APP-005067

IRRIGATION ACTIVITIES ON THE FARMS OKASONDANA NO. 264, EVARE NO. 265 AND OKATJUKURI NO. 263, OMAHEKE REGION

UPDATED ENVIRONMENTAL MANAGEMENT PLAN

Assessed by:

Assessed for:

Hinze Investments cc

December 2024

Project:	**IRRIGATION ACTIVITIES ON THE FARMS OKASONDANA NO. 264, EVARE NO. 265 AND OKATJUKURI NO. 263, OMAHEKE REGION: UPDATED ENVIRONMENTAL MANAGEMENT PLAN**	
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Report Approval	**Quzette Bosman** **Social and Environmental Assessment Practitioner**	

I _____, the Proponent, hereby confirm that the project description 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 _____ on the _____ day of _____ 2024.

_____ CC/2007/0495_____

Hinze Investments CC ID/Company Registration Number

EXECUTIVE SUMMARY

Hinze Investments cc (the Proponent) operates a farming business across three farms Okasondana No. 264, Evare No. 265 and Okatjukuri No. 269 in the Omaheke Region (Figure 1-1). The Proponent has cleared 726 ha, of which 226 ha is under irrigation and the remaining 500 ha for dryland cropping as well as grass lands. The 226 ha irrigated, is cultivated on a rotational basis while water for irrigation is from production boreholes, which have all been registered. All water abstracted for cultivation purposes is licensed as per the new Water Recourses Management Act, 2013 (No.11 of 2013). The main produce cultivated are wheat, maize and oats. Additional activities performed on the farming unit involves livestock farming. The main operational activities include:

- land preparation,
- planting,
- water abstraction and irrigation,
- fertilizer application and pest control, and
- harvesting, processing and transporting activities specific to each crop.

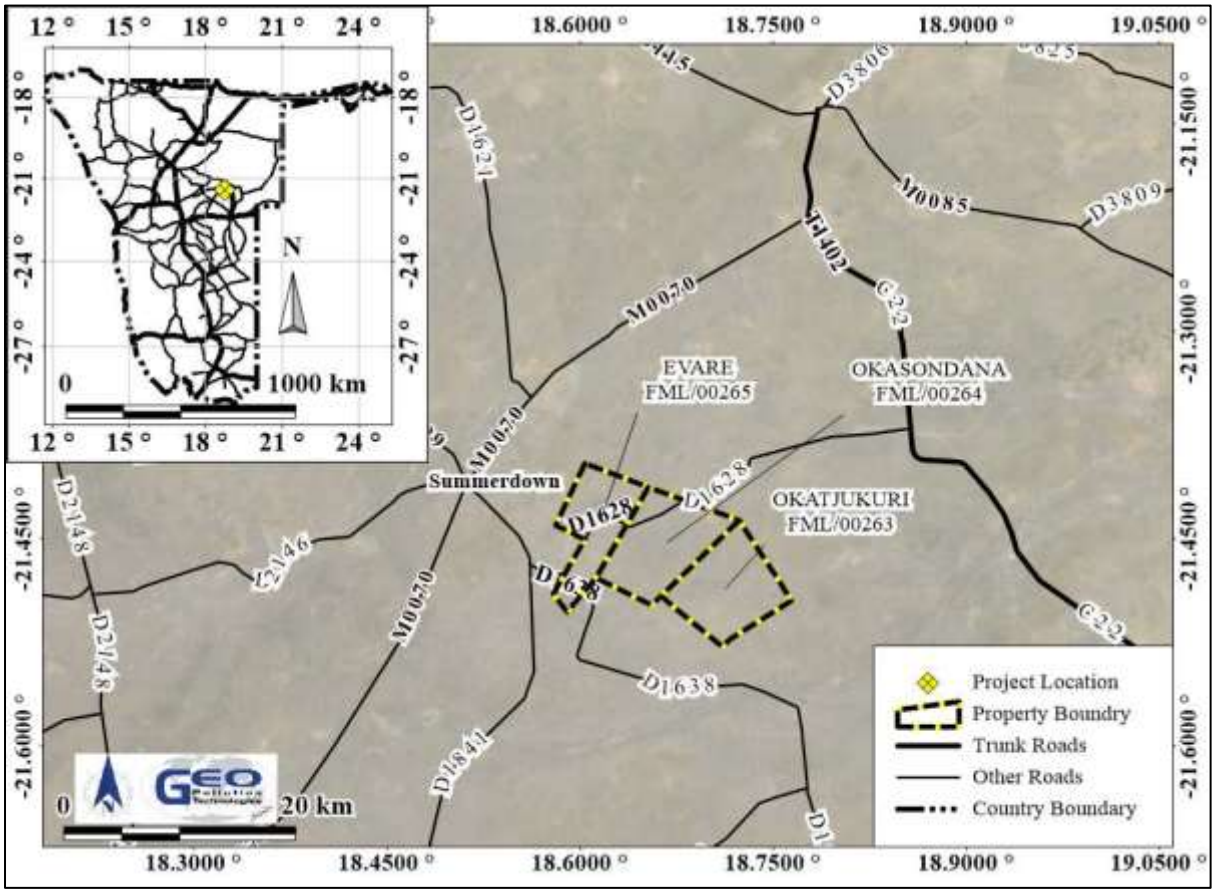

Figure 1-1 Project location

The updated EMP provides preventative and mitigation measures for all environmental, safety, health and socio-economic impacts associated with the operations of the farm. The document will be used to apply for the renewal of the existing environmental clearance certificate (ECC-01808) for the irrigation and related activities of Hinze Investments.

The project location is amidst various other agricultural farms and developments. Due to the nature and location of Hinze Investment's agricultural activities, some impacts can be expected on the surrounding environment. Regular environmental performance monitoring is thus recommended to ensure regulatory compliance and the implementation of corrective measures when necessary, especially with regards to water abstraction. Hinze Investments' operations play a role in contributing to the Namibian agricultural sector as well as employment for the region.

The environmental management plan included in Section 5 of this document should be used as an on-site reference document during all phases (planning, operations (including maintenance) and decommissioning) of the development. All monitoring and records kept should be included in six monthly reports to ensure compliance with the environmental management plan and the Ministry of Environment, Forestry and Tourism's requirements. Parties responsible for transgression of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. The Safety, Health, Environment and Quality (SHEQ) policy should be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Local or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

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1 BACKGROUND AND INTRODUCTION

Geo Pollution Technologies (Pty) Ltd was appointed by Hinze Investment CC (the Proponent), to update their environmental management plan for the agricultural activities on Farms Okasondana No. 264, Evare No. 265 and Okatjukuri No. 269 in the Omaheke Region. The main commercial activities of the Proponent on the farming unit are crop cultivation and cattle farming. For purposes of crop cultivation, the Proponent has cleared 726 ha, of which 226 ha is under irrigation and the remainder divided between dryland maize production and grasslands (Figure 1-1). The 226 ha irrigated land is cultivated in a rotational basis. Irrigation is from production boreholes, by means of centre pivot, micro sprinkler and drip irrigation systems, however augmented largely by rainwater.

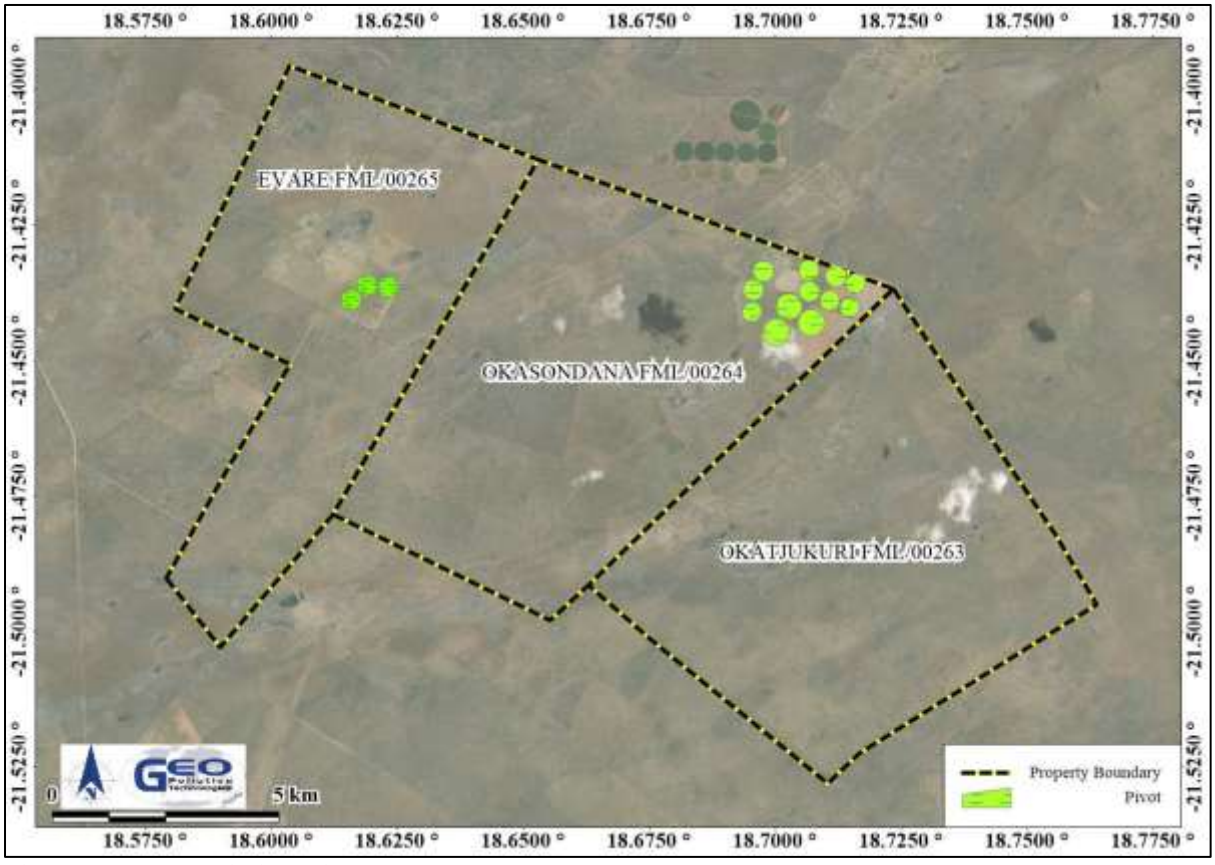

Figure 1-1 Existing Pivots

A risk assessment was undertaken in 2021 (Bosman et al. 2021) to determine the potential impacts of the project on the environment, resulting from various operational, maintenance and construction, and possible decommissioning activities, were determined through the risk assessment as presented in this report. The environment being defined in the 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".

The updated environmental management plan was prepared in support of an environmental clearance certificate in compliance with Namibia's Environmental Management Act (Act No 7 of 2007) (EMA).

2 SCOPE

The scope of this report is to, in compliance with the requirements of the EMA:

- To update the potential environmental impacts emanating from the operational and possible decommissioning activities of the agriculture activities,
- To update existing and identify new management actions which could mitigate the potential adverse impacts to acceptable levels,
- Comply with the requirements of EMA,
- Provide sufficient information to the relevant competent authority and the Ministry of Environment, Forestry and Tourism (MEFT) to make an informed decision regarding the project and the issuing of an environmental clearance certificate.

3 METHODOLOGY

Methods employed to investigate and report on potential impacts of the Proponent's operational activities on the social and natural environment include:

- Baseline information about the site and its surroundings was updated using secondary information.
- Potential environmental impacts emanating from the operations and decommissioning of the facility were updated, as were possible enhancement measures for positive impacts and mitigation / preventative measures for negative impacts.
- The updated EMP was prepared to be submitted to the MEFT.

4 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

All projects, plans, programmes and policies with potential adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. This promotes protection of the environment as well as sustainable development. The legislation and standards provided in Table 4-1 to Table 4-3 govern the environmental assessment process in Namibia, and are relevant to the assessed development.

Table 4-1. Namibian law applicable to the farming operations

Law	Key Aspects
The Namibian Constitution	♦ Promotes the welfare of people ♦ Incorporates a high level of environmental protection ♦ Incorporates international agreements as part of Namibian law
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promotes sustainable management of the environment and the use of natural resources ♦ Provides a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act ♦ List activities that requires an environmental clearance certificate ♦ Provides Environmental Impact Assessment Regulations
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act Act No. 36 of 1947; Government Notice No. 1239 of 1947	♦ Governs the registration, importation, sale and use of fertilizers, farm feeds, agricultural remedies and stock remedies ♦ Various amendments and regulations
Seed and Seed Varieties Act 23 of 2018 Act No. 23 of 2018, Government Notice No. 368 of 2018	♦ Provides for restrictions on the importation of seed ♦ Not in force yet
Water Resources Management Act Act No. 11 of 2013	♦ Provides for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability
Forest Act (Act 12 of 2001, Government Notice No. 248 of 2001)	♦ Makes provision for the protection of the environment and the control and management of forest fires ♦ Provides for the licencing and permit conditions for the removal of woody and other vegetation as well as the disturbance and removal of soil from forested areas.
Forest Regulations: Forest Act, 2001 Government Notice No. 170 of 2015	♦ Declares protected trees or plants ♦ Issuing of permits to remove protected tree and plant species
Soil Conservation Act Act No. 76 of 1969	♦ Law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources in Namibia

Law	Key Aspects
Biosafety Act Act No. 7 of 2006	♦ Regulates activities involving the research, development, production, marketing, transport, application and other uses of genetically modified organisms and specified products derived from genetically modified organisms ♦ Prohibits planting of genetically modified organisms without registration
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	♦ Regulates petroleum industry ♦ Makes provision for impact assessment ♦ Petroleum Products Regulations (Government Notice No. 155 of 2000) ♦ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	♦ Defines the powers, duties and functions of local authority councils
Public Health Act Act No. 36 of 1919	♦ Provides for the protection of health of all people
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ♦ Deals with Integrated Waste Management including waste collection disposal and recycling, waste generation and storage, and sanitation
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	♦ Provides for Labour Law and the protection and safety of employees ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	♦ Governs the control of noxious or offensive gases ♦ Prohibits scheduled process without a registration certificate in a controlled area ♦ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process
Hazardous Substances Ordinance Ordinance No. 14 of 1974	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet ♦ Provides for prevention and control of pollution and waste ♦ Provides for procedures to be followed for licence applications

Table 4-2. Relevant multilateral environmental agreements

Agreement	Key Aspects
Stockholm Declaration on the Human Environment, Stockholm 1972.	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment
United Nations Framework Convention on Climate Change (UNFCCC)	♦ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention
Convention on Biological Diversity, Rio de Janeiro, 1992	♦ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity
International Treaty on Plant Genetic Resources for Food and Agriculture, 2001	♦ Promotes conservation, exploration, collection, characterization, evaluation and documentation of plant genetic resources for food and agriculture ♦ Promote the sustainable use of plant genetic resources for food and agriculture

Table 4-3. Standards or codes of practise

Standard or Code	Key Aspects
South African National Standards (SANS)	♦ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities. ♦ SANS 10131 (2004) is aimed at above-ground storage tanks for petroleum products. o Provide requirements for spill control infrastructure

The agricultural and related activities, listed in the Environmental Management Act Regulations (Government Notice No. 29 of 2012), as activities requiring an environmental clearance certificate, include the following:

Section 4: Forestry Activities

- 4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law. The Proponent is not conducting any tree harvesting or charcoal production. Encroacher bush was cleared in the past to improve cattle rangelands and accommodate crop cultivation. Additional de-bushing initiatives may be undertaken in the future as part of rangeland management.

Section 7: Agriculture and Aquaculture Activities

- 7.5 Pest control: The Proponent will use conventional pest control products as approved by the Namibian government for some of the produce. These may include herbicides and pesticides.

Section 8 of Government Notice No. 29 of 2012: Water Resource Developments

- 8.1. The abstraction of ground or surface water for industrial or commercial purposes: Water is abstracted from boreholes for cultivation and sale of crops.
- 8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems: The Proponent has installed wastewater treatment facilities (french drain systems) on the properties to manage mainly black and grey water.
- 8.7 Irrigation schemes for agriculture excluding domestic irrigation: No *irrigation scheme* was developed, however, *irrigation systems* are used on the farm. Irrigation on the farming units does not contribute to or is part of any irrigation scheme as proclaimed by the Namibian Government.

Section 9 of Government Notice No. 29 of 2012: Hazardous Substance Treatment, Handling and Storage

- 9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974. The project has two consumer fuel installations for diesel (on separate properties), each storing diesel in aboveground tanks with a combined capacity of 4 m^3 per installation.
- 9.2 Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste: The project has two consumer fuel installations for diesel (on separate properties), each storing diesel in aboveground tanks with a combined capacity of 4 m^3 per installation.
- 9.3 Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin: The project has two consumer fuel installations for diesel (on separate properties), each storing diesel in aboveground tanks with a combined capacity of 4 m^3 per installation.

5 ENVIRONMENTAL MANAGEMENT PLAN

The EMP provides management options to ensure impacts of the agricultural and related activities on the farming unit are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit corrective measures needed, although additional mitigation measures might be included if necessary. The environmental management measures are provided in the descriptions below. These management measures should be adhered to during the execution of various activities on the farming unit. All personnel taking part in the operations of the farming unit should be made aware of the contents of this section, to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- to include all components related to operational and possible construction activities of the farming unit;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the farming unit;
- 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/construction and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts, as well as 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. The extent of impacts are mostly site specific to local and are not of a permanent nature. Due to the nature of the surrounding areas, cumulative impacts are possible and the most important of these are potential groundwater and biodiversity/ecological impacts.

5.1 PLANNING

During the phases of planning for the operations, maintenance/construction and decommissioning phases of the farming unit, it is the responsibility of 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 all other phases of the project:

- Ensure that all the necessary permits from the various ministries, local authorities and any other bodies that governs the operations, maintenance/construction and decommissioning activities on the farming unit remain valid. This includes the consumer fuel installation certificate.
- Ensure all appointed contractors and employees enter into an agreement, which includes the EMP. Ensure that contractors, sub-contractors, employees and all personnel present on site understand the contents of the EMP.
- 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.
- Have a system in place to deal with complaints, keeping record thereof and allowing for a grievance mechanism.
- Have the following emergency plans, equipment and personnel on site, where reasonable, to deal with all potential emergencies:
    - EMP, risk management plan, emergency response plan and HSE manuals;
    - Adequate protection and indemnity insurance cover for incidents;
    - Procedures, equipment and materials required for emergencies (e.g. firefighting, first aid, etc.).
- Establish and maintain a fund for future ecological restoration, specifically for instances of environmental damage caused during operations including pollution remediation where required. Should project activities cease completely, and future land-use will not involve agriculture, the funds should be utilised to remove all redundant infrastructure and waste.
- Establish and/or maintain a reporting system to report on aspects of operations, maintenance/construction, and decommissioning as outlined in the EMP. Keep monitoring reports on file for bi-annual submission to MEFT in support of environmental clearance certificate renewal applications. This is a requirement by MEFT.
- Appoint a specialist environmental consultant to update the environmental assessment and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

5.1.1 Skills and Development

During the operations and maintenance/construction phases, some training is provided to a portion of the workforce, to allow them to conduct certain tasks according to the required standards. Training include safety and technical aspects. Skills are transferred to an unskilled workforce for general tasks and irrigation system operation and management. Development of people and technology are key to economic development and the success of operations. The Proponent plays a role in promoting and sustaining the agricultural industry.

Desired Outcome: To see an increase in skills of local Namibians, as well as development and technological advancements in the agricultural industry.

Actions

Enhancement:

- Sourcing of employees and contractors must first be at local level and if not locally available, regional or national options should be considered. Deviations from this practice must be justified.
- Inform employees about parameters and requirements for references upon employment.
- Provide managerial references for unofficial training or skills transfer.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Keep records of all training provided to employees.
- Ensure that all training is certified or managerial references provided (proof provided to the employees) inclusive of training attendance, completion and implementation.

5.1.2 Revenue Generation and Employment

Skilled and unskilled labour are required for the operations and maintenance/construction activities associated with the farming unit. Livelihoods are thus sustained and the spending power of the local community increased. Revenue is generated through the sale of products (maize, wheat and cattle,) on national and international markets.

Desired Outcome: Contribution to national treasury and provision of employment to local Namibians.

Actions

Enhancement:

- The Proponent must employ local Namibians where possible.
- If the skills exist locally, employees must first be sourced from the area, then the region and then nationally.
- Deviations from this practice must be justified.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Keep employee remuneration records.

5.1.3 Demographic Profile and Community Health

Farming activities rely on labour. Jobseekers migrating to the Summerdown area may lead to increased unemployment and expansion of informal settlements. Here, factors such as communicable disease like HIV/AIDS as well as alcoholism and drug abuse may thrive. These are typically aggravated when an influx of seasonal workers, and possible foreign construction teams and contractors, occur. An increase in foreign people in the area, linked to unemployment, may potentially increase the risk of criminal and socially/culturally deviant behaviour. It is however not foreseen that the project will result in significant migration to the Summerdown settlement.

Desired Outcome: To prevent the occurrence of social ills and prevent the spread of diseases such as HIV/AIDS.

Actions

Prevention:

- Appointment of reputable contractors where applicable.
- Adhere to all local authority by-laws relating to environmental health, which includes, but is not limited to, sanitation requirements for employees.
- Provide educational, awareness information for employees on various topics of social behaviour and HIV/AIDs.
- Disciplinary steps, within the legal parameters of Namibia, to be taken for socially deviant behaviour at the employee-housing compound or during working hours should be clearly stipulated in employment contracts.

Mitigation:

- Take disciplinary action against employees not adhering to contractual agreements with regard to socially deviant behaviour (e.g. alcohol or drug abuse during working hours).

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Summary report based on educational programmes and training conducted.
- Employee contracts on file.
- Keep employee remuneration records.

5.1.4 Agricultural Produce

The project is in line with the objectives of Namibia's NDP5 and related implementation plans and strategies. It contributes to the economy of, and food security in, Namibia. The Proponent employs mechanised and conservation agriculture technologies. Locally produced crops decrease the amount of crops that needs importing and increases food security in Namibia. Production of crops and cattle for export to international markets strengthens the Namibian economy.

Desired Outcome: Maximum contribution to the food security and economy of Namibia. Provide a positive contribution to the trade balance of Namibia by reducing the amount of imported produce and exporting products.

Actions

Enhancement:

- Train employees on sustainable farming practices to enable the spread of knowledge and skills and thereby increase the productivity of small-scale farming as well.
- Diversification and continuous improvement to maximise sustainability of the farm.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Recording of educational programmes and training conducted.

5.1.5 Health, Safety and Security

Daily operational and intermittent maintenance and construction activities on the farm are reliant on human labour. Such activities have varying degrees of health and safety risks. Examples include the operation of vehicles and machinery with moving parts, such as harvesters and the handling of hazardous chemicals with inherent health hazards, such as pesticides and fuel, when ingested, inhaled or physical contact occur. Encounters with wild animals, and especially venomous species like snakes, may pose risks to employees. Security risks relates to unauthorized entry on the farming unit, theft and sabotage.

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- Comply with all health and safety standards as specified in the Labour Act and related legislation.
- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Lock away or store all equipment and goods on site in a manner suitable to discourage criminal activities (e.g. theft).
- Provide all employees with required and adequate personal protective equipment (PPE) where required.
- Ensure that all personnel receive adequate training on the operational procedures of equipment and machinery and the handling of hazardous substances.
- Train selected personnel in first aid and ensure first aid kits are available on site.
- The contact details of all emergency services must be readily available.
- Implement a maintenance register for all equipment whose malfunction can lead to injury or exposure to hazardous substances.
- Apply and adhere to all industry specific health and safety procedures and regulations applicable to the handling of food produce for markets.

Mitigation:

- Treat all minor work related injuries immediately and obtain professional medical treatment if required.
- Assess any safety problems and implement corrective action to prevent future occurrences.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record any incidents with the actions taken to prevent future occurrences.
- Record all training which was conducted and when safety equipment and structures were inspected and maintained.

5.1.6 Fire

Fires may be ignited in a number of ways. Lightning can be a natural ignition source for veld fires, which in turn can spread and damage infrastructure and crops or pose health impacts. Failing electrical infrastructure and fires outside of designated areas may increase the risk of the occurrence of uncontrolled fires, which may spread into the nearby fields, and surrounding farming unit. Similarly machinery can ignite dry vegetation if sufficient heat (e.g. exhaust pipes) or sparks are produced. Chemicals and fuels stored and used for general activities may be flammable. Improper waste burning or discarding of cigarette buds further increases fire risks.

Desired Outcome: To prevent property damage, veld fires, possible injury and impacts caused by uncontrolled fires.

Actions

Prevention:

- Prepare a holistic fire protection and prevention plan. This plan must include evacuation plans and signage, an emergency response plan and a firefighting plan.
- Personnel training (safe operational procedures, firefighting, fire prevention and responsible housekeeping practices).
- Ensure all flammable chemicals are stored according to material safety data sheet (MSDS) and SANS instructions and all spills or leaks are cleaned immediately.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Maintain firefighting equipment and promote good housekeeping.
- Notify the farmers' association as well as all surrounding farmers if planned burns (e.g. to create firebreaks) are planned.
- Allow fires used for purposes such as cooking (by staff) in designated areas only.

Mitigation:

- Implement the fire protection and firefighting plan in the event of a fire.
- Quick response time by trained staff will limit the spread and impact of fire.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Maintain a register of all incidents is. Include measures taken to ensure that such incidents do not repeat themselves.
- Record when fire drills were conducted and when firefighting equipment were tested and training given.

5.1.7 Noise

Noise is generated by various operational and possible construction/maintenance activities. Machinery like grinders and hammers cause elevated noise levels that may result in hearing impairment after long term exposure. Activities are generally remote from receptors other than the Proponent, his employees and their families residing on the farming unit. The nature of the noise is related to typically operations on a farm with elevated noise levels being of short duration.

Desired Outcome: To prevent any nuisance and hearing loss due to noise generated.

Actions

Prevention:

- Follow Health and Safety Regulations of the Labour Act and/or World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- Regularly service all machinery to ensure minimal noise production.

Mitigation:

- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- WHO Guidelines.
- Maintain a complaints register.
- Record any complaints and actions taken to address complaints and prevent future occurrences.

5.1.8 Waste Production

Various waste streams result from the operational and possible construction and maintenance activities. Waste may include hazardous waste associated with hydrocarbon products and chemicals, as well as soil and water contaminated with such products. Construction/maintenance waste may include building rubble and discarded material and equipment. Domestic waste will be generated by the residents and employees on the farm. Waste presents a contamination risk and when not removed regularly may become a health and/or fire hazard and attract wild animals and scavengers. Sewage is a form of liquid biological waste that needs disposal. Since no official waste disposal facilities, especially for hazardous waste, are available, all waste that cannot be re-used are burned at dedicated waste sites.

Desired Outcome: To reduce the amount of waste produced and prevent pollution and littering.

Actions

Prevention:

- Implement waste reduction measures. All waste that can be re-used/recycled must be kept separate.
- Ensure adequate temporary storage facilities for disposed waste are available.
- Prevent windblown waste from entering the environment.
- Prevent scavenging (human and non-human) of waste at the storage facilities.
- Train employees on the importance of proper waste handling and disposal in the professional and domestic setting.

Mitigation:

- Alternative waste disposal methods should be investigated for hazardous waste or waste that present specific pollution risks. This include transporting such wastes to recyclers in Windhoek when empty trucks travel there to collect goods.
- Discarded waste should be disposed of and burned regularly to reduce health and pollution risks.
- Empty chemical containers that may present a contamination/health risk must be treated as hazardous waste. Workers should not be allowed to collect such containers for purposes of storing water or food. This can be achieved by puncturing or crushing such containers prior to disposal.
- Ensure all ablution facilities are connected to properly constructed effluent treatment systems to prevent groundwater contamination.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Maintain a register of disposal of hazardous waste. This should include type of waste, volume as well as disposal method/facility.
- Record any complaints received regarding waste with notes on actions taken.

5.1.9 Ecosystem and Biodiversity Impact

Agriculture and related activities are ongoing at the farming unit and no expansion is foreseen in the nearby future. However, should the current environmental investigation and operations prove operations and water abstraction feasible, and expansion of current operations may be considered. Such expansion may be included in areas already debushed. No further impacts on vegetation are thus expected from additional land clearing. Pollution of the environment may however impact on the ecosystem and biodiversity. Poaching and illegal collection of plant and animal materials may occur. Irresponsible pesticide use, for example as method of vermin control, may impact on scavengers such as vultures and in the long run on top predators through biomagnification in higher trophic levels.

Desired Outcome: To avoid pollution of, and impacts on, the ecological environment.

Actions

Prevention:

- Strictly adhere to pesticide application instructions and use pesticides only for the purposes for which it is registered and marketed. Importantly, pesticides should not be used to kill vermin unless specifically registered for that purpose, and even then alternative, environmentally friendly methods should be investigated and used.
- Prevent pesticides from ending up in the hands of potential poachers.
- Educate all contracted and permanent employees on the value of biodiversity and strict conditions prohibiting harvesting and poaching of fauna and flora must be part of employment contracts. Include prohibitions or regulations on the collection of firewood.
- Regular inspection of fences, game footpaths and other sites for snares, traps or any other illegal activities.
- Over-abstraction of groundwater may potentially have devastating effects on plant and animal populations reliant on it. This include the drying up of springs, dying of trees and migration or dying of animals.

Mitigation:

- For construction/maintenance activities, if any, contain construction material to a designated laydown area and prevent unnecessary movement out of areas earmarked for clearing and construction.
- Report any extraordinary animal sightings to the MEFT.
- Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- Avoid scavenging of waste by fauna.
- Take disciplinary action against any employees failing to comply with contractual conditions related to poaching and the environment.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Report on all extraordinary animal or plant sightings or instances of poaching.
- Keep frequent records of borehole water levels and abstracted water volumes to identify any trends or consistent reduction in water levels.

5.1.10 Groundwater, Surface Water and Soil Contamination

Contamination risks include: leakages and spillages of hazardous substances such as chemicals, fuel and hydraulic oil from vehicles such as tractors. Contamination also relate to increases in nutrient levels in the soil from over application of fertilizers; and over-application of pesticides, resulting in its build-up in soil. Where soil is contaminated, such contaminants can leach into groundwater or run-off into surface water where present.

Desired Outcome: To prevent the contamination of groundwater, surface water and soil.

Actions

Prevention:

- Appoint reputable contractors.
- Vehicles may only be serviced on a suitable spill control structure.
- Regular inspections and maintenance of all vehicles to ensure no leaks are present.
- All hazardous chemicals should be stored in a sufficiently bunded area.
- Follow prescribed dosage of fertilizers and pesticides / herbicides and to avoid over application.
- Maintain sewerage systems and conduct regular monitoring.
- All hazardous waste must be removed from the site and disposed of timeously at a recognised hazardous waste disposal facility, including any polluted soil or water.

Mitigation:

- Immediately clean any spills that occur and dispose of contaminated material according to the relevant MSDS information.
- For any major spills a suitably qualified specialist must be consulted on the proper clean-up and rehabilitation methods.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Maintain Material Safety Data Sheets for hazardous chemicals.
- Soil should be sampled and analysed annually to ensure the correct amounts of fertilizer is applied and soil and groundwater quality is maintained.
- Groundwater should be sampled and analysed to test for nitrate concentrations from the fertilizer and for traces of chemicals used in pesticides and herbicides.
- Registers be kept by the Proponent on the type, quantities and frequency of application of fertiliser, pesticides and any other chemicals utilised in crop production.
- A register of all incidents must be maintained on a daily basis. 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.

5.1.11 Groundwater Abstraction

The over abstraction of groundwater for irrigation and other activities may lead to declining water levels. This may negatively impact on surrounding users as well as existing habitats that depend on groundwater. For example the availability of groundwater may have an impact on the farm and surrounding farming unit, as well at a wider spatial scale due to the cumulative impact. Over abstraction of groundwater by surrounding users may contribute to the decline in water levels (cumulative impact). Such an impact may have significant implications for the continued operations of the farming unit and surrounding enterprises. It is important to note that the groundwater basin forms a transboundary aquifer that extent from Namibia into Botswana. Over abstraction in any of the countries will have a negative impact on the other countries and can causes disputes.

Desired Outcome: To utilise the groundwater sustainably.

Actions

Prevention:

- Spread the water abstraction points over a larger area to diffuse the impact.
- Monthly water level monitoring.

Mitigation:

- Reduce abstraction when the water levels nears 5 m below the average rest water level of each borehole.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Monthly water rest water level monitoring.
- Baseline values should be reviewed every 3 years based on all historic water level data.
- A summary report on all monitoring results must be prepared.

5.1.12 Visual Impact

This impact relates to the aesthetic appearance of the site during operations. This impact will be minimal due to the area already being disturbed and widely utilised for agricultural activities. The impact will therefore mostly relate to poor housekeeping and waste not disposed of timeously. This impact that not only affects the aesthetic appearance, but also the integrity of the farm related infrastructure. De-bushing activities has resulted in aesthetically pleasing rangelands. Well maintained rangelands enhance the original landscape character of the area. The overall visual impact from ongoing activities are positive.

Desired Outcome: To enhance the aesthetic appearance associated with the farming unit.

Actions

Enhancement:

- Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and maintain a low visual impact.
- Maintenance of rangelands and crop field through implementation of a de-bushing aftercare programme where applicable.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record all complaints received and actions taken.

5.1.13 Cumulative Impact

Possible cumulative impacts associated with the operational phase and any maintenance/construction activities are grouped in positive and negative impacts. Negative impacts are strongly linked to groundwater quality and groundwater availability seeing that all persons and operations in the area use and are reliant on groundwater. Additional cumulative impact relate to the condition of the road and related traffic impacts, security concerns such as poaching and overall change in biodiversity. Positive cumulative impacts relate to increased national food security, strong contribution to employment in the agricultural sector and region and revenue generation.

Desired Outcome: To minimise negative cumulative all impacts associated with the farm while enhancing positive cumulative impacts.

Actions

Mitigation:

- Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- Reviewing biannual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts. Planning and improvement of the existing mitigation measures can then be implemented.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Create a summary report based on all other impacts to give an overall assessment of the impacts of the operational phase.

5.2 DECOMMISSIONING AND REHABILITATION

Closure and decommissioning of agricultural and related activities on the farming unit as a whole is not foreseen during the validity of the environmental clearance certificate or in the near future. However, it is more likely that certain components may be decommissioned. Decommissioning is therefore included for this purpose as well as the fact that construction activities may also include modification and decommissioning of infrastructure. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and irrigation infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within the Labour Act and WHO standards and waste should be contained and disposed in an environmentally safe manner. The EMP for the farming unit will have to be reviewed at the time of full decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

5.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The proponent could implement an environmental management system (EMS) for their operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- A stated environmental policy which sets the desired level of environmental performance;
- An environmental legal register;
- An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- Identification of environmental, safety and health training needs;
- An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy;
- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS; and
- The EMP.

6 CONCLUSION

Agricultural and related activities as performed on the farms Okasondana No. 264, Evare No. 265 and Okatjukuri No. 269, contributes positively to the economy of Namibia. Food and fodder is produced for national markets while cattle (beef) is produced for both local and international markets. A number of employment opportunities are sustained and skills development within the local workforce occur. Revenue is generated that contributes to the Namibian economy.

The EMP should be used as an on-site reference document for the operations of the farming unit. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. The Proponent could use an in-house Health, Safety, Security and Environmental Management System in conjunction with the EMP. All operational personnel must be taught the contents of these documents.

Should the Directorate of Environmental Affairs DEA agree with the impacts and related mitigation measures, they may issue an environmental clearance certificate to the proponent. The environmental clearance certificate will render this document legally binding on the proponent. The assessment process's aim is not to stop the farming activities, or any of its components, but to rather determine its impact and guide sustainable and responsible development as per the spirit of the EMA.

7 REFERNCE

Bosman Q, Faul A, Botha P, van der Merwe J, Short S; 2021 February; Irrigation Activities on the Farms Okasondana No. 264, Evare No. 265 and Okatjukuri No. 263, Omaheke Region: Environmental Assessment Scoping Report