

APP-003129
ACHILL ISLAND INVESTMENTS AGRICULTURAL PROJECT
AUSSENKEHR NAMIBIA
ENVIRONMENTAL MANAGEMENT PLAN



Assessed by:



Assessed for:

**Achill Island Investments
(Pty) Ltd**

February 2022

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| Project: | ACHILL ISLAND INVESTMENTS AGRICULTURAL PROJECT, AUSSENKEHR, NAMIBIA: ENVIRONMENTAL MANAGEMENT PLAN | |
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| Report Approval | Pierre Botha Managing Director | |

I Kevin Liddle, the Proponent, hereby confirm that the project details contained in this report is a true reflection of the information which the Proponent has provided to Geo Pollution Technologies. All material information in the possession of the Proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this management plan is fairly represented in this report.

Signed at Cape Town on the 23 day of February 2022.



Achill Island Investments (Pty) Ltd

2015/0898

Company Registration Number

TABLE OF CONTENTS

| | | |
|----------|--|----------|
| 1 | BACKGROUND AND INTRODUCTION | 1 |
| 2 | SCOPE | 2 |
| 3 | ENVIRONMENTAL MANAGEMENT PLAN | 2 |
| | 3.1.1 <i>Planning</i> | 2 |
| 4 | CONCLUSION | 1 |

LIST OF FIGURES

| | |
|-----------------------------------|---|
| FIGURE 1-1 PROJECT LOCATION | 1 |
|-----------------------------------|---|

LIST OF TABLES

| | |
|--|----|
| TABLE 3-1. THE DEVELOPMENT PHASE (CONSTRUCTION / CARE AND MAINTENANCE) | 1 |
| TABLE 3-2. THE OPERATIONAL PHASE | 5 |
| TABLE 3-3. DECOMMISSIONING PHASE | 10 |

LIST OF ABBREVIATIONS

| | |
|-----------------|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| dB | Decibel |
| DEA | Directorate of Environmental Affairs |
| DWA | Department of Water Affairs |
| EA | Environmental Assessment |
| ECC | Environmental Clearance Certificate |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act No 7 of 2007 |
| EMP | Environmental Management Plan |
| EMS | Environmental Management System |
| GPT | Geo Pollution Technologies |
| HIV | Human Immunodeficiency Virus |
| HSEQ | Health, Safety, Environment and Quality |
| HSE | Health, Safety and Environmental |
| IAPs | Interested and Affected Parties |
| IUCN | International Union for Conservation of Nature |
| MAWLR | Ministry of Agriculture, Water and Land Reform |
| MEFT | Ministry of Environment, Forestry and Tourism |
| mm/a | Millimetres per annum |
| MSDS | Material Safety Data Sheet |
| ORASECOM | Orange-Senqu River Commission |
| PPE | Personal Protective Equipment |
| SANS | South African National Standards |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WHO | World Health Organization |

GLOSSARY OF TERMS

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Competent Authority - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

Construction - means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".

Environmental Impact Assessment (EIA) - process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.

Environmental Management System (EMS) - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company's financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

Evaluation – means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

Public - Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

1 BACKGROUND AND INTRODUCTION

An environmental clearance certificate (ECC) was awarded to Karas Mountain Grapes (Pty) Ltd for irrigation activities on Portion 81 of the Farm Aussenkjer No 147 (Figure 1 1). However, since issuing the ECC, the company was liquidated and thereafter the property, including all operational assets, sold to Achill Island Investments (Pty) Ltd. The liquidating offices now wish to transfer the ECC to Achill Island Investments (Pty) Ltd. Achill Island Investments (Pty) Ltd (the Proponent) subsequently requested Geo Pollution Technologies (Pty) Ltd to apply for the transfer of the ECC (APP-003129). This updated environmental management plan (EMP) is prepared in support of the transfer application which was lodged with the Ministry of Environment, Forestry and Tourism (MEFT).

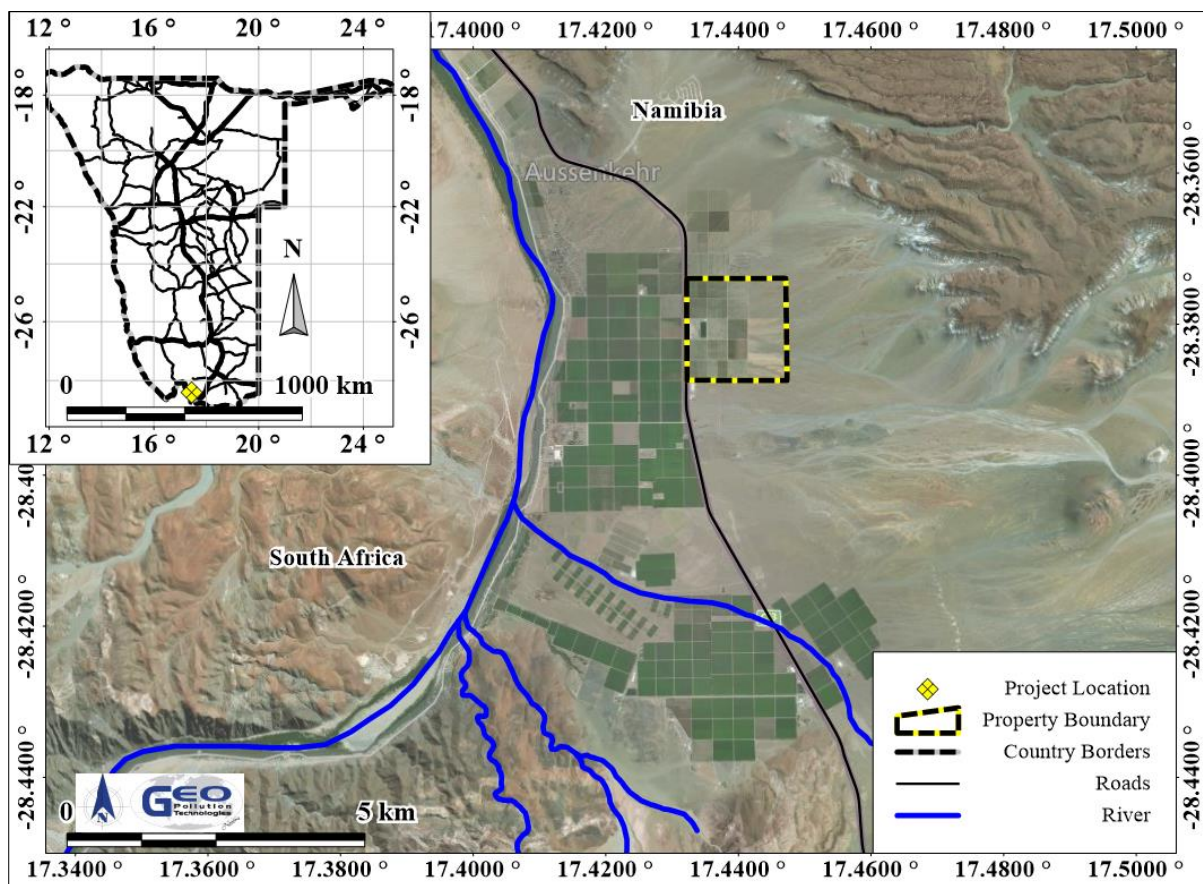


Figure 1-1 Project location

The EMP provides management options to ensure environmental impacts of irrigation and related activities are continually minimised. The environment being defined in the environmental assessment Policy and Environmental Management Act as “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values”.

This document should be used as an on-site reference document during all phases (planning, construction (care and maintenance), operations and decommissioning). All monitoring and records kept should be included in a report to ensure compliance with the EMP. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. A Health, Safety, Environment and Quality (HSEQ) policy as well as Environmental Policy could be used in conjunction with the EMP. Operators and responsible personnel must be taught the contents of these documents. Local authority and/or national regulations and guidelines must be adhered to and monitored regularly as outlined in the EMP

2 SCOPE

The scope of the EMP is to:-

- ◆ Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels.
- ◆ Provide sufficient information to the relevant competent authorities and the MEFT to make informed decisions regarding the operations and transfer application.

3 ENVIRONMENTAL MANAGEMENT PLAN

The EMP provides management options to ensure impacts of the farm 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 environmental management measures are provided in the tables and descriptions below. These management measures should be adhered to during the various phases of the operations of the farm. All personnel taking part in the operations of the farm should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- ◆ to include all components of operations, maintenance and possible decommissioning of the agricultural development;
- ◆ to prescribe the best practicable control methods to lessen the environmental impacts associated with the development;
- ◆ 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.

Various potential and definite impacts will emanate from the operations, maintenance and possible future decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts with prevention and mitigation measures are listed below. Impacts related to the operational phase are expected to mostly be of medium to low significance and can mostly be mitigated to have a low significance. However, cumulative impacts, especially related to the Orange River quality and availability of the resource are of high importance. Data related to water abstraction volumes and water quality, should be made submitted to the relevant authorities on a continual basis.

Operations are existing and although planning for the operations was completed, some planning activities remain relevant. These are listed in the section below.

3.1.1 Planning

During the phases of planning for continued operations, maintenance and possible future decommissioning of the farm, it is the responsibility of the Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to, and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the operations of the facility are in place and remains valid. This includes the water permits and petroleum products licence (if required).
- ◆ Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP is understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- ◆ Make provisions to have a Health, Safety and Environmental (HSE) coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- ◆ Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
 - EMP / risk management / mitigation / emergency response plan and HSE manuals

- Adequate protection and indemnity insurance cover for incidents;
- Comply with the provisions of all relevant safety standards;
- Procedures, equipment and materials required for emergencies.
- ◆ If one has not already been established, establish and maintain a fund for future restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish and / or maintain a bi-annual reporting system to report on aspects of operations, maintenance and decommissioning as outlined in the EMP.
- ◆ Submit bi-annual reports to the MEFT to allow for environmental clearance certificate renewal after three years. This is a requirement by MEFT.
- ◆ Appoint a specialist environmental consultant to update the EMP and apply for renewal of the environmental clearance certificate prior to expiry.

The following tables present the management measures for the construction, operational and decommissioning activities.

Table 3-1. The development phase (construction / care and maintenance)

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|--|---|--|--|--|
| Skills, Technology & Development | Enhanced skills and technology transfer to the region and subsequent promotion of economic development. | Training must be provided to Namibians to ultimately employ a predominantly Namibian workforce. Trained personnel to be issued with training certificates or managerial reference letters. Skills development and improvement programs to be made available as identified during performance assessments. | Copies of training or certification or managerial references on file. | Proponent; Contractor; Directors & Public Relations personnel. |
| HIV/AIDS, In-migration, Informal Settlements and Communicable Disease | Increased spread of HIV/AIDS and communicable disease; increased influx to the region and Aussenkehr in particular. Increased informal settlement and associated social challenges. | Employment for local people (already established) should be preferred. Deviations from this practice should be justified. Educational programs / material on HIV/AIDS and communicable diseases to be provided to employees. | Summary report of HIV educational programmes and training. Employee records kept on file. | Proponent; Directors & Public Relations Personnel. |
| Employment | The agricultural sector plays an important role in providing employment to locals. | If skills exist locally Namibians must be employed. Alternatively, training must be provided to Namibians to ultimately employ a predominantly Namibian workforce. | Employee records kept on file. | Proponent; Directors & Public Relations Personnel. |
| Health & Safety | Risks include work related injuries such as falling from heights, accidents involving vehicles, heavy construction machinery and/or chemicals. | Qualified operators to work with heavy machinery. All Health and Safety standards specified in the Labour Act and other applicable legislation should be complied with. All staff members must be briefed about potential health risks and injuries on site. All staff involved in development activities or handling of chemicals must at all times wear personal protective equipment (PPE). Safe working conditions must be provided when working at heights or in confined spaces. Selected personnel should be trained in first aid. The contact details of all emergency services must be readily available. Ensure that all personnel receive adequate instruction on operating of equipment / handling of hazardous substances. | Any incidents must be recorded monthly with action taken to prevent future occurrences. The report should contain dates when training was conducted and when safety equipment and structures were inspected and maintained. | Contractor; Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|-------------------------|---|---|--|-------------------------|
| Traffic Impacts | Traffic incidents may occur during delivery of equipment and building materials, mostly at the turnoff to the project area. | <p>Confirm operators have the training and / or skills required for the use of heavy machinery.</p> <p>Regulation of traffic during deliveries for development activities especially for any special or abnormal loads which may be required.</p> <p>Erect warning signs where heavy motor vehicles (HMV) may frequently operate. Erect adequate warning signs associated with any traffic risks. Cover all open loads (such as sand transportation). Transport labourers in suitable transport units. All vehicles are to be roadworthy.</p> <p>All drivers are to adhere to all the Namibian requirements in terms of operating the vehicle driven.</p> | <p>Visual observation of impacts on traffic should be made.</p> <p>Any traffic complaints received must be taken up with the relevant authorities and discussed with the Proponent.</p> <p>Any incidents must be recorded with action taken to prevent future occurrences.</p> | Contractor, Proponent |
| Noise | Noise due to presence of heavy machinery and construction activities on site. | <p>World Health Organization (WHO) guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment is followed. This limits noise levels to an average of 70 dB over a 24 hour period with maximum noise levels not exceeding 110 dB during the period.</p> <p>Hearing protectors must be issued as part of PPE if required.</p> | <p>Any complaints received regarding excessive noise should be recorded with notes on action taken. Any negative effects caused from excessive vibrations should be recorded as well.</p> <p>Any incidents must be recorded monthly with action taken to prevent future occurrences.</p> | Proponent |
| Waste Production | Any waste produced as a result of the development process, including waste water. | <p>All waste produced must be collected and sent to the existing disposal facility. Disposal of hazardous waste to be at a hazardous waste disposal facility.</p> <p>Water contaminated with hydrocarbons may not be disposed of on-site.</p> | <p>A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.</p> <p>Any complaints received regarding waste should</p> | Contractor |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---|---|---|---|------------------------------|
| <p>Groundwater, Surface Water and Soil Contamination</p> | <p>Hydrocarbon pollution from spills or leaks from vehicles, or chemicals (such as herbicides and pesticides) may cause water pollution in cases where the leaks and spills are not controlled and left to seep into the ground (drainage water and ultimately the Orange River).</p> | <p>Regular inspections and maintenance of all development vehicles to ensure no leaks are present. Vehicles to be serviced and fuelled at appropriate facilities (such as workshop) on an impermeable surface with related pollution management structures. All waste must be removed from the project operational area and disposed of timeously. Any spills must be cleaned up immediately. Select alternative chemicals/materials that would not pose a threat to the groundwater, e.g. water based paints vs. solvent based paints. Hydrocarbon fuel spills to be remediated and significant spills to be logged on an incident register. Polluted soil and building rubble must be transported away from the site to an approved and appropriately classified waste disposal site. Polluted soil must be remediated where possible. Flow attenuation structures to be employed at drainage water discharge points where flow is concentrated. Implementation of incidents register. Implementation of maintenance register for all equipment and fuel / hazardous substance (such as chemicals) storage areas. All chemicals to be handled and stored according to Material Safety Data Sheet MSDS labels.</p> | <p>A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves. All spills or leaks must be reported on and cleaned up immediately. Any incidents must be recorded with action taken to prevent future occurrences.</p> | <p>Contractor</p> |
| <p>Fire</p> | <p>The possibility of a fire spreading to the surrounding vineyards.</p> | <p>Storage and handling of flammable products should be according to their MSDS instructions. A holistic fire protection and prevention plan is needed. All fire precautions and fire control at the facility must be up to date. Firefighting measures as per the MSDS of products should be adhered to where relevant.</p> | <p>A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves. Any incidents must be recorded with action</p> | <p>Contractor, Proponent</p> |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|--|---|---|--|-------------------------|
| Ecosystem and Biodiversity Impact | The impact on the ecological environment caused by development activities, including the clearing and excavation of the land etc. which in turn can result in land degradation. | No open fires should be allowed near vegetated areas. If human wildlife conflict exists MEFT must be consulted. No dumping of rocks and removed soil in environmentally sensitive areas. Where possible it can be used to fill erosion ditches, if any are present. Vehicle movement restricted to planned operational areas and no off-road driving to be allowed. Deviations to be motivated. It is recommended that dedicated roads be designed and maintained. | Regular inspection must be performed to monitor for any irregular activities outside the development footprint. Any incidents must be recorded with action taken to prevent future occurrences. | Contractor, Proponent |
| Illegal Hunting and Poaching of Wild Animals and Plant Material | Illegal hunting and poaching of wild animals, archaeological resources and plant material in conservation area and along the Orange River (including Kudu and wild horses). | All employees should be educated during induction about the value of biodiversity. Strict conditions prohibiting harvesting and poaching of fauna and flora should be part of employment contracts. Disciplinary actions to be taken against employees failing to comply with contractual conditions. | A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves. | Contractor, Proponent |
| Dust | Excessive dust generated from tillage and the movement of vehicles around the project area. This will be aggravated during periods of strong winds. | Personnel issued with dust masks where required and regular dust suppression on frequently travelled roads. Dust mitigation measures which may be considered include (but are not limited to) the following: Wetting of gravel roads (where appropriate). Main tillage activities to be conducted in calm conditions. Monitoring of dust accumulation on surrounding vineyards. Use of shade netting along main routes. | Any complaints received regarding waste should be recorded with notes on action taken. Any incidents must be recorded with action taken to prevent future occurrences. | Contractor, Proponent |
| Impact on Utilities, Infrastructure and Services | Any damage caused to existing infrastructure (such as roads) and water or electricity supply where present. Additional pressure on essential and related governmental services. | Appoint qualified and reputable contractors. Liaison with the local authorities and suppliers of services. The Proponent to report the proposed increases in demand for services to regional council and continue lobbying for change. | Report proposed increase in demand for services to local and regional authorities. Record of all infrastructure damage | Contractor, Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---------------------------------|---|---|---|-------------------------|
| Heritage and Archaeology | The discovery of archaeologically or culturally important sites. The damage and or destruction of important archaeological finds. | If any archaeologically important artefact is found, any work in that area must be halted and the relevant authorities must be informed. Firstly, the Namibian Police. Secondly, the National Monuments Council dealing with heritage. | Record any discoveries and proof of notifications to authorities on file. | Contractor |
| Cumulative Impact | The main cumulative impacts associated with the development phase include groundwater, surface water and soil pollution. | Addressing each individual impact recommended in the EMP would reduce the cumulative impact. Reviewing reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning, if the existing mitigations are insufficient. Stormwater measures to be designed as not to have a detrimental affect or concentrated flow onto adjacent farming operators. | Bi-annual monitoring reports to be compiled reporting on the EMP conditions. These are to be submitted to the MEFT. Review bi-annual reports to determine the cumulative nature of all individual impacts. | Proponent |

Table 3-2. The Operational Phase

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---|--|--|--|--|
| Skills, Technology and Development | Enhanced skills to the Karas Region. | The Proponent must employ local Namibian's where possible. Deviations from this practice should be justified. Maximise contribution to the Namibian economy by contribution to industry development and using Namibian suppliers. The Proponent should consider making economic education available to employees who wish to receive it (outside of normal business hours). Ensure that any training (on the job and/or certified) is recorded and/or managerial reference provided to the employees. | Files kept of training and the enhancement of skills and transfer of technology. | The Proponent |
| HIV/AIDS, In-migration, Informal | Increased spread of HIV/AIDS; Increased influx to the Karas Region; Increased informal | Primarily employ local people (already residing in the area) as far as possible. | Records of training conducted kept on file. Keep employee | Proponent; Directors & Public Relations |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---|--|---|--|-------------------------|
| Settlements and Communicable Disease | settlement areas and associated social challenges. | Educational programs and or material on HIV/AIDs and communicable disease should be employed. | demographics (age, gender, number of sick days) on file. | Personnel. |
| Employment | The project will sustain and increase employment in the !Karas Region. | Local Namibian's must be employed. Deviations from this must be justified. Adhere to all Namibian Labour Act requirements. | Maintain documentation of annual employment. | Proponent |
| Pressure on Service Infrastructure | Sustained employment and increased employment during harvesting season increases pressure on public infrastructure and services which include, but are not limited to, health, education, sanitation and security. | The Proponent to continue reporting possible increased demand for services to regional council and continue lobbying for change. Where feasible, the company may consider assisting government projects. | Maintain documentation of annual employment. | Proponent |
| Health, Safety & Security | The risk of accidents or injuries due to incorrect use of machinery, or equipment and/or chemicals, or equipment failure. | The health and safety regulations of the Labour Act must be adhered to. An integrated health and safety management system should be implemented. Typical preventative or mitigating measures within the health and safety management systems include: <ul style="list-style-type: none"> ● Qualified operators to work machinery and/or equipment, ● Safe work standard operating procedures, ● Health and safety training, ● Permits, where required, ● Emergency response plans, ● First aid treatment and training, ● Medical procedures and emergency services, ● Regular safety checks and/or drills. Procedures for dealing with health and safety issues must be in place and all contact details for emergency personnel and services available. Ensure that all staff members are briefed about the potential risks on site (including flash floods). Selected personnel should be trained in first aid. | Any incidents must be recorded with action taken to prevent future occurrences. Record of training, and inspections of safety equipment and structures. | Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|----------------|--|---|---|------------------|
| | | <p>Equipment must be locked away so that it does not encourage criminal activities (e.g. theft). Access to the locked away equipment should always be strictly controlled. No alcohol or recreational drugs are allowed in workplaces or vineyards. No labourers under the influence of either alcohol or drugs should be allowed to conduct any work.</p> | | |
| Traffic | General increase in traffic as a result of the project. | <p>Signs to be placed at junctions with main roads to warn oncoming traffic of operational farming vehicles. All vehicles to be fitted and maintained with adequate signalling devices to increase awareness over and above standard features. All operators / drivers to adhere to all the requirements of the Traffic Act.</p> | Any complaints received or incidents reported regarding traffic issues should be recorded. This should include mitigation measures to prevent future incidences. | Proponent |
| Fire | Outbreak of an uncontrolled fire in vineyards, pack-houses or operational areas. | <p>Open fires should not be allowed outside of designated areas. Firefighting and Fire Prevention:</p> <ul style="list-style-type: none"> ● Fire precautions and fire control must be present at the site. ● All flammable materials must be stored according to their material safety data sheet instructions. ● A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan and firefighting plan. <p>It is important to recognise that a responsive fire prevention plan does not solely include the availability of firefighting equipment, but more importantly, it involves premeditated measures and activities to timeously prevent, curb and avoid conditions that may result in fires.</p> | Any incidents must be recorded with action taken to prevent future occurrences. The report should contain dates of fire drills and when fire equipment was tested. | Proponent |
| Noise | Noise as a result of either machine and / or equipment operations. | Follow World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment. This limits noise levels to an average of 70 dB over a 24 | Any complaints received regarding excessive noise should be recorded with notes | Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|-------------------------|---|--|--|-------------------------|
| Dust | Dust generated from the movement of vehicles around operational areas and the exposure of bare soil during agricultural activities. This will be aggravated during periods of strong winds. | <p>hour period with maximum noise levels not exceeding 110 dB during the period.</p> <p>Personnel working in noisy environments must be issued with hearing protectors.</p> <p>Personnel must be issued with dust masks if required.</p> <p>Dust abatement measures to be employed and where applicable maintained on the most frequently used roads. These include measures as stipulated in the development phase.</p> | <p>on action taken.</p> <p>Regular visual inspection.</p> <p>A stakeholder complaints register must be maintained.</p> <p>Complaints must be investigated and, if appropriate, acted upon.</p> | Proponent |
| Waste Production | Any waste which can include hazardous waste, such as hydrocarbons or domestic waste. | <p>All legal requirements regarding effluent handling and disposal should be followed. In particular the necessary water abstraction permits and authorisations should be obtained from the Ministry of Agriculture Water and Land Reform (MAWLR).</p> <p>All other organic/biological waste must be disposed of or treated without delay to prevent attracting pests.</p> <p>Ensure that any planned landfills on the property are lined.</p> <p>All ablution facilities to be operated and maintained according to specification. Education regarding the use of such facilities to be provided, and the environmental degradation due to misuse.</p> <p>Staff to receive training on waste handling and the principles of reduce, reuse and recycle.</p> <p>Chemical and fuel handling and storage according to MSDS labels. Chemicals to be stored in a way that runoff water would not wash chemicals into the Orange River. No chemical / fuel storage should be within the 1:100 year flood line of the Orange River.</p> <p>Follow internal guideline procedures for storage and handling of chemicals to prevent toxins and nutrients from entering the Orange River and groundwater.</p> | <p>Any complaints received regarding waste should be recorded with notes on action taken.</p> <p>All data to be compiled in a 6 monthly report.</p> | Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|--|---|--|---|------------------|
| Groundwater, Surface Water and Soil Contamination | <p>Hydrocarbon pollution may result from machine and equipment spills and or leakages. Increase of nutrient levels or organic pollutants (from effluents and fertilizers) in the soil that can leach to shallow ground water.</p> <p>Spilled hazardous waste such as fuels and oil.</p> | <p>All vehicles must be serviced and maintained regularly. Spill control by making use of drip trays when needed. All hydrocarbon based fluids must be removed from site and disposed of at a recognised hazardous waste disposal facility.</p> <p>Any polluted soil or water to be treated as a hazardous waste.</p> <p>Maintain drainage channel.</p> <p>Employ best practice irrigation methods.</p> <p>Implementation of best salinity management practices</p> <p>Soil flushing should be minimised to reduce pollution of the Orange River.</p> <p>Monitor soil quality.</p> <p>Documentation of use of all chemicals, herbicide, pesticides and nutrients. Minimise application of herbicides, pesticides and nutrients as far as possible to minimise toxins and nutrients entering the groundwater.</p> <p>Incident records kept of all significant chemical and hydrocarbon spills and remediation measures taken.</p> <p>Re-use drainage water where possible (for example dust suppression).</p> | <p>Bi-annual monitoring of intake water quality; drainage water quality and water upstream and downstream of the drainage points.</p> <p>Reporting of all spills or leakages. The report should contain the following information:</p> <p>Date and duration of spill</p> <p>Product spilled</p> <p>Volume of spill</p> <p>Remedial action taken</p> | Proponent |
| Poaching, Hunting or Removal of Plant Material | <p>Personnel should be discouraged from partaking in poaching and made aware of the legal implications on conducting such offences.</p> | <p>All employees should be informed during induction of the value of biodiversity. Rules and regulations regarding the illegal harvesting of natural resources from the surroundings must be made clear and the disciplinary steps that will be followed against perpetrators must be issued in writing and form part of the employee's contracts.</p> | <p>A report of any incidents must be maintained.</p> | Proponent |
| Ecosystem and Biodiversity Impact | <p>Ecosystem and biodiversity impacts will mostly be as a result of the cumulative effect of other impacts such as groundwater, surface water and soil contamination, fire, poaching or illegal harvesting of plant material.</p> | <p>Trees listed as threatened by IUCN or in Appendix 2 of CITES and those protected by forestry legislation should not be removed unless permits from MAWLR have been obtained. Such trees include large trees on the banks of the Orange River.</p> | <p>Any incidents must be recorded with action taken to prevent future occurrences.</p> | Proponent |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---|--|---|--|---|
| Cumulative Impacts | Possible cumulative impacts associated with the development phase include groundwater, surface water and soil pollution. Additional impacts include social impacts which relate to service delivery and social challenges. | Photographic documentation of vegetation on the riverbank and at points along the drainage lines to monitor potential changes over time. Raise awareness of workers on the value of biodiversity and the need for its protection. Addressing each individual impact recommended in the EMP would reduce the cumulative impact. Reviewing bi-annual and annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient. Report poor water quality to ORASECOM. | BI-annual summary report based on all incidents, EMP performance, water monitoring results and soil analyses. | Proponent |
| Table 3-3. Decommissioning phase | | | | |
| Waste Production | Nature Upon decommissioning, waste will be produced in the form of building rubble, and obsolete equipment, structures, and/or residual products that can be used elsewhere or sold as scrap. Soil polluted by hydrocarbons must be treated as hazardous waste. | Mitigation To reduce the amount of waste all re-usable material must be removed to another site or sold. Those items that cannot be used again must be scrapped in the appropriate manner. Upon demolition of the buildings and concrete the rubble must be removed from the property and taken to an approved dumpsite. Rehabilitation if necessary is to be done using funds set aside for such purpose. | Monitoring Regular inspections to be performed during decommissioning. A register of waste produced and disposal methods to be maintained during decommissioning. | Responsible Body Proponent; Contractor |
| Ecological Impact | Operations spanning many years may create new habitat for fauna and flora. Upon decommissioning these habitats will be destroyed. | Where new habitats were created, that are now occupied by sensitive or protected fauna or flora, the MEFT or other appropriate organizations must be contacted to establish the conservation status and handling thereof. | A report should be compiled of any sensitive or protected fauna and flora that established itself on the premises. The report should include all actions taken to relocate or deal with the situation. | Proponent; Contractor |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|--|--|---|--|---|
| Employment | Decommissioning of the agricultural project will lead to retrenchments or re-location of staff. | Plan in advance for meeting the Labour Act's requirements for retrenching staff if required. | In the year prior to decommissioning, draft plans for handling of employees. The report should include budgeting for retrenchments and possible alternative positions elsewhere. | Proponent; Directors & Public Relations personnel or Human Resource Department. |
| Dust | Dust will be generated during the decommissioning phase and might be aggravated during periods of strong winds. | It is recommended that regular dust suppression be included in the decommissioning phase, when dust becomes an issue. Personnel should be issued with dust masks for work in dusty environments. | Regular visual inspection. A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon. | Proponent; Contractor |
| Noise | Noise pollution will exist due to heavy vehicles accessing the site to collect rubble from demolished building materials. | Noise levels during this phase should follow the WHO guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment. This limits noise levels in industrial areas to an average of 70 dB over a 24 hour period with maximum noise levels not exceeding 110 dB during the period. All personnel must be issued with hearing protectors and neighbours must be notified of the time and duration of decommissioning. | A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon. | Proponent; Public Relations Personnel; Contractor. |
| Groundwater, Surface Water and Soil Contamination | Hazardous and ecologically detrimental substances (such as hydrocarbons and chemicals) which are spilled may contaminate soil and drainage water as well as water in the Orange River. | All precautions are to be taken to prevent contamination of the soil as this could enter the ecosystem. Leakages from vehicles might occur especially if they are serviced on site. Drainage water might spread pollutants to neighbouring receptors. Pollutants in the soil and building rubble must be transported away from the site to an approved, appropriately classified waste disposal site. | Reporting of all spills or leaks is to be completed by decommissioning Contractor. | Proponent; Contractor |

| Criteria | Nature | Mitigation | Monitoring | Responsible Body |
|---|--|--|---|--------------------------|
| Health, Safety and Security | Health and Safety risks, similar to previous phases will be present. All other risks associated with demolitions must be considered. | <p>Adequate measures to ensure safety of staff on site, including:</p> <ul style="list-style-type: none"> ● Proper training of operators; ● First aid treatment; ● Medical assistance; ● Emergency treatment; ● Protective clothing, footwear, gloves and belts; safety goggles and shields. | During decommissioning, a register of all incidents must be maintained on a weekly basis. This should include measures taken to ensure that such incidents do not repeat itself. | Proponent; Contractor |
| Fire | Outbreak of an uncontrolled fire. | <p>Open fires should not be allowed outside designated areas.</p> <p>Firefighting and Fire Prevention:</p> <ul style="list-style-type: none"> ● Fire precautions and fire control must be present. ● All personnel to be sensitised about fire protection measures. ● A holistic fire protection and prevention plan must be drafted for the decommissioning phase and include an emergency response and firefighting plan. ● Experience has shown that the best chance to rapidly put out a major fire is in the first 5 minutes. It is important to recognise that a responsive fire prevention plan does not solely include the availability of firefighting equipment, but more importantly, involves premeditated measures and activities to timeously prevent, curb and avoid conditions that may result in fires. | Any incidents must be recorded monthly with action taken to prevent future occurrences. The report should contain dates when fire drills were conducted and when fire equipment was tested. | Proponent |
| Poaching, Hunting or Removal of Plant Material | Personnel staying and working on site may use the opportunity to illegally hunt or trap animals. | Education is key to prevention. All employees must be informed of the value of biodiversity. Rules and regulations regarding the illegal harvesting of natural resources from the surroundings must be made clear and the disciplinary steps that will be followed against perpetrators must be issued in writing and form part of the employees' contracts. | Any incidents must be recorded monthly with action taken to prevent future occurrences. | Proponent |

4 CONCLUSION

The EMP, if properly implemented will help minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. As a living document and to ensure the relevance this EMP must be reviewed annually by the Proponent. The EMP should be used as an on-site reference document during all phases of the proposed project, monitoring should take place in order to determine compliance with the EMP. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

Monitoring reports and rehabilitation plans and results must be submitted to MEFT biannually and kept available on site for future renewal applications for ECC.