC-83-168-REP-08-A
<b>Client Name:</b>	Oshikoto Lake Greens (Pty) Ltd
<b>Ministry Reference:</b>	NA
<b>Status of Report:</b>	Client and Public Review
<b>Date of issue:</b>	December 2018
<b>Review Period</b>	December 2018

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**DEFINITIONS AND ABBREVIATIONS**

EAP	Environmental Assessment Practitioner
ECC	Environmental Compliance Consultancy
EMA	Environmental Management Act
EMP	Environmental and Social Management Plan
I&AP	Interested and affected parties
PPE	Personnel Protective Equipment
PM	Property Manager
ID	Identification

# 1. INTRODUCTION

## 1.1. PROJECT BACKGROUND

The project site is located on the Farm Tsumore 761 Unit B, Portion 48, Oshikoto Region, Namibia. The Farm is near the Otjikoto Lake and the primary landuse is crop farming. The nearest urban community is Tsumeb to which the produce from the farm is taken primarily.

The expected increase in water abstraction from the Lake is from 200 000 cubic metres to 370 000 cubic metres. This increase in water usage will be for the expansion of the land area under irrigation. The area under drip irrigation will increase by 25 hectares and that under centre pivot irrigation will increase by 28 hectares. The project will entail the clearing and preparation of 53ha of land, the construction of small access tracks and agricultural infrastructures such as fences, pumphouses and additional water conveyance and irrigation systems. Farm Tsumore is located approximately 20km north west of Tsumeb as illustrated on Figure 1. Figure 2 renders a map of the area that will be developed with the expansion irrigation scheme.

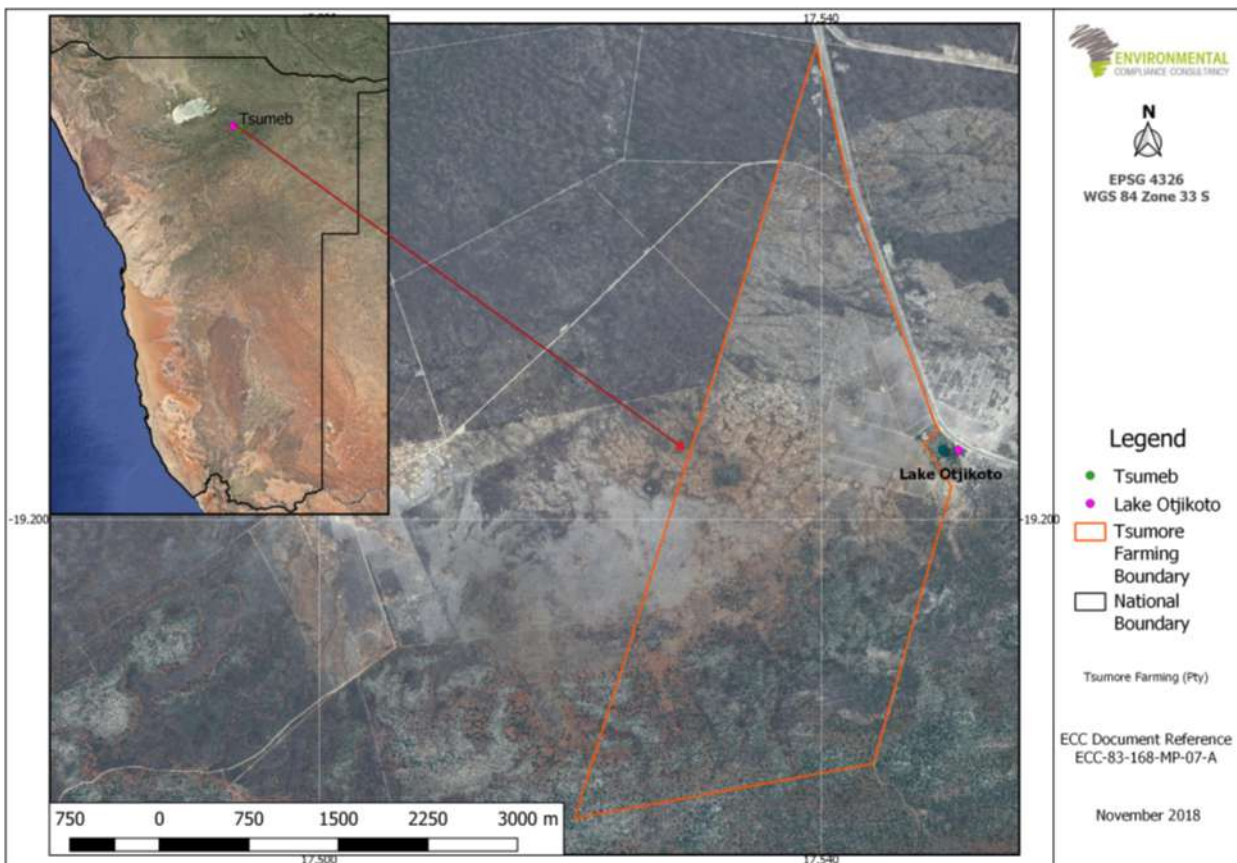


Figure 1. Planned Project Location.

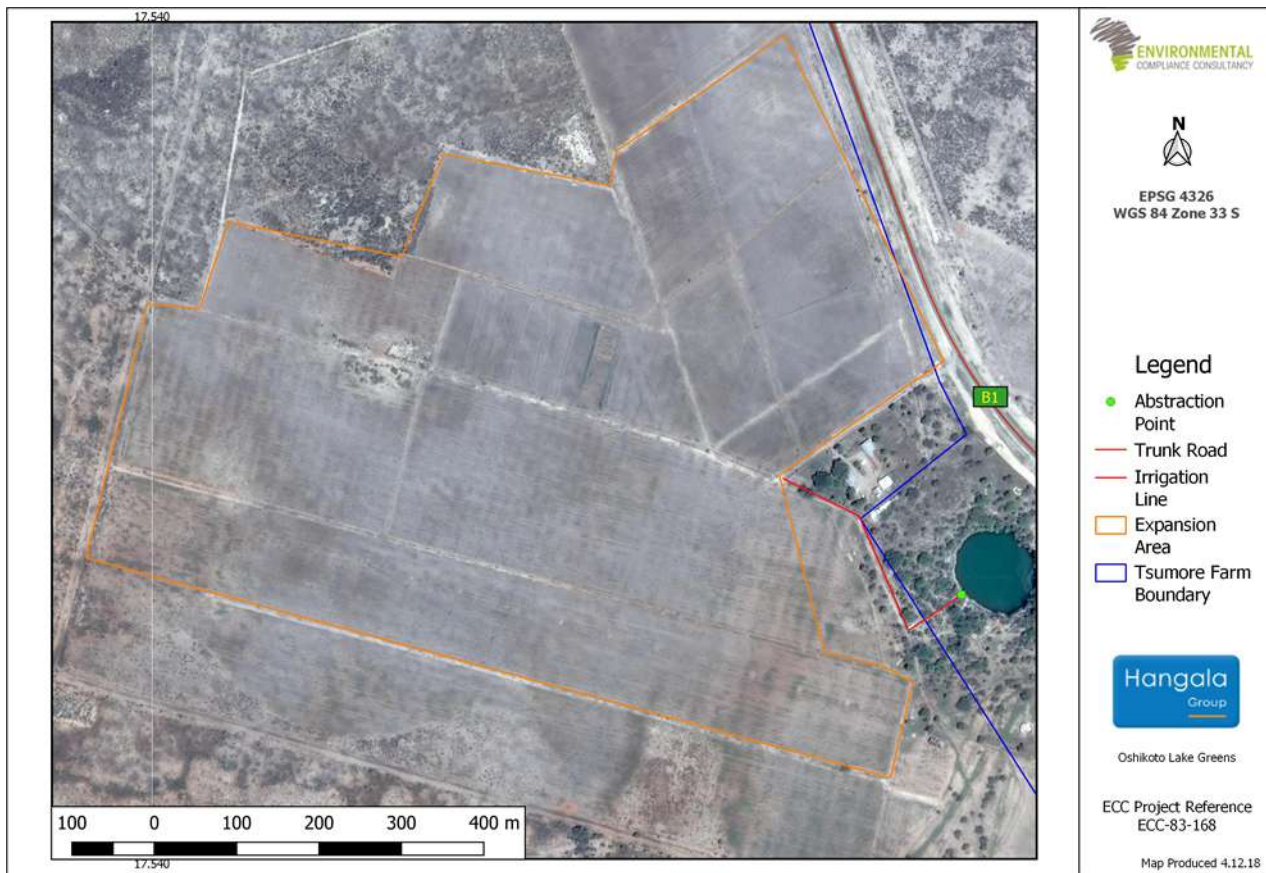


Figure 2. Layout of expansion area.

## 1.2. ENVIRONMENTAL REGULATORY REQUIREMENTS

The proposed project is considered as a Listed Activity as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (Act No. 7 of 2007) (referred to herein as the EIA Regulations). As a Listed Activity an application for an Environmental Clearance Certificate is required. An Environmental Scoping Report and Draft Environmental Management Plan (EMP) are required as part of the Environmental Clearance Certificate application, as well as to support the decision-making process. This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, 2007 and associated Regulations.

## 1.3. PURPOSE AND SCOPE OF THIS REPORT

The purpose of this EMP is to provide a management framework for the planning and implementation of the construction, operation and decommissioning activities for the proposed project so that potential environmental and social impacts are mitigated, prevented and minimised as far as reasonably practicable, and that statutory requirements and other legal obligations are fulfilled. This EMP also presents protocols and procedures, and roles and responsibilities to ensure the management arrangements are appropriately and effectively implemented.

This EMP forms an appendix to the Environmental Scoping Report and has been based on the findings of the assessment; therefore, the Environmental Scoping Report should be referred to for further information on the proposed project, assessment methodology, applicable legislation and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, and/or updated when the scope of works alters, or when further data / information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes the duration of the project life: construction, operation and decommissioning. The owners of Farm Tsumore shall be responsible for each phase of the project and the implementation of this EMP. The current understanding of each phase is as follows:

- **Construction phase:** Vegetation clearing, ground preparation and creation of irrigation infrastructure.
- **Operational phase:** Management of crops, harvesting, pest control, application of fertilisers and the maintenance of irrigation infrastructure.
- **Decommissioning phase:** The decommissioning and reinstatement plan for the proposed project is unknown at this stage.

#### 1.4. MANAGEMENT OF THIS EMP

The proponent (owners of Farm Tsumore) will hold the Environmental Clearance Certificate for the proposed project and shall be responsible for the implementation and management of this EMP. Prior to the construction works commencing, this EMP shall be reviewed, amended as required and approved ready for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities and monthly inspections.

This EMP shall be circulated to all contractors and shall be made available on the Environmental Compliance Consultancy's website.

#### 1.5. LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS OF THIS EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the Environmental Scoping Report. Where the design or construction methods vary, this EMP may require updating and potential further assessment undertaken.

#### 1.6. ENVIRONMENTAL CONSULTANCY

Environmental Compliance Consultancy (ECC), a Namibian consultancy registration number 2013/11401, has prepared this EMP on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa, in the public and private sector. ECC is independent of the proponent and has no vested or financial interest in the proposed project.

#### 1.7. STRUCTURE OF THIS EMP

The following structure has been adopted for this Report:

- Chapter 1 – Introduction
- Chapter 2 – Project Management and Personnel
- Chapter 3 – Communications and Training
- Chapter 4 – Reporting, Compliance and Enforcement
- Chapter 5 – Environmental and Social Management
- Chapter 6 – Implementation of the EMP

## 2. PROJECT MANAGEMENT AND PERSONNEL

### 2.1. FARM TSUMORE 761

The proponent shall provide a Project Team to oversee and undertake the preparation and construction works, which shall be composed of the proponent’s personnel and contractors. A nominated role shall be identified to ensure maintenance of the proposed project is undertaken through the operational phase and prior to the project moving into the decommissioning / rehabilitation phase.

### 2.2. ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The proponent shall be responsible for:

- Ensuring all members of the Project Team, including contractors, comply with the procedures set out in this EMP;
- Ensuring that all personnel is provided with sufficient training, supervision and instruction to fulfil this requirement; and
- Ensuring that any person allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above.

The key personnel and environmental responsibilities of each role are presented in Table 1.

**Table 1 – Key Roles and Responsibilities**

ROLE	RESPONSIBILITY & DUTIES
Proponent /Farm owners	<ul style="list-style-type: none"> <li>- Overall responsibility for the implementation and management of this EMP.</li> <li>- Ensure environmental policy is communicated to all personnel throughout the proposed project.</li> <li>- Responsible for providing the required resources (including financial and technical) to complete the required tasks.</li> </ul>
Project Manager	<p>The current Farm Manager will most likely fulfil this role. He/She is responsible for ensuring compliance to this EMP, including the overseeing of the construction works, day to day activities during operations, and routine and non-routine maintenance works during operations, as and lastly, the decommissioning of the development. Specifically the responsibilities include the following:</p> <ul style="list-style-type: none"> <li>- Ensuring all personnel are aware of the commitments made in this EMP and any other relevant regulatory requirements applicable to the project;</li> <li>- Responsible for the management, maintenance and revisions of this EMP Ensuring adequate resources are made available for implementation of this EMP;</li> <li>- Maintain the community issues and concern register, and keep records of complaints.</li> <li>- Ensuring all employees and contractors participate in a site induction process prior to commencing work on the project;</li> <li>- Maintain up to date register of employees who have completed the site induction; and</li> <li>- Provisioning of environmental awareness/management training and</li> </ul>

ROLE	RESPONSIBILITY & DUTIES
	inductions for all employees; – Ensuring that best environmental practice is undertaken throughout the duration of the project; – Report any non-compliance or accidents to the Regulatory Authority.
Site Manager/ Contractors	Appointed to manage the performance of the construction and operational maintenance activities. Responsible for the implementation of this EMP and ensuring all activities are compliant with this EMP, as well as: – Managing the preparation and implementation of method statements for certain activities, and ensuring the Environmental Manager reviews all method statements and the relevant environmental protocols are incorporated; – Reporting any non-compliance or accidents to the PM and Environment Manager; – Ensuring that all staff have attend a site induction session before commencement of any work on site and that they are adequately informed of the requirements of this EMP; – Ensuring that all contract workers, sub-contractors and visitors to the site are conversant with the requirements of this EMP, relevant to their roles on site and adhere to this EMP at all times; and – Receiving, responding to and recording complaints.
Employees / Contractor employees	Responsible for being compliant with this EMP throughout the construction works, in addition to: – Ensuring they have undertaken a site induction and are conversant with the requirements of this EMP; – Ensuring appropriate briefings for certain activities have been provided and fully understood; – Adherence to this EMP at all times; – Reporting of any operations and conditions that deviate from the EMP or any non-compliant issues or accidents to the Environment Manager, and Site Manager/Contractor.

### 2.3.CONTRACTORS

Any contractors hired during the construction works or maintenance activities during the operational phase shall be compliant with this EMP, and shall be responsible for the following:

- Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements;
- Implementing appropriate environmental and safety management measures;
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the Site Manager and/or PM; and
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

## 2.4.EMPLOYMENT

The proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government, community, stakeholders and relevant authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for construction / maintenance contract employment positions;
- The number of job opportunities shall be made known together with the associated skills and qualifications;
- Foreign workers with no proof of permanent legal residence shall not be hired; and
- Every effort shall be made to recruit from the pool of unemployed workers living in the local area.

### 3. COMMUNICATIONS AND TRAINING

#### 3.1. COMMUNICATIONS

During construction, the PM and Site Manager shall communicate site wide environmental issues to the Project Team through the following means (as and when required):

- Site induction;
- Audits and site inspections;
- Toolbox talks, including instruction on incident response procedures; and
- Key project specific environmental issues briefings.

This EMP shall be distributed to the Construction Project Team, including contractors, to ensure that the environmental requirements are communicated effectively. Key activities and environmentally sensitive operations shall also be briefed to workers and contractors.

During the construction phase, regular communications between the management team shall include discussing any complaints received and actions to resolve them; any inspections, audits or non-conformance with this EMP; and any objectives or target achievements.

#### 3.2. COMPLAINTS HANDLING AND RECORDING

Any complaints received verbally by any personnel on the project site shall be recorded by the receiver, including the name and contact details of the complainant, date and time of the complaint, and the nature of complaint. The information shall be given to the Project Manager who is overall responsible for the management of complaints and will provide a written response to the complainant. The PM shall inform the Site Manager of issues, concerns or complaints.

The PM shall maintain a complaint's register that will detail the name and contact details of the complainant, date and time of the complaint, nature of complaint, action taken to resolve issues, and date of complaint handover. The PM shall be responsible for nominating the correct personnel to co-ordinate and resolve the issue.

The workforce shall be informed about the complaints register, its location and the person responsible, in order to refer local residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the duration of the project and will be available for government or public review upon request.

#### 3.3. TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training and experience.

All personnel involved in the project shall be inducted to the site with specific environment and social awareness training, and health and safety issues. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The PM shall ensure a register of completed training is maintained.



The Site Induction should include, but not limited to the following:

- A general site-specific induction that outlines:
  - o What is meant by “environment” and “social”;
  - o Why the environment needs to be protected and conserved;
  - o How construction activities can impact on the environment;
  - o What can be done to mitigate against such impacts;
- The inductee’s role and responsibilities with respect to implementing the EMP;
- The site environmental rules;
- Details of how to deal with, and who to contact if environmental problems should they occur;
- Basic vegetation clearing principles and species ID sheets;
- The potential consequences of non-compliance with this EMP and relevant statutory requirements; and
- The role of responsible people for the project.

## 4. REPORTING, COMPLIANCE AND ENFORCEMENT

### 4.1. ENVIRONMENTAL PERFORMANCE MANAGEMENT

#### 4.1.1. SUMMARY OF ENVIRONMENTAL RISKS AND MITIGATION MEASURES

Chapter 5 provides a Register of Environmental Risks and Issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the PM and updated when necessary.

The PM and Site Manager will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

#### 4.1.2. CONSTRUCTION: ENVIRONMENTAL INSPECTIONS & COMPLIANCE MONITORING

##### 4.1.2.1. DAILY COMPLIANCE MONITORING

A copy of this EMP shall be on site throughout the construction works and shall be available upon request. It is the responsibility of the PM and Site Manager to ensure this EMP is complied with through their daily roles. Daily inspections will be undertaken by the Site Manager (or nominated site supervisor). Any environmental problems or risks identified shall be notified to the PM and actioned as soon as is reasonably practicable.

##### 4.1.2.2. MONTHLY COMPLIANCE MONITORING

Monthly inspections shall be undertaken by the Site Manager to check that the standards and procedures set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: brief description of non-conformance; the reason for the non-conformance; the responsible party; the result (consequence); and the corrective action taken and any necessary follow up measures required.

#### 4.1.3. OPERATIONS: ENVIRONMENTAL INSPECTIONS & COMPLIANCE MONITORING

Annual inspections of the irrigation system and water pipeline, and storage facilities (fertilisers and pesticides) will be managed and undertaken by the PM. All infrastructure will be inspected to ensure plant and equipment are operating as per specification; no damage has been caused; and no leaks or spills have occurred. Any non-conformance shall be recorded, including the following details: brief description of non-conformance; the reason for the non-conformance; the responsible party; the result (consequence); and the corrective action taken and any necessary follow up measures required.

## 4.2. REPORTING

There shall be a requirement to ensure that any incident or non-compliance, including any environmental issue, failure of plant and equipment that perform an environmental function or accident, is reported to the PM.

## 4.3. NON-COMPLIANCE

#### 4.3.1. NON-COMPLIANCE EVENT

Where it has been identified that works are not compliant with this EMP, the PM shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a Non-Conformance and Corrective Action Notice shall be produced. The Notice shall be generated during the inspections and the PM shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event / situation, for example, is considered if:

- There is evidence of contravention of this EMP and associated indicators or objectives;
- The Site Manager and/or Contractor have failed to comply with corrective or other instructions issued by the PM or qualified authority; or
- The Site Manager and/or Contractor fail to respond to complaints from the public.

Works shall be stopped in the event of a non-compliance, until the corrective action(s) has been completed.

#### 4.3.2. DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- Fines / penalties;
- Legal action;
- Monetary penalties imposed by the proponent on the contractor;
- Withdrawal of license/s; and
- Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

### 4.4. ENVIRONMENTAL PERMITS

#### 4.4.1. ECOLOGY

Article 23 (b) of the Forest Act, 2001 and associated Regulations, states that the clearing of vegetation on an area of land greater than 15 hectares will require a permit. This will include the removal of any protected or important species. An application has been made to the Directorate of Forestry, under MAWF for the clearance of 100ha. Permits shall be obtained throughout the duration of vegetation clearance and the proponent shall undertake all activities in line with the conditions stipulated in the permit.

#### 4.4.2. WATER ABSTRACTION

Whilst the Water Resources Management Act, 2013 is not enforced, it is best practice to adhere to the stipulations while ensuring compliance to the Water Act of 1956 is also maintained. The proponent shall apply for a licence to abstract and irrigate and shall operate in accordance with any conditions in the licence.

## **5. ENVIRONMENTAL AND SOCIAL MANAGEMENT**

### **5.1. OBJECTIVES AND TARGETS**

Environmental objectives for the project are as follows:

- Zero pollution incidents;
- Minimise waste sent to landfill or being burnt;
- Protect local flora and fauna; and
- Use natural resources effectively and efficiently.

### **5.2. REGISTER OF ENVIRONMENTAL RISKS AND ISSUES**

An environmental review of the proposed project has been completed to identify all the commitments and agreements made within the Environmental Scoping Report. From this, a schedule of environmental commitments and risks has been produced (Tables 2 & 3), which details deliverables including measures identified for the prevention of pollution or damage to the environment during the construction phase.

**Table 2 – Construction: Environmental Risks and Issues, and Mitigation and Monitoring Measures**

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Use of Plant and equipment	<ul style="list-style-type: none"> <li>– Odours</li> <li>– Safety</li> <li>– Aerial emissions</li> <li>– Potential loss of oil and fuel causing ground contamination</li> </ul>	<ul style="list-style-type: none"> <li>– Plant and equipment shall be brought onto site as and when required and stored in specific areas.</li> <li>– Amenities (e.g. portable toilets) shall be provided and set up in a suitable location (if required).</li> <li>– A ‘good housekeeping’ policy shall be adopted across the construction and maintenance working areas.</li> <li>– Refuelling shall be undertaken in a designated area whereby spillage is contained on a bunded and impervious surface.</li> <li>– Large drip trays can be used to avoid spillage onto bare surfaces either at refuelling points or at remote sites where oil or hydraulic fluids must be contained during emergency breakdowns.</li> </ul>	<ul style="list-style-type: none"> <li>– Daily observations</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>
	<ul style="list-style-type: none"> <li>– Dust generation</li> </ul>	<ul style="list-style-type: none"> <li>– Use existing access roads and tracks.</li> <li>– Restricted speeds (&lt;30km/hr).</li> <li>– Provide protective masks and eye glasses to employees in dusty working environments.</li> </ul>	<ul style="list-style-type: none"> <li>– Daily observations</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>
	<ul style="list-style-type: none"> <li>– Noise generation</li> </ul>	<p>Noise shall be minimised as much as possible during construction works. The following measures shall be applied:</p> <ul style="list-style-type: none"> <li>– Limit normal operating hours to 07h00 to 18h00 on weekdays and 07h00 until 13h00 on Saturday;</li> <li>– Regular maintenance and servicing of vehicles, plant and equipment; and</li> <li>– All plant to be shut down or throttled back between periods of use.</li> </ul>	<ul style="list-style-type: none"> <li>– Daily observations</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>
Vegetation Clearance	<ul style="list-style-type: none"> <li>– Alien species</li> </ul>	<ul style="list-style-type: none"> <li>– Ensure the correct removal of alien invasive vegetation from the proposed development area and prevent the establishment and spread of alien invasive plants due to the development activities.</li> </ul>	<ul style="list-style-type: none"> <li>– Monitor daily the removal of the alien invasive vegetation.</li> <li>– Check the tyre of vehicles</li> </ul>	<ul style="list-style-type: none"> <li>– Employees</li> <li>– Project manager</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>– Ensure the potential introduction and spread of alien plants is prevented.</li> <li>– All project or earth moving equipment must have an internal weed and seed inspection completed prior to equipment being used on site.</li> </ul>	after use on site	
	<ul style="list-style-type: none"> <li>– Removal of vegetation – loss of flora and fauna, protected/important species</li> <li>– Dust generation</li> </ul>	<ul style="list-style-type: none"> <li>– Use existing tracks where possible.</li> <li>– Identify and mark important tree species and clearly highlight to construction workers so that they are avoided.</li> <li>– Apply speed restrictions.</li> <li>– Avoid off road driving.</li> <li>– Access tracks should be wider than normal to accommodate equipment.</li> <li>– Apply speed restrictions.</li> </ul>	– Daily visual inspection during construction of new access tracks/widening	<ul style="list-style-type: none"> <li>– Project Manager</li> <li>– Employees</li> </ul>
New jobs	– Employment creation and skills development opportunities during the construction phase.	<ul style="list-style-type: none"> <li>– Maximise local employment and local business opportunities to promote and improve the local economy.</li> <li>– Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.</li> <li>– Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.</li> </ul>	– NA	– NA
Site and ground Preparation	– Creation of dust	– Specific activities that may generate dust shall be avoided during high wind events, e.g. soil preparation activities.	– Daily observations	– Project Manager
	– Soil erosion	<ul style="list-style-type: none"> <li>– Use of mixed crops, including trees to minimise wind-blown erosion.</li> <li>– Dust suppression using water may be necessary where ground is to be left fallow during a dry period.</li> </ul>	– Daily observations	– Project Manager
	– Heritage remains	Discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied: <ul style="list-style-type: none"> <li>– Works to cease, area to be demarcated with appropriate tape by the site</li> </ul>	– Daily observations	– Project Manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>supervisor, and the Site Manger to be informed;</p> <ul style="list-style-type: none"> <li>- Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform the Environment and Social Manager with the GPS position if possible;</li> <li>- If works cannot proceed without damage to findings, Site Manager to inform the Environmental Manager who will get in touch with an archaeologist who will provide advise;</li> <li>- Environment and Social Manager / Archaeological Specialist to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains);</li> <li>- Inform the police if the remains are human; and</li> <li>- Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as direct.</li> </ul>		
Land management	<ul style="list-style-type: none"> <li>- Reduced soil quality (loss of nutrients, use of chemicals)</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure land is suitably prepared prior to planting crops. This may involve the application of fertilisers. Fertilisers to be applied in accordance with material safety data sheets and prescribed limits and application methods.</li> <li>- Prepare appropriate tillage appropriately.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations</li> </ul>	<ul style="list-style-type: none"> <li>- Project Manager</li> </ul>
Operating plant and equipment	<ul style="list-style-type: none"> <li>- Dust generation</li> <li>- Increase in noise levels</li> </ul>	<ul style="list-style-type: none"> <li>- Normal working hours should be restricted between 07:00-18:00 during the week and 07:00-13:00 on Saturdays. No construction work may be conducted on Sundays.</li> <li>- Regular maintenance of plant, equipment and machinery.</li> <li>- Spilled oil should be treated as hazardous waste.</li> <li>- Drip trays for trucks to avoid oil leakages and to be used when refuelling.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily visual inspection of operations</li> <li>- Maintenance should be carried out regularly (as required by equipment)</li> <li>- The site should be inspected daily for oil spills.</li> </ul>	<ul style="list-style-type: none"> <li>- Project Manager</li> <li>- Employees (equipment operators)</li> </ul>

**Table 3 – Operation: Environmental Risks and Issues, Mitigation and Monitoring Measures**

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Harvesting activities and land management	<ul style="list-style-type: none"> <li>– Potential re-establishment of alien plants on site.</li> </ul>	<ul style="list-style-type: none"> <li>– Ensure the correct removal of alien invasive vegetation from the proposed project area and prevent the establishment and spread of alien invasive plants.</li> <li>– Ensure compliance with relevant Environmental Specifications for the control and removal of alien invasive plant species.</li> </ul>	<ul style="list-style-type: none"> <li>– Weekly observations</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>
Land management	<ul style="list-style-type: none"> <li>– Reduced soil quality (loss of nutrients, use of chemicals)</li> </ul>	<ul style="list-style-type: none"> <li>– Ensure land is suitably prepared prior to planting crops.</li> <li>– Plant crops suitable to the soil quality, climate and needs as per the Agriculture Study.</li> <li>– Apply fertilisers as required and in accordance with legal and safety requirements.</li> <li>– Minimise use of pesticides, herbicides and insecticides and implement a sustainable integrated pest management through the use of physical, chemical, and biological and culture controls.</li> <li>– Minimise surface runoff during rainfall events through suitable ground management measures. Install / create suitable site drainage system to avoid surface run-off.</li> <li>– Avoid leaving bare earth for long durations and consider the use of shelterbelts or cover crops during fallow periods; wind erosion is likely during high wind.</li> <li>– Apply and maintain tillage appropriately.</li> </ul>	<ul style="list-style-type: none"> <li>– Sample soil annually and have it tested for nutrient levels and other characteristics to ensure maximum yield potential as well as to detect soil deficiencies or over burdening.</li> <li>– Supervision over the mixing and application of fertiliser s and pesticides.</li> <li>– Weekly checks on the status of the soil, checking for areas of erosion, surface runoff or other signs of soil quality degradation.</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>
Resource use	<ul style="list-style-type: none"> <li>– Inefficient use of water</li> </ul>	<ul style="list-style-type: none"> <li>– Regularly managing crops, crop areas, and irrigation systems to avoid applying water to unplanted areas or applying irrigation when not needed.</li> <li>– Using appropriate irrigation rates and scheduling.</li> <li>– Design the irrigation system for improved irrigation, uniformity and efficiency to reduce runoff and leaching.</li> </ul>	<ul style="list-style-type: none"> <li>– Check irrigation infrastructure on a weekly basis</li> <li>– Monitor the abstraction of water from the lake in accord with the permit conditions</li> </ul>	<ul style="list-style-type: none"> <li>– Project Manager</li> </ul>



ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>- Regularly maintain the irrigation system so that it continues to operate efficiently.</li> <li>- The irrigation method will ensure that maximum water uptake through plant absorption is as effective as possible to ensure minimal water lose through inefficient irrigation processes.</li> <li>- Abstraction Permit from Water Affairs to be in place</li> </ul>	<ul style="list-style-type: none"> <li>- Water quality sampling and analysis is to be conducted at a frequency required by Water Affairs.</li> <li>- Volume of water pumped on a daily basis should be recorded. A rain gauge and evaporation pan will enable the proponent to know how much rain has fallen and what the evaporation rate is. The water level of the Lake should be recorded daily to so that trends can be observed and compared to abstraction rates, rainfall and evaporation.</li> </ul>	
Use of fertilisers and pesticides	<ul style="list-style-type: none"> <li>- Ground contamination</li> <li>- Ecological effects</li> </ul>	<ul style="list-style-type: none"> <li>- All necessary approvals are in place prior to bringing fuel, oil or chemicals on to site.</li> <li>- Fertilisers and pesticides shall be applied if and where necessary and shall be done according to regulations or application instructions.</li> <li>- The use of chemical pesticides shall be avoided and minimized (quantity and frequency).</li> <li>- Biological Control Agents shall not be used.</li> <li>- Arbouricides (herbicide for trees) shall not be sprayed and use shall be avoided where possible.</li> <li>- Monitor areas where chemicals are used. If there is environmental degradation, cease use of chemicals and liaise with the environmental manager.</li> <li>- Locate and storage of fuels or chemicals away from surface or groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations when fertiliser s and pesticides are applied</li> <li>- Weekly observations to identify any impacts from the use of fertilisers and pesticides.</li> </ul>	<ul style="list-style-type: none"> <li>- Project Manager</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>- All chemicals shall be labelled with the correct contents and safety, hazards or handling instructions.</li> <li>- An inventory of chemicals shall be maintained (Chemical Register to be kept).</li> <li>- All primary containers shall be fit for purpose and should not be damaged.</li> <li>- All chemicals should be stored in an area with contained impermeable surface.</li> <li>- Ensure the storage area is lockable and kept clean and organised.</li> <li>- Locate storage away from surface water and groundwater.</li> <li>- Have spill kits available where chemicals are stored and used.</li> <li>- Ensure chemicals are not exposed to heat.</li> <li>- Storage of fertilisers and fuels together is prohibited</li> </ul>		
Fuel handling and storage	<ul style="list-style-type: none"> <li>- Loss of containment leading to ground or groundwater contamination.</li> </ul>	<p><b><u>Safe Delivery and handling:</u></b></p> <ul style="list-style-type: none"> <li>- Training employees and Toolbox Talks.</li> <li>- Good housekeeping across site.</li> <li>- Fuel is handled with care.</li> <li>- Spill kits to be at designated areas across site or available for use during refuelling, fuel delivery or use. Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard.</li> <li>- Any major spill is reported to the PM once containment has been achieved.</li> <li>- Plant and equipment to be well maintained and serviced regularly; mobile plant to carry a large plastic drip tray at all times.</li> <li>- In the field, use of hydrocarbons under 200 litres can be used for mobile refuelling or servicing; drip trays must be used to prevent spillage onto bare</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations when fuels are delivered and handled</li> <li>- Supervision during refuelling</li> <li>- Weekly observations monitor containment and storage</li> </ul>	<ul style="list-style-type: none"> <li>- Project Manager</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>ground.</p> <p><b>Storage:</b></p> <ul style="list-style-type: none"> <li>- Overhead tanks to be secured with a non-porous floor and a bund wall built around the tank that can store 110% of the volume of the tank(s).</li> <li>- Underground storage tanks to be avoided.</li> <li>- All tanks to be stored on a non-porous floor and bund walls.</li> <li>- Bund to be capable of storing at least 110% of the volume of the tank.</li> <li>- All containers to be suitable for use and not damaged.</li> <li>- Stores and tanks are to be locked at all times.</li> <li>- Stores are well ventilated.</li> <li>- Storage of fertilisers and fuels together is prohibited.</li> <li>- Spill kits available at storage locations and around site in suitable locations.</li> </ul> <p><b>Refuelling</b></p> <ul style="list-style-type: none"> <li>- Drip tray to be used during refuelling of vehicles and on a permeable flat surface where possible.</li> <li>- Funnel should be available and used to avoid spillage during decanting; use drip trays if no permanent impervious surface exists.</li> </ul>		
Generation of waste	<ul style="list-style-type: none"> <li>- Nuisances</li> <li>- Land use</li> <li>- Burning of waste (air pollution)</li> </ul>	<ul style="list-style-type: none"> <li>- Training and Toolbox Talks.</li> <li>- Good housekeeping across site.</li> <li>- All working areas shall apply good house-keeping.</li> <li>- Implement the waste management hierarchy across site: Avoid, reuse, recycle, and then disposal.</li> <li>- Waste shall be collected from all harvesting areas and brought to a</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations</li> <li>- Weekly checks</li> </ul>	<ul style="list-style-type: none"> <li>- Project Manager</li> <li>- Employees</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>dedicated central waste collection area where it shall be separated. The dedicated central waste area shall be fenced to prevent spreading into the environment, and people and animals entering.</p> <ul style="list-style-type: none"> <li>- Waste storage areas shall be kept clean and tidy at all times.</li> <li>- Waste shall be removed on a regular basis to avoid pests and bad odours.</li> <li>- Only organic combustible waste shall be burnt. Hazardous waste shall not be burnt. All non-biodegradable waste like plastics should be dumped at a municipal waste dump.</li> <li>- If required, waste to be burnt shall be dry to reduce the amount of smoke and increase combustion rate. Water buckets or other fire control / extinguish methods shall be at the fire pit. Burning takes place only on days when winds are light and blowing away from people. Waste is burned in manageable volumes, so the fire does not get out of control. The fire is started, attended and monitored at all times by authorized and qualified personnel. Employees undertaking burning activities shall remain at a safe distance upwind of the fire.</li> <li>- It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials.</li> <li>- Hazardous and non-hazardous waste shall be stored separately at all times.</li> </ul>		
Job creation	<ul style="list-style-type: none"> <li>- Employment creation and skills development opportunities during the operation phase.</li> </ul>	<ul style="list-style-type: none"> <li>- Maximise local employment and local business opportunities to promote and improve the local economy.</li> <li>- Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.</li> <li>- Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.</li> </ul>	<ul style="list-style-type: none"> <li>- Employment rates and data</li> </ul>	<ul style="list-style-type: none"> <li>- Manager</li> </ul>

### 5.3. DECOMMISSIONING AND REINSTATEMENT

Due to the continuous and expected long term duration of the project uncertainties exist at this stage for the decommissioning and reinstatement strategy, the following is assumed and recommended:

- The irrigation infrastructure shall be removed and disposed of in accordance to the existing waste management arrangements on site.
- The water pipeline shall either be removed and disposed of in line with the existing waste management arrangements on site, or shall remain in-situ, and the concrete pipeline shall be broken to avoid hollow spaces and allow material to fill and ground around the disused pipeline.
- The above works shall apply the principals set out in this EMP, which shall be updated with any specific decommissioning or reinstatement activities or noticeable changes from this report, prior to undertaking the decommissioning works.

### 5.4. ENVIRONMENTAL EMERGENCY AND RESPONSE CONTACTS

The PM will be the primary contact person in the event of an environmental emergency. The PM has the authority and independence to request reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse environmental impact be anticipated.

In the event of an incident that requires the emergency services, the services that should be contacted are listed in Table 4.

**Table 4 - Emergency Services contact telephone numbers (Tsumeb)**

AMBULANCE	POLICE	FIRE BRIGADE
+264 (67) 22-1082	+264 (67) 1-0111	+264 (67) 22-1004

For large-scale spills and other significant environmental incidents, the fire services shall be contacted as required and the Ministry of Environment and Tourism (MET) office informed of the incident (telephone +264 61 284 2111). All correspondence with MET should be undertaken by the PM.

For the clean-up of smaller spills, the relevant Material Safety Data Sheet (MSDS) should be obtained online and be consulted to determine the appropriate clean-up procedure. Basic spill response training will be provided as part of the site environmental induction, spill response equipment, including relevant MSDS copies, will be provided in areas where potentially environmentally hazardous chemicals may be used.

All environmental incidents, regardless of their size or significance, should be recorded and reported to either the PM.

## 6. IMPLEMENTATION OF THE EMP

This EMP:

- A. Has been prepared pursuant to a contract with the proponent;
- B. Has been prepared on the basis of information provided to ECC up to December2018;
- C. Is for the sole use of the proponent, for the sole purpose of an EMP;
- D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP; and
- E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP on the basis of information provided by the proponent, specialist reports and the Environmental Scoping Report

## APPENDIX B: EIA METHOD

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

The significance of an impact was determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the planned project, the nature and characteristics of the impact, and the magnitude of potential change. The magnitude of change (the impact) is the identifiable changes to the existing environment which may be direct or indirect; temporary/short term, long term or permanent; and either beneficial or adverse. These are described as follows and thresholds provided in Tables 1 to 3.

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

**Table 1 - Sensitivity and Value of Receptor**

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

**Table 2 - Nature of Impact**

NATURE	DESCRIPTION
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
Direct	Impacts causing an impact through direct interaction between a planned project activity and the receiving environment/receptors.
Indirect	Impacts that result from other activities that are encouraged to happen as a result / consequence of the Project. Associated with the project and may occur at a later time or wider area
<b>Extent / Geographic Scale</b>	
On-site	Impacts that are limited to the boundaries of the planned project site
Local	Impacts that occur in the local area of influence, including around the planned site and within the wider community
Regional	Impacts that affect a receptor that is regionally important by virtue of scale, designation, quality or rarity.
National	Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.
International	Impacts that affect a receptor that is internationally important by virtue of scale, designation, quality or rarity.
<b>Duration</b>	
Short-term	Impacts that are likely to last for the duration of the activity causing the impact and are recoverable
Medium-term	Impacts that are likely to continue after the activity causing the impact and are recoverable
Long-term	Impacts that are likely to last far beyond the end of the activity causing the damage but are recoverable over time
<b>Reversibility</b>	
Permanent /Irreversible	Impacts which are not reversible and are permanent
Temporary / Reversible	Impacts are reversible and recoverable in the future
<b>Likelihood</b>	
Certain	The impact is likely to occur
Likely	The impact is likely to occur under most circumstances
Unlikely	The impact is unlikely to occur



**Table 3 - Magnitude of Change**

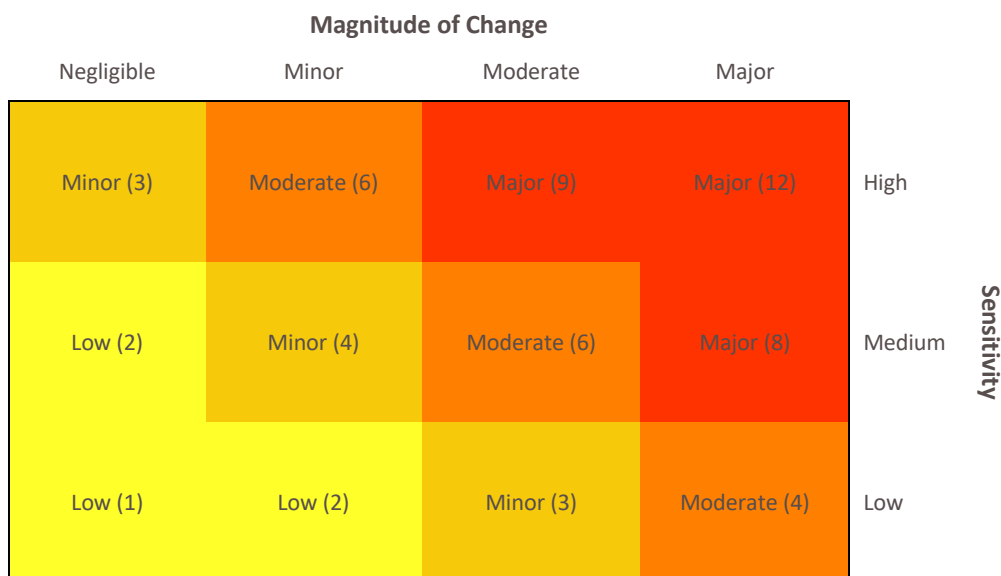
MAGNITUDE OF CHANGE	DESCRIPTION
Major	Loss of resource, and quality and integrity of resource; severe damage to key characteristics, features or elements; or Large-scale or major improvement of resources quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	Loss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

The level of certainty has also been applied to the assessment to demonstrate how certain the assessment conclusions are and where there is potential for misinterpretation or a requirement to identify further mitigation measures, thereby adopting a precautionary approach. Where there is a low degree of certainty, monitoring and management measures can be implemented to determine if the impacts are worse than predicted and support the identification of additional mitigation measures through the lifetime of the planned project. Table 4 provides the levels of certainty applied to the assessment, as well as a description.

**Table 4 – Level of certainty**

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

The significance of impacts has been derived using professional judgment and applying the identified thresholds for receptor sensitivity and magnitude of change (as discussed above), and guided by the matrix presented in Figure 1. The matrix is applicable for impacts that are either positive or negative. The distinction and description of significance and whether the impact is positive or negative is provided in Table 4.

**Figure 1 – Guide to significance ratings**


Significance is not defined in the Namibian EIA Regulations, however the Draft Procedure and Guidance for EIA and EMP states that the significance of a predicted impact depends upon its context and intensity. Accordingly, definitions for each level of significance have been provided in Table 4. These definitions were used to check the conclusions of the assessment of receptor sensitivity; nature of impact and magnitude of impact was appropriate.

**Table 4 – Significance Description**

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

To ensure the beneficial impacts are brought out in the assessment, green has been applied to ensure the different type of impact is clear. The description for each level of significance presented in Table 4 was also followed when determining the level of significance for a beneficial impact.

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

- It exceeds widely recognized levels of acceptable change;
- It threatens or enhances the viability or integrity of a receptor or receptor group of concern; and
- It is likely to be material to the ultimate decision about whether or not the environmental clearance certificate is granted.

## **APPENDIX C: PROJECT REGISTRATION**

REPUBLIC OF NAMIBIA

ENVIRONMENTAL MANAGEMENT ACT, 2007 (Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE

PROJECT REGISTRATION



PART A: DETAILS OF APPLICANT

**1. Name: (person or business):**

Oshikoto Lake Greens

**2. Business Registration / Identity No.:**

2006/101

**3. Correspondence Address:**

Edeltraud Ndinelago Tshiguuo  
Oshikoto Lake Greens  
0812627872  
PO BOX 91193  
Windhoek

**4. Name of Contact Person:**

Edeltraud Ndinelago Tshiguuo

**5. Position of Contact Person:**

Farm and Company Owner

**6. Telephone No.:**

0812627872

**7. Fax Number:**

NA

**8. E-mail Address: (if any)**

stephan@eccenvironmental.com (consultant's email on behalf of the proponent)



## PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

### 1. The environmental clearance certificate is for

Application for Environmental Clearance Certificate for the existing and planned expansion and operation of an irrigation scheme for commercial plant production on the Farm Tsumore No. 761, abstracting water out of Oshikoto Lake for irrigation.

Listed activities triggered by the project include:

- **WATER RESOURCE DEVELOPMENTS**

8.1 The abstraction of surface water for industrial or commercial purposes

8.7 Irrigation schemes for agriculture excluding domestic

To a lesser extent the following activities play a role;

- **FOREST ACTIVITY**

4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorization in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.

- **AGRICULTURE AND AQUACULTURE ACTIVITIES**

7.5 Pest control.

### 2. Details of the activity(s) covered by the environmental clearance certificate:

Title of Activity:

The Farm Tsumore Irrigation Project - the construction and operation of an irrigation scheme for commercial plant production on the Farm Tsumore 761, using water abstracted from the Otjikoto Lake, Oshikoto Region.

Nature of Activity:

Use of clean water from Otjikoto Lake, for an irrigation scheme on the Farm Tsumore. The project is for the construction and operation of an irrigation scheme to grow plants and/or fresh produce.

Scale and Scope of Activity:

The project shall undertake the following activities during the construction phase:

- Construction of water pipeline connections to the Otjikoto Lake;
- Conveyance of freshwater to the irrigation scheme
- Vegetation clearing of the area that is to be used for agriculture – shall be determined by the volumes of water available from the Lake and type of crop to be grown. Agricultural area shall be restricted to within the boundaries of Farm Tsumore No. 761; Previously cleared ground to be used for crop production
- Construction of small access tracks;
- Ground preparation (minor earthworks and levelling); and
- Construction of agriculture infrastructure e.g. fences, irrigation system, storage and preparation areas.

The project shall undertake the following activities during the operational phase:

- Use of farm machinery and equipment;
- Potential use of fertilisers and other chemicals; and
- Generation and management of vegetation waste.

Location of Activity:  
Osjikoto Region, Namibia.

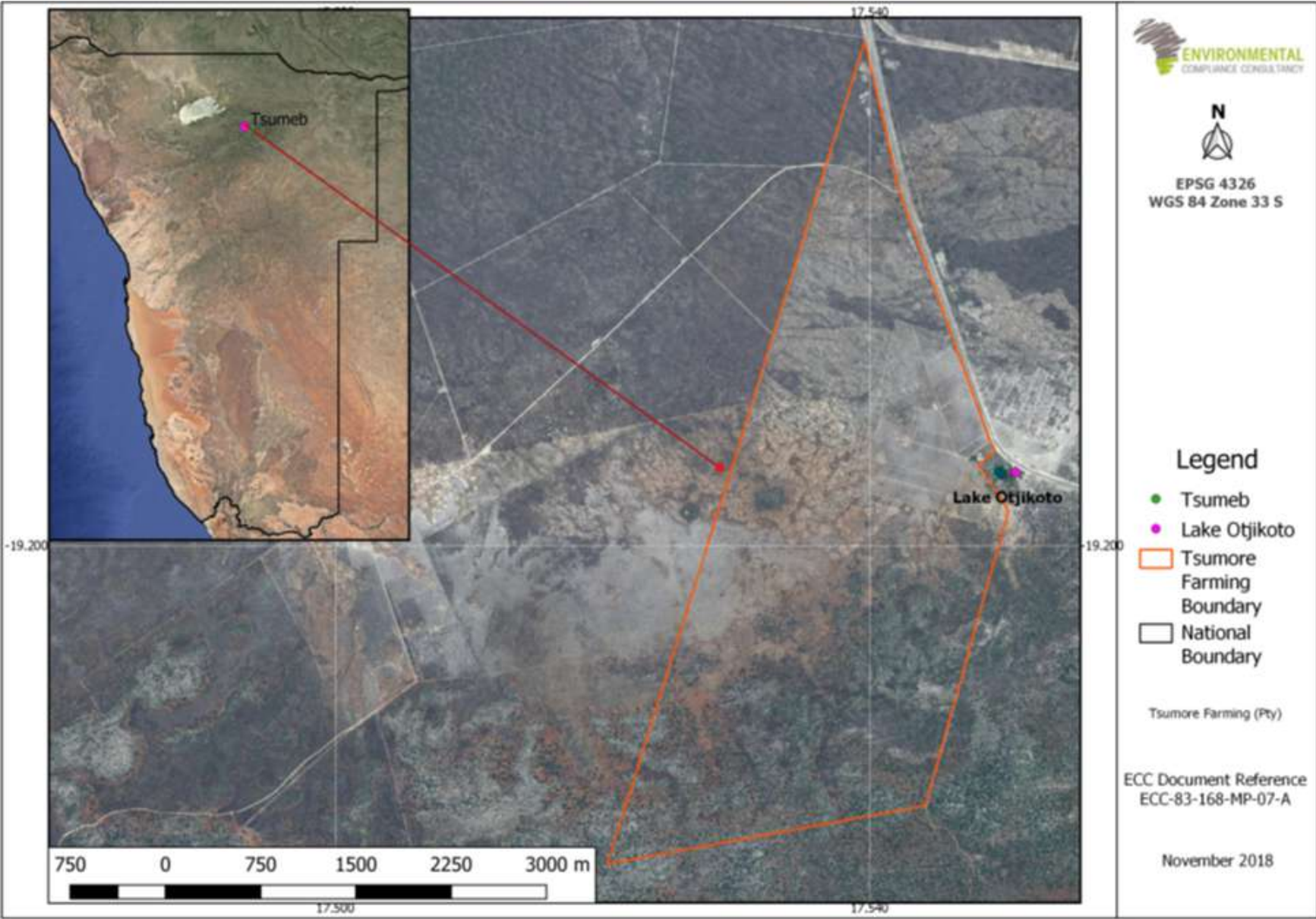


Figure 1 – Farm Tsumore Location

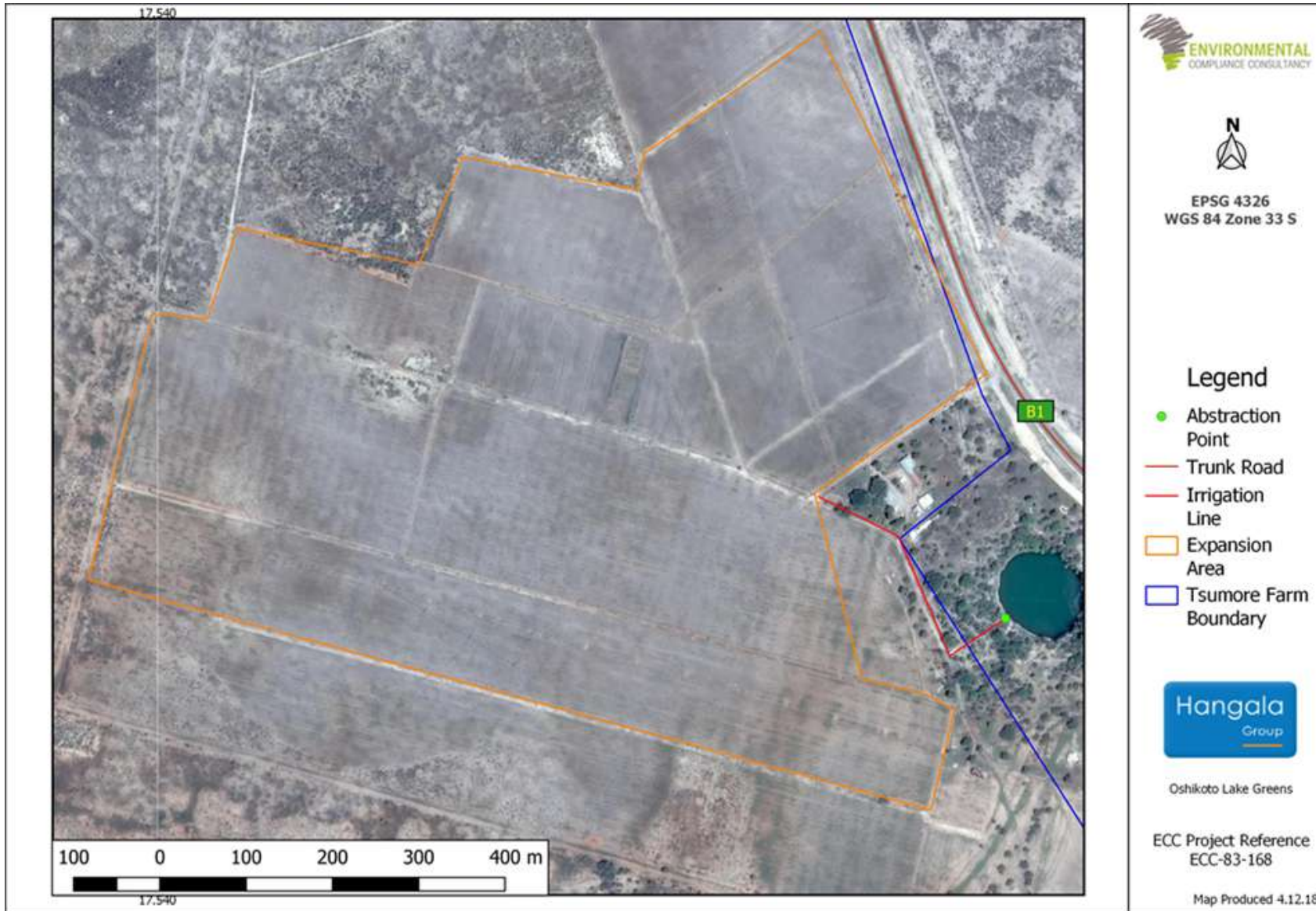


Figure 2: Irrigation Area and Lake



**PART C: DECLARATION BY APPLICANT**

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.



Mr. Edeltraud Ndinelago Tshiguuo

Company Owner

Signature of Applicant

Full name in Block Letters

Position

On behalf of: Otijkoto Lake Greens (Pty) Ltd

Date: 12/12/2018

COPY

REFERENCE: ECC-83-168-LET-06-A  
12 December 2018

MINISTRY OF ENVIRONMENT AND TOURISM  
DIRECTORATE OF ENVIRONMENTAL AFFAIRS  
PRIVATE BAG 13306  
WINDHOEK  
NAMIBIA

<p><b>RECEIVED BY OFFICIAL STAMP</b></p> <p>Received By Name: <i>Daniela G</i></p> <p>Date: <i>12/12/2018</i></p> <p>Signature: <i>h.</i></p> <p>RECEIVED</p>
---

**FOR ATTENTION: THE ACTING PERMANENT SECRETARY MET - MR. TEOFILUS NGHITILA**

Dear Mr. Nghitila,

**RE: APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE PROPOSED IRRIGATION SCHEME ON THE FARM TSUMORE 761 USING OSHIKOTO LAKE, OSHIKOTO REGION.**

Environmental Compliance Consultancy (ECC) was appointed by the proponent, Oshikoto Lake Greens (Pty) Ltd, to act on their behalf for the application for an Environmental Clearance Certificate for the Farm Tsumore irrigation scheme. The attached application **Form 1** renders the proof of registration of the project with the MET.

ECC has compiled this application in accordance with the Environmental Management Act, 2007 on behalf of the proponent.

ECC has identified the Ministry of Agriculture, Water and Forestry (MWAFF) as the competent authority and have submitted the documents below for their review and consideration.

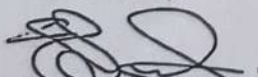
**Annexure 1.** FORM 1, proof of submission of registration – as required by Environmental Management Act 2007, section 32, towards an application for an Environmental Clearance Certificate.

**Annexure 2.** Environment Scoping Report with Assessment; The report's appendices are as follows application are set out below:

- Appendix A: Draft Environmental Management Plan
- Appendix B: Consultants' CVs
- Appendix C: Environmental Assessment Method
- Appendix D: Project Registration/Application
- Appendix E: Evidence of Public Consultation (Adverts, Background Information Report, Site notice, Consultation feedback)

Should you or your office require our assistance with the application or details contained within, please do not hesitate to contact us and we will gladly assist.

Yours sincerely,

  
Stephan Bezuidenhout

**Environmental Compliance Consultancy**  
081 669 7608  
Email: stephan@eccenvironmental.com

  
Jessica Mooney

**Environmental Compliance Consultancy**  
081 669 7608  
Email: jessica@eccenvironmental.com

<p>ENVIRONMENTAL COMPLIANCE CONSULTANCY</p> <p>RECEIVED</p> <p>12</p>
---

## APPENDIX D: EVIDENCE OF PUBLIC CONSULTATION

Registered interested and affected parties

First	Last	Company / Organisation	Nature of company or organisation	Email Address	Telephone No.	Comments	Comments
André	Faul	Geo Pollutions Pty Ltd	Geo and environmental Services	andre@thenamib.com	0612574 11	<b>1<sup>st</sup> Round Comments:</b> Please register me as an I&AP	<b>Response:</b> Registered I&AP, Draft sent, comments received and addressed, final sent to I&AP.
						<b>2<sup>nd</sup> Round Comments:</b>	<b>Response:</b>
Dietline	Nakwaya	UNAM	University	dnakwaya@gmail.com	0812770 639	<b>1<sup>st</sup> Round Comments:</b> We are the interested and effected part, because we are the main water supply for the planned irrigation project.	<b>Response:</b> Registered I&AP, Draft sent, comments received and addressed, final sent to I&AP.
						<b>2<sup>nd</sup> Round Comments:</b>	<b>Response:</b>
Dr Pieter	Pretorius	N/A	Farm Owner	pcmpretorius@web.com.na	0811274 855	<b>1<sup>st</sup> Round Comments:</b> Please provide information as and when it becomes available and include me in the public meetings/forums.	<b>Response:</b> Registered I&AP, Draft sent, comments received and addressed, final sent to I&AP.
						<b>2<sup>nd</sup> Round Comments:</b>	<b>Response:</b> Provided above in response to I&AP Comments.
						<b>1<sup>st</sup> Round Comments:</b> Interested Party	<b>Response:</b>
						<b>2<sup>nd</sup> Round Comments:</b>	<b>Response:</b>

# OSHIKOTO LAKE GREENS, OSHIKOTO REGION, NAMIBIA

ENVIRONMENTAL IMPACT ASSESSMENT - NOVEMBER 2018

CLIENT: EDELTRAUD NDINELAGO TSHIGUUD

## BACKGROUND INFORMATION DOCUMENT



### PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to provide interested and affected parties (I&APS) with a background of the proposed expansion of the existing irrigation scheme on Farm Tsumore 761 Unit B, Portion 48. The project is called the Oshikoto Lake Greens and is situated in Oshikoto Region, Namibia.

Furthermore, the BID's aim is to invite I&APS to register in the **Environmental Impact Assessment (EIA) Scoping process**. Through registering, I&APs will be kept informed about the proposed project and will be offered the opportunity to submit comments pertaining to the project, allowing for their input to be considered in the assessment and development processes.

This BID includes the following:

- Proposed Project: what is proposed and where
- Why the project is deemed necessary and what benefits or adverse impacts are anticipated
- What alternatives to the project have been considered
- How the EIA process works

### PROPOSED PROJECT

Farm Tsumore 761 Unit B, Portion 48 is situated in the Oshikoto Region, Namibia. The Farm is in close proximity to the Otjikoto lake and the primary land use is crop farming. The Farm currently obtains approximately 200 000 cubic meters of water from the Otjikoto lake to support irrigation activities. The proposed project involves increasing the quantity of water extracted from the lake from 200 000 cubic meters to 370 000 cubic meters to expand the irrigation scheme, thereby allowing the farm to supply plant crops to local markets. The nearest community to the Oshikoto Lake Greens is Tsumeb.

In consultation with the Ministry of Environment and Tourism (MET), the proposed project triggers the Environmental Management Act of 2007 (Act No. 7 of 2007) due to it meeting the thresholds of the following Listed Activities:

#### WATER RESOURCE DEVELOPMENTS

- (8.1) The abstraction of ground or surface water for industrial or commercial purposes
- (8.7) Irrigation schemes for agriculture excluding domestic irrigation

ECC has been engaged by Hangala Foods (Pty) Ltd to undertake an independent environmental assessment in compliance with Namibian law in terms of the Environmental Management Act of 2007 and associated Regulations. An application for Environmental Clearance shall be submitted to the MET.

An EIA Scoping Report and Environmental Management Plan (EMP) will be part of the submission to report the findings of the environmental assessment and provide sufficient information to inform the decision makers who shall determine if environmental clearance should be issued.

### SCOPING

A SCOPING PROCESS IS A SHORTER PROCESS THAN A 'FULL' EIA BUT APPLIES THE SAME PRINCIPALS AND ASSESSMENT METHODOLOGY.

### INDEPENDENT ASSESSMENT PROCESS

WHY IS AN INDEPENDENT ASSESSMENT PROCESS IMPORTANT?

NAMIBIAN LAW AND INTERNATIONAL BEST PRACTICE CALL FOR THE PROFESSIONALS CARRYING OUT AN ENVIRONMENTAL ASSESSMENT PROCESS TO BE INDEPENDENT (I.E. HAVE NO CONNECTION TO THE PROJECT PROPONENT OR INTEREST IN THE PROJECT'S OUTCOME) TO ENSURE PROCESS INTEGRITY.

APPLICANT: HANGALA FOODS (PTY)

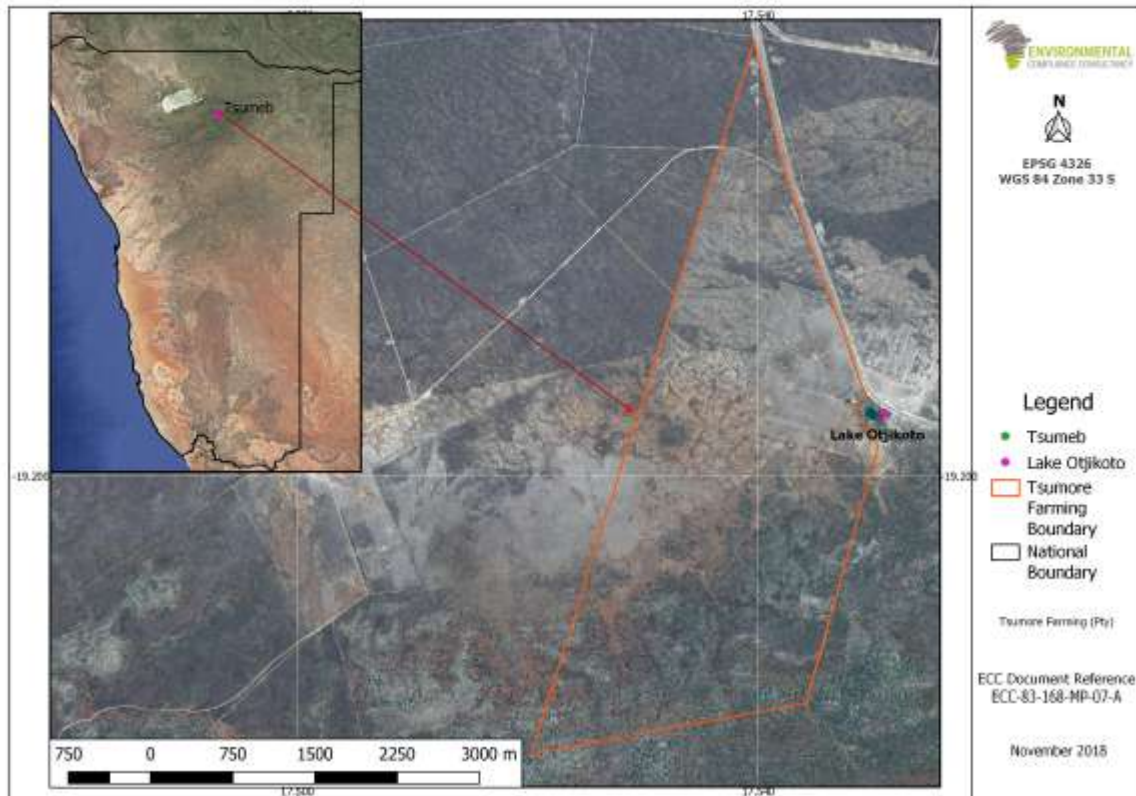
ENVIRONMENTAL ASSESSMENT PRACTITIONER: ENVIRONMENTAL COMPLIANCE CONSULTANCY (ECC)

COMPETENT AUTHORITY: MINISTRY OF AGRICULTURE WATER AND FORESTRY

OSHIKOTO LAKE GREENS



## SITE LOCATION



## SCOPE OF ASSESSMENT

The proposed expansion of the irrigation scheme involves using abstracted water for 25 hectares of drip irrigation and 28 hectares of centre pivot irrigation. The infrastructure required for increasing the volume of water abstracted from the Otjikoto lake is already in place and all activities are envisaged to occur on previously disturbed land.

The following construction activities are foreseen, which shall be defined further as the project develops:

- Minimal vegetation clearance
- Potential construction of small access tracks, and
- Construction of agricultural infrastructure e.g. irrigation system, fences etc.

The potential social and environmental impacts are anticipated to be of minor significance due to the scale and nature of the project and all possible impacts shall be contained to the farm site. Impacts may include:

- Job creation, benefiting the local community
- Contributing to local produce and support the local and regional economy, and
- Some vegetation clearance and minor potential disruption to flora and fauna on site

ECC will prepare a scoping report that presents the assessment findings as well as stakeholder and I&AP concerns. An EMP shall also be developed for the proposed project setting out auditable management actions for Farm Tsumore 761 to ensure careful and sustainable management measures are applied to their activities in respect of the surrounding environment and community.

## NEED FOR THE PROPOSED PROJECT

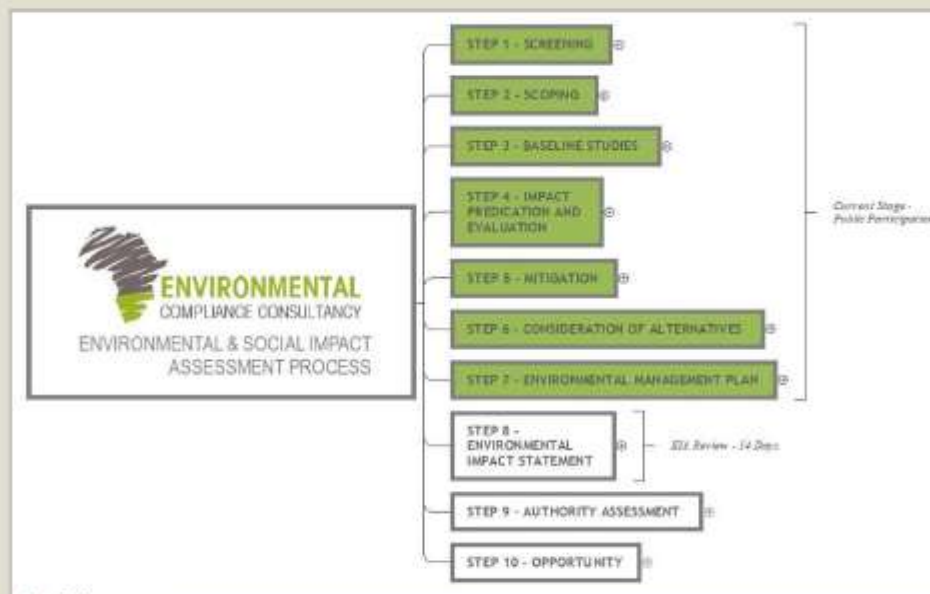
The expansion of the irrigation scheme presents an opportunity for economic development in the area along with creating employment for approximately 15 people. Fresh produce can be produced locally as a result of the proposed project resulting in additional income being injected into the local area.

## WHAT ALTERNATIVES ARE BEING CONSIDERED?

Best practice environmental assessment methodology calls for consideration of different alternatives to a project being developed. Through design development, alternative sites have been considered and discounted due to environmental reasons. The design alternatives for the proposed project are currently being considered, which shall be influenced by the findings of the EIA. The Scoping Report shall present the findings of the assessment of all alternatives considered.

## THE EIA PROCESS

The EIA process that shall be followed is in accordance with Environmental Management Act 2007. ECC shall conduct the environmental application process and manage the public participation process. Following the EIA process flowchart below, this project is currently at the Scoping phase and the public participation process is being conducted.



ECC will perform the following:

- Identify key stakeholders, authorities and municipalities, environmental groups and interested or affected members of the public, hereafter referred to as I&APs;
- Compile a BID for the proposed development (this document);
- Advertise the environmental application in two national newspapers;
- Place on-site notices at conspicuous places at/ near the proposed development boundary;
- If required host a public meeting to encourage stakeholder participation and engagement, and provide details of issues identified by the environmental practitioner, stakeholders and I&APs;
- Record all comments of I&APs and present such comments, as well as responses provided by ECC, in the Comments and Responses Report, which will be included in the Scoping Report that shall be submitted to MME and the MET; and
- Circulate the I&AP comments to the project team.

## NEED FOR THE PROPOSED PROJECT

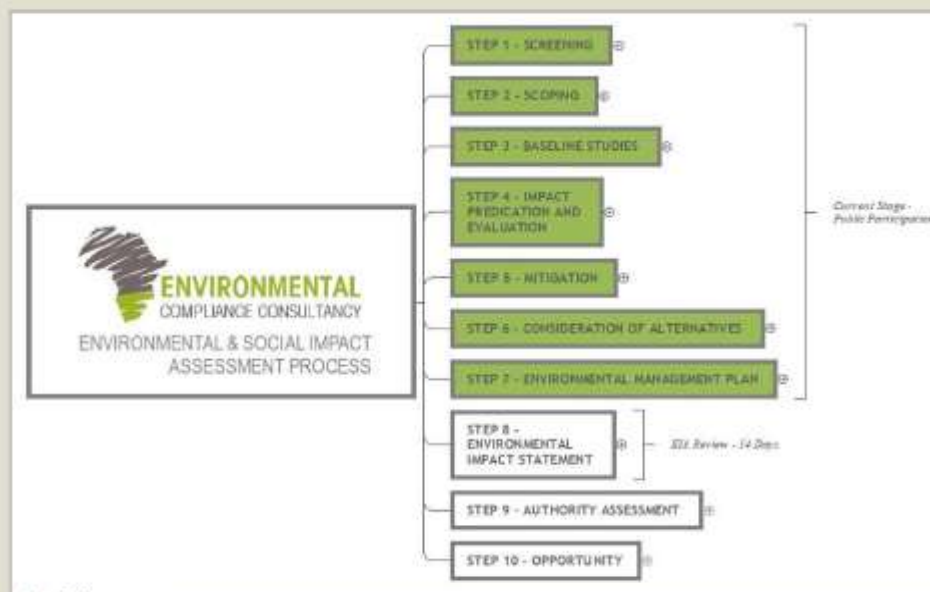
The expansion of the irrigation scheme presents an opportunity for economic development in the area along with creating employment for approximately 15 people. Fresh produce can be produced locally as a result of the proposed project resulting in additional income being injected into the local area.

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- Record all comments of I&APs and present such comments, as well as responses provided by ECC, in the Comments and Responses Report, which will be included in the Scoping Report that shall be submitted to MME and the MET; and
- Circulate the I&AP comments to the project team.

## Site notice



### NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS

#### EXPANSION OF EXISTING IRRIGATION SCHEME ON FARM TSUMORE 761 OSHIKOTO REGION, NAMIBIA

Environmental Compliance Consultancy cc (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

**Applicant:** Tsumore Farming (Pty)  
**Environmental Assessment Practitioner (EAP):** Environmental Compliance Consultancy

**Project:** Proposed expansion to the irrigation project located on Farm Tsumore 761 Unit B, Portion 48, A located in the Oshikoto Region, Namibia.

**Proposed Activity:** The proposed project is for the expansion of an irrigation scheme on Farm Tsumore 761 Unit B, Portion 48, A located in the Oshikoto Region, Namibia. The project currently involves irrigation of approximately 200,000 cubic meters and the proponent intends to expand the operation to approximately 370,000 cubic meter for an area of 25 hectares via drip irrigation and 28 hectares centre pivot irrigation.

**Project Location:** Oshikoto Region, Namibia.

**Application for Environmental Clearance Certificate:** In terms of the Environmental Management Act, 2007 (No 7 of 2007), ECC on behalf of Hangala Foods (Pty) Ltd is required to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Tourism for the above-mentioned project.

**Review Period:** The review and comment period is effective from **26<sup>th</sup> September 2018 – 16<sup>th</sup> October 2018**.

**Purpose of the Review and Comment Period:** As part of the public participation process, the purpose of the review and comment period is to present the proposed project and to afford interested and affected parties an opportunity to comment on the project to ensure that all issues and concerns are captured and considered in the assessment.



Contact: Mr JS Bezuidenhout or Mrs J Mooney  
Environmental Compliance Consultancy  
Registration Number: CC/2013/11404  
PO Box 91193, Klein Windhoek  
Tel: +264 816 53 1214 or +264 81 653 1214  
E-mail: [info@eccenvironmental.com](mailto:info@eccenvironmental.com)  
Website: <http://www.eccenvironmental.com>  
Project ID: ECC-83-168



# China's manufacturing weakens amid US tariff war

• JOE McDONALD

CHINA'S export orders shrank in September as a tariff battle with Washington over technology escalated, adding to downward pressure on the world's number two economy, two surveys showed on Monday.

The reports add to signs Chinese trade, which had held up despite US president Donald Trump's tariff hikes, might be weakening. That adds to pressure on an economy that already was forecast to cool due to slowing global consumer demand and lending controls imposed to rein in a debt boom.

The official China Federation of Logistics and Purchasing's monthly measure of new export orders fell to 48 from August's 49.4 on a 100-point scale on which numbers below 50 show activity shrinking.

A separate index by business magazine 'Caixin' showed new export orders fell at the fastest rate in more than two years. The magazine said companies blamed 'trade frictions' and tariffs.

Overall, the federation's monthly purchasing managers index showed manufacturing activity decelerated to 50.8 from August's 51.3. 'Caixin' said its index fell to 50 from 50.6.

"Downward pressure on China's economy was significant," economist Zhengsheng Zhong said in the 'Caixin' report.

The resiliency of China's US\$12 trillion-a-year economy until now has allowed president Xi Jinping's government to reject pressure for changes in initiatives such as "Made

in China 2025" that call for the state-led creation of champions in robotics and other technologies.

Washington, Europe and other trading partners say those violate Beijing's market-opening obligations.

The International Monetary Fund and other forecasters expect this year's economic growth to fall to about 6.5% from 2017's 6.8%. But that slowdown is due mostly to the ruling Communist Party's long-term efforts to steer China to self-sustaining growth, based on consumer spending instead of trade and investment.

Last week, Trump stepped up pressure by raising tariffs on US\$200 billion of Chinese goods. Beijing retaliated with penalties on US\$60 billion of American imports. Both sides already had raised duties on US\$50 billion of each other's goods.

The two sides have announced no plans for negotiations. China accused Trump in a report last week of bullying other countries. A deputy commerce minister said negotiations were impossible while Washington 'holds a knife' of tariff hikes to Beijing's throat.

With no settlement in sight, forecasters say the conflict could trim global economic growth by 0.5% through 2020.

Sunday's reports gave no details on September orders from the United States, China's biggest national export market.

Sales to the United States have held up so far, rising by more than 13% in August. But analysts said

that strength might have been due partly to Chinese suppliers rushing to beat increases in import taxes.

American officials complain Beijing steals or pressures companies to hand over technology. They worry Chinese technology initiatives might erode US industrial leadership.

Communist leaders have tried to stick to long-term reform plans the ruling party says will make the state-dominated economy more competitive and productive.

Beijing has cut import tariffs, and announced plans to open auto manufacturing and some other industries wider to foreign competitors. But none of their changes address the US technology complaints.

Last week, Beijing announced tariff cuts, effective 1 November, on 1 585 types of goods, including construction equipment.

Chinese leaders should act quickly to "expand domestic demand and resolve the short-term downward pressure," economist Zhang Lijun said in the logistics federation's report.

Trade's importance to China has shrunk, but it still supports millions of well-paid jobs. The United States is the destination for the highest-value Chinese exports, including smartphones, industrial machinery and medical technology.

The logistics federation's employment index fell 1.1 points to 48.3, indicating workforces were shrinking.

"The employment situation worsened further," Zhong said in the 'Caixin' report. — *Namapa-AP*



# Brent oil rises to four-year high ahead of Iran sanctions

• HENNING GLOYSTEIN

BRENT crude oil prices yesterday rose to their highest since November 2014 ahead of United States sanctions against Iran, the third-largest producer in the Organisation of the Petroleum Exporting Countries, that kick in next month.

Benchmark Brent crude oil futures rose to as much as US\$83.27 a barrel and were at US\$83.21 at 03h39 GMT, up 48 cents, or 0.6% from their last close.

United States West Texas Intermediate (WTI) crude futures were up 32 cents, or 0.4%, at US\$73.57 a barrel.

WTI prices were supported by a report on Friday of a stagnant rig count in the United States, which points to a slowdown in US crude production, which now rivals top producers Russia and Saudi Arabia.

Brent was pushed up by looming sanctions against Iran, which will start targeting its oil sector from 4 November.

ANZ bank said yesterday that "the market is eyeing oil prices at US\$100 per barrel".

In a sign that the financial market is positioning itself for further price rises, hedge funds increased their bullish wagers on US crude in the week to 25 September, data from the US Commodity Futures Trading Commission (CFTC) showed on Friday, increasing futures and options positions in New York and London by 3 728 contracts to 346 566 during the period.

In a further sign of the impact that the US sanctions on Iran will have on the market, China's Sinopec said its is halving loadings of Iranian crude oil this month. China is the biggest buyer of Iranian oil.

"If Chinese refiners do comply with US sanctions more fully than expected, then the market balance is likely to tighten even more aggressively," Edward Bell, commodity analyst at Emirates NBD bank wrote

in a note published on Sunday.

US president Donald Trump called Saudi Arabia's King Salman on Saturday, discussing ways to maintain sufficient supply once Iran's exports are hit by sanctions.

"Until sizeable supply is offered up by the Organisation of the Petroleum Exporting Countries (Opec), ultimately traders will continue to push the envelope even more," said Stephen Innes, head of trading for Asia-Pacific at futures brokerage Oanda in Singapore.

"Even if they (Saudi Arabia) wanted to bend to president Trump's wishes, how much spare capacity does the kingdom have?" asked Innes.

"We are going to find out very soon as approximately 1.5 million barrels (per day) of Iranian oil is effectively going offline on 4 November. If the market senses that Saudi Arabia capacity is tapped out at 10.5 million bpd ... oil prices will rocket higher with the flashy US\$100 per barrel price tag indeed a reasonable sounding target," Innes said.

## LOOMING SLOWDOWN?

With oil prices soaring, there are concerns over their inflationary effect on demand growth, especially in Asia's emerging markets where weakening currencies are further adding to high fuel import costs.

Add the trade disputes between the United States and other major powers, especially China, and economic growth into 2019 could be eroded.

Growth in China's manufacturing sector already sputtered in September as both external and domestic demand weakened, two surveys showed on Sunday.

In Japan, business confidence among big manufacturers declined in the last quarter, its lowest in nearly a year, as firms felt the pinch from rising raw material costs and as global trade conditions worsened. — *Namapa-Reuters*

# Women only own 20% of farms

• TJIPENAND JAMBI KUHANGA

THE Namibia Statistics Agency says men own 66% of commercial farms countrywide, compared to 20% owned by women.

This information was contained in a media statement issued on Monday by the NSA's chief executive officer, Alex Shimuafeni, after the release of the agency's agricultural commercial sector census for 2013/14.

He added that the census did not give details of the owners of the remaining 14% of the farms.

The results in the report are based on the 3 337 (50%) commercial farms that responded to the census out of 6 690 commercial farms.

"The regions with the highest female farm workers were Hardap (28%), Otjozondjupa (16%), Oshana (12%) and Karas (11%). The

census conducted was only based on half of the commercial farms that responded to the census, and most of the farms were in the Otjozondjupa, Karas, Hardap and Erongo regions", Shimuafeni stated.

The chief executive further noted that the questionnaire used gave assurances that the census focused on the collection of data on crop production, crop storage, livestock production and fish farming.

Meanwhile, the NSA indicates that 88% of farm owners are Namibians, followed by German nationals owning approximately 1% of farms, while less than 1% belong to South Africans.

"The census covered both communal and commercial agricultural sectors. Hence, the fact remains that the agricultural sector contributes massively to the growth of the country's economy by creating opportunities for employment and food security for both men and women", he added.

## NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS

EXPANSION OF EXISTING IRRIGATION SCHEME ON FARM TSUMORE 761 OSHIKOTO REGION, NAMIBIA

Environmental Compliance Commission or (ECC) hereby give notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

Applicant: Tsamora Farming (Pty) Ltd  
Environmental Compliance Consultancy  
Location: Oshikoto Region, Namibia

Project: Proposed expansion to the irrigation project located on Farm Tsamora 761 Unit B, Portion 46, A located in the Oshikoto Region, Namibia.

Proposed Activity: The proposed project is for the expansion of an irrigation scheme on Farm Tsamora 761 Unit B, Portion 46, A located in the Oshikoto Region, Namibia. The project currently involves irrigation of approximately 200,000 cubic metres and the proposed intends to expand the operation to approximately 370,000 cubic metres for an area of 25 hectares via six irrigation and 28 hectares nearby flood irrigation.

Application for Environmental Clearance or Certificate in terms of the Environmental Management Act, 2007 (No 7 of 2007), ECC or holder of Irrigation Permit (IP) (if it is required) to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Forestry for the above-mentioned project.

Review Period: The notice and consent period is to provide SAP's and stakeholders an opportunity to comment on the project. This period is effective from 20<sup>th</sup> September 2018 - 10<sup>th</sup> October 2018. Interested and affected parties (SAP's) and Stakeholders are required to register for the project at: <http://www.environmental.com.na>

CONTACT: Mr JB Bendaibweh or Mr J Mooney - Environmental Compliance Consultancy  
Registration Number: ECR08 001484  
P.O. Box 9194, Klein Windhoek  
Tel: +264 011 83 0216 or +264 91 833 0214  
E-mail: [info@environmental.com.na](mailto:info@environmental.com.na)  
Website: <http://www.environmental.com.na>  
Project ID: ECC-43-081





# Modric crowned football king

• **ROB HARRIS**  
LONDON—Cristiano Ronaldo and Lionel Messi were far from the audacious by the River Thames when Luka Modric broke their decade-long grip on Fifa's award for the world's best player.  
Football's biggest individual accolade was handed to the 33-year-old playmaker on Monday night in recognition of a year when he led Croatia to its first World Cup final and won a fourth Champions League title in five seasons with Real Madrid.  
"It is very important, because for such a small country to win the best player award, it's something amazing and that

shows other small countries that everything is possible," Modric said. "You just need to believe and to work for it. And that all dreams could come true."  
It required voters to be more imaginative and not just make the predictable picks of Ronaldo and Messi, who split the previous 10 awards. Messi voted for Modric, while Ronaldo and Modric each voted for Real Madrid's Raphael Varane.  
Brazil's Marta did become a six-time winner, earning the women's honour for the first time since 2010.  
Another Brazilian, Kaka, had been the last player other than Messi or Ronaldo to claim the men's prize from Fifa, at the 2007 gala.  
"We knew we were surrounded by two aliens that were just sharing these awards," Real Madrid and Spain defender Sergio Ramos said. "But I think it is also very positive to recognise the work, the career and the season of players that are not just strikers. I am really happy for Luka Modric".  
Modric has had to accept playing in Ronaldo's shadow during six years at Madrid even as the 1,72 metres (5-foot-8) technically-gifted Croatian's ingenuity on the ball and passing range made him a key component in the team's European dominance.  
Modric and Ronaldo



Photo: Contributed

**FOOTBALL ROYALTY...** NFA Women's Football manager Jaqui Shipanga (right) congratulates Brazil's Marta on being crowned the world's best female footballer.



Nampa-AP

**THE BEST...** Real Madrid and Croatia midfielder Luka Modric won Fifa's top award during The Best FIFA Football Awards ceremony in London, England on Monday.

were on a third successive Champions League in May before achieving something far more unexpected: captaining Croatia to its first World Cup final.  
"I would change all my individual trophies for that trophy of World Cup champion," Modric said, reflecting on the 4-2 loss to France in the final in July.  
Modric, who joined Madrid from Tottenham in 2012, received 29% of votes from the coaches and captains of national teams, reporters and fans.  
Ronaldo, who left Madrid in the off-season to join Italian champion Juventus, was second with 19%. He captained European Portugal to a round-of-16 exit at the World Cup.  
Mohamed Salah was third with 11% after scoring a record 32 goals in a 38-game English Premier League season for Liverpool, which reached its first Champions League final in 11 years.

to Modric on their social media accounts, which have hundreds of millions of followers.  
"Two guys we don't know," actor Idris Elba, who hosted the show, said after highlighting the absence of Messi and Ronaldo.  
Former Croatia captain Zvonimir Boban, now a Fifa deputy secretary general, cried after being lauded by Modric from the stage.  
"At this particular moment, I would like to mention my footballing idol and captain of Croatia generation 1998," Modric said, referring to the team that finished third in the nation's first World Cup appearance 20 years ago.  
"He was my big inspiration and that team gave us belief that we could achieve something great in Russia. Hopefully we can be the same for next generations."

France forward Kylian Mbappe was fourth and Messi fifth with just under 10% of the vote. Messi scored 45 goals for Barcelona, which won the Spanish title, but only netted once at the World Cup as Argentina was eliminated in the round of 16.  
Messi and Ronaldo skipped the ceremony at London's Royal Festival Hall and sent no messages of congratulations

after becoming only the third man to win the World Cup as a player and coach.  
Reynald Pedros, the Frenchman who led Lyon to French league and Champions League glory, became the first club coach to win the women's game award, previously exclusive to national-team managers.

**GOAL**

Salah didn't leave empty-handed, earning the Puskas Award for his goal in the Merseyside derby last December. Salah's goal in Liverpool's 1-1 draw against Everton was a mixture of strength and footwork. Receiving a pass from right back Joe Gomez, Salah shrugged off Cuca Martina, twisted inside Idrissa Gueye and curled a left-footed shot around Ashley Williams and into the top corner.

**GOALKEEPER**

Thibaut Courtois added the Fifa goalkeeper award to the Golden Glove he collected in Russia for helping Belgium to third place with three clean sheets. Courtois left Chelsea for Madrid after the tournament.

- Nampa-AP

# Six in a row for Rusch

• **STAFF REPORTER**  
HENNER Rusch scooped the Open Class championship for the sixth successive year when he won the penultimate race of the season, which was sponsored by Bluechip Spraypainting, at Farm Otjize last weekend.  
The track underwent numerous changes from the previous race held at the same venue. These changes met universal approval from the riders. The track was a good mix of flowing single track and technical uphill.  
In the Open Class, Rusch managed to win his sixth consecutive championship title with one round to spare. He again showed superior speed on the day and managed to win the race with an advantage of just over 10 minutes over second-placed Rainer Sentefol.  
This was Sentefol's first visit to the podium in 2018, while Gunther Gladis came third. This result also guarantees Gladis' second place in the championship. He now has a 22-point gap over Heiko Stranghner, who finished in fourth place at the weekend's race, while Sigi Pack came fifth.  
The Master Class was again a tight affair with the top three riders separated by a mere nine minutes. Jon Greiter managed to take the win on the day with Werner Wiense and Ronald Geiger finishing second and third respectively, while championship leader Marin Kruger finished fourth. This result means that Kruger, Wiense and Greiter will enter the last round of the championship with only two points separating the three riders.  
The Support Bikes was an even tighter race with the top four riders separated by only

four minutes. Coming home in first and winning his first race of the year was Quinton van Rooyen. The former Fittest Man in Africa used his fitness to good effect as he outclassed Oliver Rohrmuller and Rian Kritzinger. Fourth place was taken by Jaco Husselman with the returning Dirk Hohmaier rounding out the top five.  
With his second place finish Oliver Rohrmuller also managed to wrap up the Championship in this class with one round to spare. Rohrmuller now has an unassailable lead, but the race for second and third positions is still on with Kritzinger, Husselman and last year's champion Jurgen Gladis all still in contention for podium finishes.  
In the Beginner Bikes category it was back to winning ways for JL Opperman, having not finished the previous race due to a mechanical



**RUGGED ...** Sigi Pack competing in the Open Class at the Otjize Enduro.

Photo: Contributed

failure. Second place was taken by Andre Marais, with Adan Johnston finishing third. Rounding out the top five was John Simpson and Chris Snyman. Opperman now stands on the cusp of his first championship title in the class. He only needs to finish the last race of the season to secure the title.  
In the Development Class it was a first win of the season for Keanan Simpson who finished 42 seconds ahead of

championship leader Dylan Hilfiker. The second place finish was however enough to secure the title for Hilfiker in this class. Third place went to Caleb Russ with Andre Barnard and Charles Koster rounding out of the top five.  
The last race of the season will be held in the Kupperberg region just outside Windhoek on 20 October. For more information, like their Facebook page or visit [www.namibianduro.com](http://www.namibianduro.com)

**NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS**  
EXPANSION OF THE UNIVERSITY OF NAMIBIA, EXTENSION OF THE KATIMA MULILO CAMPUS ZAMBESI REGION, NAMIBIA

Environmental Compliance Consultancy as (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

**Applicant:** University of Namibia  
**Environmental Assessment Practitioner:** Environmental Compliance Consultancy  
**Location:** Zambesi Region, Namibia

**Project:** The University of Namibia (UNAM) proposes to extend the Katima Mulilo Campus, Zambesi Region for the construction of a new facility for the Department of Wildlife Management and Fisheries.

**Proposed Activity:** The proposed project is for the creation of an extension to the Katima Campus, which is likely to include the following facilities: Lecture halls, Office spaces, Boardrooms, Laboratories, Administration offices, Student accommodation for a maximum of 120 students, athletic facilities and common areas, Staff accommodation, and Exhibition facility. The site shall also have a jelly, agricultural areas and open spaces so that lecturing can occur within the natural environment.

**Application for Environmental Clearance Certificate:** In terms of the Environmental Management Act, 2007 (No 1 of 2007), ECC on behalf of UNAM is required to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Tourism for the above-mentioned project.

**Review Period:** The review and comment period is to provide ISAP's and stakeholders an opportunity to comment on the project, this period is effective from 20<sup>th</sup> September 2018 – 09<sup>th</sup> October 2018. Interested and affected parties (ISAPs) and Stakeholders are required to register for the project at: <http://www.environmental.com.na/submitcomment>

**CONTACT:** Mr JJ Brandt/Head or Mrs J Mosey – Environmental Compliance Consultancy  
Registration Number: CC029131484  
P.O. Box 91183, Water Windhoek  
Tel: +264 618 63 1214 or +264 81 662 1214  
E-mail: [info@environmental.com.na](mailto:info@environmental.com.na)  
Website: <http://www.environmental.com.na>  
Project ID: ECC-83-188

**NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS**  
EXPANSION OF EXISTING IRRIGATION SCHEME ON FARM TSUMORE 761 OSHIKOTO REGION, NAMIBIA

Environmental Compliance Consultancy as (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

**Applicant:** Tsumore Farming (Pty)  
**Environmental Assessment Practitioner:** Environmental Compliance Consultancy  
**Location:** Oshikoto Region, Namibia

**Project:** Proposed expansion to the irrigation project located on Farm Tsumore 761 Unit B, Parfers 48, A located in the Oshikoto Region, Namibia.

**Proposed Activity:** The proposed project is for the expansion of an irrigation scheme on Farm Tsumore 761 Unit B, Parfers 48, A located in the Oshikoto Region, Namibia. The project mainly involves irrigation of approximately 200,000 cubic metres and the proposal intends to expand the capacity to approximately 370,000 cubic meter for an area of 25 hectares via drip irrigation and 20 hectares on the pivot irrigation.

**Application for Environmental Clearance Certificate:** In terms of the Environmental Management Act, 2007 (No 1 of 2007), ECC on behalf of Tsumore Farming (Pty) Ltd is required to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Tourism for the above-mentioned project.

**Review Period:** The review and comment period is to provide ISAP's and stakeholders an opportunity to comment on the project, this period is effective from 20<sup>th</sup> September 2018 – 09<sup>th</sup> October 2018. Interested and affected parties (ISAPs) and Stakeholders are required to register for the project at: <http://www.environmental.com.na/submitcomment>

**CONTACT:** Mr JJ Brandt/Head or Mrs J Mosey – Environmental Compliance Consultancy  
Registration Number: CC029131484  
P.O. Box 91183, Water Windhoek  
Tel: +264 618 63 1214 or +264 81 662 1214  
E-mail: [info@environmental.com.na](mailto:info@environmental.com.na)  
Website: <http://www.environmental.com.na>  
Project ID: ECC-83-188

**12 ADVERTS**

**Informanté**

13 September - 19 September 2018



**NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS**

**EXPANSION OF EXISTING IRRIGATION SCHEME ON FARM TSUMORE 761 OSHIKOTO REGION, NAMIBIA**

Environmental Compliance Consultancy cc (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

**Applicant:** Tsumore Farming (Pty)  
**Environmental Assessment Practitioner:** Environmental Compliance Consultancy  
**Location:** Oshikoto Region, Namibia.

**Project:** Proposed expansion to the irrigation project located on Farm Tsumore 761 Unit B, Portion 48, A located in the Oshikoto Region, Namibia.

**Proposed Activity:** The proposed project is for the expansion of an irrigation scheme on Farm Tsumore 761 Unit B, Portion 48, A located in the Oshikoto Region, Namibia. The project currently involves irrigation of approximately 200,000 cubic meters and the proponent intends to expand the operation to approximately 370,000 cubic meter for an area of 25 hectares via drip irrigation and 28 hectares centre pivot irrigation.

**Application for Environmental Clearance Certificate:** In terms of the Environmental Management Act, 2007 (No 7 of 2007), ECC on behalf of Hangala Foods (Pty) Ltd is required to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Tourism for the above-mentioned project.

**How you can participate:** ECC is undertaking the required environmental assessment and public participation process in accordance with the Act. Interested and affected parties (I&APs) and Stakeholders are required to register for the project at: <http://eccenvironmental.com/projects/>

**Purpose of the Review and Comment Period:** As part of the public participation process, the purpose of the review and comment period is to present the proposed project and to afford I&APs an opportunity to comment on the project to ensure that all issues and concerns are captured and considered in the assessment.

**Review Period:** The review and comment period is effective from 13th September – 1st October 2018.



Contact: Mr JS Bezuidenhout or Ms J Mooney  
Environmental Compliance Consultancy  
Registration Number: CC/2013/11404  
PO Box 91193, Klein Windhoek  
Tel: +264 816 53 1214 or +264 81 653 1214  
E-mail: [info@eccenvironmental.com](mailto:info@eccenvironmental.com)  
Website: <http://www.eccenvironmental.com>  
Project ID: ECC-83-168

# PETROFUND

PETROLEUM TRAINING AND EDUCATION FUND

## Scholarships for the 2019 academic year

The Board of Trustees of the Petroleum Training and Education Fund, an institution established to build capacity for the petroleum exploration and production industry in Namibia is pleased to announce the availability of postgraduate petroleum sciences specialization and undergraduate scholarships for the 2019 academic year.

1. **Available scholarships:**  
The following scholarships are available to high performing and motivated students intending to undertake full-time studies in the following fields only:
  - 1.1 **Post Graduateee Scholarships (September intake):**
    - MSc. Oil and Gas Taxation, 1 year only;
    - BSc. Honors: Geology in SADC, 1 year only (January intake);
  - 1.2 **Undergraduate Scholarships (SADC Region only):**
    - BSc. Engineering (all fields);
    - B. Education (Mathematics and Science)

The scholarships should be applied through the Petrofund website - [www.petrofund.org/esas/](http://www.petrofund.org/esas/)
  - 1.3 **Chevening/Petrofund Joint Scholarships:**
    - MSc. Oil and Gas Accounting, 1 year only;
    - MSc. Oil and Gas Law, 1 year only offered jointly with Chevening Scholarship.

Applications must be submitted via the Chevening website: <http://www.chevening.org/namibia/>

Applicants are reminded that applications for courses other than named above will not be considered.

2. **Requirements for interested candidates to be considered for the scholarships:**
  - Namibian citizenship;
  - An interest in pursuing a career in the Namibian petroleum industry;
  - Relevant honors or undergraduate

degree with an average pass of 60% and above for postgraduate scholarships;

- Outstanding academic results with excellent passes in mathematics, sciences and English for undergraduate scholarships;
  - Willingness to commence studies in the 2019 academic year;
  - Pass relevant English tests where applicable;
  - Proof of admission for the desired course;
  - Certified copies of all relevant academic records;
  - Complete and submit an application form online.
3. **Important information for applicants:**
    - Only shortlisted applicants will be contacted and invited for oral interviews on dates that will be communicated to the applicants;
    - No scholarship applications will be considered unless completed online at the website: [www.petrofund.org/esas/](http://www.petrofund.org/esas/) or [www.chevening.org/namibia](http://www.chevening.org/namibia)
    - Petrofund will provide information about universities that offer the advertised petroleum science programs upon request.
  4. **Enquiries:**  
All enquiries should be forwarded to the Assistant to the Chief Executive Officer: Ms. Elizabeth Shimwafeni; Tel: +264 61 204 5018; Fax/Email: +264 88-651 0721; E-mail: [eshimwafeni@namoor.com.na](mailto:eshimwafeni@namoor.com.na)
  5. **Deadline for completing and submission of online application forms:**  
The closing date for submission of the Petrofund scholarship applications is Friday, 28<sup>th</sup> September 2018 @ 24:00 hours while the closing date for submitting Chevening/Petrofund Joint Scholarship is Wednesday, 7<sup>th</sup> November 2018 @ 24:00 hours.



All applications for the scholarships should be completed online at [www.petrofund.org](http://www.petrofund.org)

**NOTHING BEATS WACKY WEDNESDAY**

**STEERS**

**Informanté**  
061-275 4716 / 061-275 4715 / 061-275 4714 / 061-275 4713  
[www.informante.web.na](http://www.informante.web.na)

## **APPENDIX E: ECC CVS**



# Stephan Bezuidenhout

Managing Director



Hello! :)

## ABOUT ME

**Name**  
Jacobus Stephan Bezuidenhout  
- But you can call me Stephan -

**Born**  
11 April 1989

**Phone**  
+27 74 181 8891 or  
+264 81 262 7872

**Email**  
stephan@enviroconsultants.co.za

**Website**  
www.enviroconsultants.co.za

Contact me!

## How to reach me!

+264 81 262 7872 

Stephan.bezuidenhout 

+27741818891 

Stephan Bezuidenhout 



## Education & Qualifications

**University of Pretoria  
South Africa  
2012**

Bachelor of Applied Science Hons -  
Environmental Management

**University of Stellenbosch  
South Africa  
2008**

Bachelors in Geography and Environment

### Additional Qualifications:

- EcoNomics Sustainable Design Training Programme – Worley Parsons Int.
- Snake Bite and Snake Handling
- Level 1 & 2 First Aid
- Industrial Environmental Compliance

### Publications:

*"Some ecological side-effects of chemical and physical bush clearing in a southern African rangeland ecosystem" in the South African Journal of Botany. Published on 14 Aug 2015.*



## Experience & Work History

### Current

#### Managing Director

Environmental Compliance Consultancy  
Providing professional consulting services to clients in Namibia with particular focus on approvals, ECCs, reporting and compliance.

- ECC Approvals
- Mine Closure Plans
- Rehabilitation
- Pipeline projects
- Cultural Change programmes
- IMS (ISO14001 and 18001)

### Feb 2015 - Current

#### ENVIRONMENTAL CONSULTANT & PRACTITIONER

Clients in SA & Namibia

*In February 2015 an opportunity came about to launch my own business, Environmental Compliance Consultancy (ECC). During this time I have worked alongside Savannah Environmental (Pty) LTD and other consultancies to deliver several environmental projects including:*

- Abengoa Solar SA, Kaxu Solar One (100MW) Concentrating Solar Plants (CSP) Trough Environmental Control Officer during commissioning and rehabilitation phases Northern Cape Province, South Africa



## Stephan Bezuidenhout

Managing Director  
+264 81 262 7872

### References

*Feel free to ask the boss :)*

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

**ESCA COETZEE**  
Environmental Scientist  
Sasol Technology

**PHIL BARKER**  
Pipeline Construction Superintendent  
Worley Parsons

*Or ask those who have worked for me?*

**Michael Moreland**  
Environmental Scientist  
CSP Solar Energy Projects

### Professional Associations

- South African Institute of Ecologists and Environmental Scientists (SAIE&ES)
- Environmental Assessment Practitioners Association of Namibia (EAPAN#172).

### Fun Facts:

- Keen fisherman (Big Game Fish)
- Passionate Hunter & Conservationist
- 21ft vessel certified skipper
- Summated Kilimanjaro
- Have survived scorpion stings and a snakebite!
- Did I mention I love camping?

### Words I live by:

**'Do what makes you happy  
the rest will follow'**



### Experience & Work History

#### Feb 2015 - Current Continued...

- Konkoonsies II PV Solar Energy Facility, On-site substation and a 132kV power line Environmental Assessment Practitioner during EIA process Northern Cape Province, South Africa
- Abengoa Solar SA Paulputs CSP (Pty) Ltd. 150 MW CSP Tower Environmental Assessment Practitioner during EIA Process Northern Cape Province, South Africa
- Abengoa Solar SA, Xina Solar One (200 MW) CSP Trough Environmental Control Officer during construction phase. Northern Cape Province, South Africa
- Abengoa Solar SA, Khi Solar One (50 MW) CSP Tower. Environmental Control Officer during commissioning and rehabilitation phases. Northern Cape Province, South Africa for Abengoa Solar
- Isondlo Project Support (IPS) (Pty) Ltd. Soil Remediation and commissioning report of NGALA Camp. Gauteng, South Africa
- Berekisanang Empowerment Farm. Annual external Water Use Licence audit and 70 hectare agricultural development. Northern Cape, South Africa.
- Ebeneaser Empowerment Farm. Annual External Water Use Licence Audit. Northern Cape, South Africa

#### Jan 2013 - Feb 2015 Environmental Coordinator

ROMPCO PIPELINE – Worley Parsons  
Mozambique and South Africa

- Experience was gained in the oil & gas and construction industries. The pipeline length was 127km. Application and obtaining of environmental permits encompassed a large section of the role. The position also required the management of an on-site environmental team. It was required to meet with different governmental departments and build relationships with key individuals to allow swift communication and permit a platform for transparency. Ensured compliance with National, best neighbouring as well as IFC legislation and standards. Review and submission of monthly reports and monthly audits was also a requirement of the position.