APP-00296

AGIRICULTURAL ACTIVITIES ON FARM HIEBIS-OST, TSUMEB DISTRICT

ENVIRONMENTAL MANAGEMENT PLAN

Assessed by:

Assessed for:

Keyser Boerdery Trust

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Project:	**AGRICULTURAL ACTIVITIES ON FARM HIERBIS-OST, TSUMEB DISTRICT: ENVIRONMENTAL MANAGEMENT PLAN**	
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1 OBJECTIVES OF THE EMP

Geo Pollution Technologies (Pty) Ltd prepared an environmental management plan (EMP) for agricultural activities on Farm Hiebis Ost. The EMP is based on the environmental impact assessment conducted for the Keyser Boerdery Trust (the Proponent) for the farm in 2019 (Faul et al. 2019). The EMP provides management options to ensure impacts related to construction and operational activities on 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 EMP acts as a stand-alone document, which can be used during the various phases (planning, construction, operational and decommissioning) of any proposed activity or development.

All employees, contractors and sub-contractors taking part in construction and operational activities on the farm, should be made aware of the relevant sections of the EMP, so as to plan such activities accordingly and in an environmentally sound manner.

The objectives of the EMP are:

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

2 IMPLEMENTATION OF THE EMP

The sections below outline the management of the environmental elements that may be affected by the activities associated with the various phases of the facility. These phases are as follows:

- Planning Phase
- Care and Maintenance Phase
- Operational Phase
- Decommissioning Phase

The EMP is a living document that must be prepared in detail, and regularly updated, by the Proponent as the project progress and evolve. Impacts addressed and mitigation measures proposed are seen as minimum requirements which have to be elaborated on where appropriate. Delegation of mitigation measures and reporting activities should be determined by the Proponent and included in the EMP.

All monitoring results must be reported on as indicated. Reporting is important for any future renewals of the environmental clearance certificate (ECC) and must be submitted to the Ministry of Environment, Forestry and Tourism. Renewal of ECC will require bi-annual reports based on the monitoring prescribed in this EMP.

Various potential and definite impacts will emanate from the operations, care and maintenance, and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts as well as prevention and mitigation measures are listed below. The general guidance and impact descriptions provided below are based on the findings of the initial EIA and risk assessment carried out by Geo Pollution Technologies (Faul et al. 2019).

2.1 PLANNING

During the phases of planning for the operations, maintenance / construction and decommissioning phases on the farm, 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 various other phases of the project:

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the construction (maintenance) activities and operations of the project remains valid.
- Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are 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 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 health safety and environment (HSE) manuals
    - Adequate protection and indemnity insurance cover for incidents;
    - Comply with the provisions of all relevant labour and safety standards;
    - Procedures, equipment and materials required for emergencies.
- If one has not already been established, establish and maintain a fund for future ecological 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 reporting system to report on aspects of operations, maintenance / construction, and decommissioning as outlined in the EMP.
- Submit bi-annual reports to the MEFT to allow for ECC 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 ECC prior to expiry.

2.2 IMPACTS AND RELATED MANAGEMENT MEASURES

The following section provide management measures for both the operational phase as well as care and maintenance activities related to the project.

2.2.1 Skills and Development

During the operations and maintenance / construction phases, some training is provided to a portion of the workforce allow them to conduct certain tasks according to the required standards. Skills are periodically transferred to an unskilled workforce for general tasks. Development of people and technology are key to economic development. Keyser Boerdery Trust 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.
- Skills development and improvement programs must be made available as identified during performance assessments.
- Inform employees about parameters and requirements for references upon employment.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

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

2.2.2 Revenue Generation and Employment

Skilled and unskilled labour are required for the operations and maintenance / construction activities associated with the farm. Revenue is generated through the sale of agricultural products 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 town, then the region and then nationally.
- Deviations from this practice must be justified.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Summary report based on employee records.

2.2.3 Demographic Profile and Community Health

Farming activities relies on labour. The scale of the project is limited and is not foreseen to expand any time soon. No large change in the demographic profile of the local community is thus expected. However, jobseekers migrating to Tsumeb may lead to increased unemployment and expansion of informal settlements. Here, factors such as communicable disease like HIV/AIDS as well as alcoholism/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. However, the contribution of Hiebis-Ost to these problems is considered to be unlikely.

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

Actions:

Prevention:

- Employ only local people from the area, deviations from this practice should be justified.
- Adhere to all local authority by-laws relating to environmental health, which includes, but is not limited to, sanitation requirements.

Mitigation:

- Educational programmes for employees on various topics of social behaviour and HIV/AIDs and general upliftment of employees' social status.
- Appointment of reputable contractors.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Summary report based on educational programmes and training conducted.
- Report and review of employee demographics.

2.2.4 Agricultural Produce and Economic Diversification

The project is in line with Namibia's NDP5 and contributes to the economy of, and food security in, Namibia. Locally produced crops decrease the amount of crops that needs importing. Export to international markets add to a positive trade balance.

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 maximising possible exports.

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.
- Continuous improvement to maximise sustainability of the farm.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Record should be kept of educational programmes and training conducted.

2.2.5 Traffic

Potential traffic impacts will mostly be limited to the turnoff from the main road to the farm. Traffic is mostly related to the transport of staff, the delivery of fertilizers and seed, as well as the transport of crops to markets. As this is an existing operation, an increase in traffic impacts is expected to be unlikely.

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Prevention:

- Erect clear signage regarding access and exit points at the farm as well as speed limits on the gravel roads within the farm where required.

Mitigation:

- If any traffic impacts are expected, possibly as a result of delivery of equipment or construction material, traffic management should be performed.
- The placement of signs to warn and direct traffic will mitigate traffic impacts.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Record all traffic related complaints and the actions taken to prevent impacts from repeating itself.
- Compile a report of all incidents reported, complaints received, and actions taken.

2.2.6 Health Safety and Security

Activities associated with the operations and maintenance / construction on the farm are reliant on human labour. Therefore, health and safety risks exist. Activities such as the operation of vehicles and machinery as well as handling of hazardous chemicals with inherent health hazards pose risks to employees. Encounters with wild animals and especially venomous species like snakes may pose risks to personnel on site. Security risks relates to unauthorized entry, theft and sabotage.

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

Actions

Prevention:

- 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.
- Personnel should be encouraged to, during times of mosquito activity, take measures to prevent mosquito bites including wearing long sleeved clothing, applying insect repellents and sleeping under mosquito nets.
- Implement a maintenance register for all relevant equipment and fuel/hazardous substance storage areas.
- Apply and adhere to all industry specific health and safety procedures and regulations applicable to the handling of food produce for markets.

Mitigation:

- 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 and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- Educate staff on the symptoms of malaria and encourage them to report such symptoms.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record any incidents with the actions taken to prevent future occurrences.
- Compile a report of all incidents reported. The report should contain dates when training was conducted and when safety equipment and structures were inspected and maintained.

2.2.7 Fire

Construction activities, 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 farms. Lightning may cause fires during the dry season.

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 (firefighting, fire prevention and responsible housekeeping practices).
- Ensure all chemicals are stored according to MSDS and SANS instructions and all spills / leaks are cleaned.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Maintain firefighting equipment and promote good housekeeping.
- Clean and maintain firebreaks at strategic locations around the property.
- Should planned burns e.g. to create firebreaks, be made, the farmers' association, fire brigade as well as all surrounding farmers should be notified prior to commencement.
- Allow fires used for purposes such as cooking (by staff) in designated areas only.

Mitigation:

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

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Maintain a register of all incidents on a daily basis. Include measures taken to ensure that such incidents do not repeat themselves.
- Compile an incidents report. The report should also contain dates when fire drills were conducted and when fire equipment was tested and training given.

2.2.8 Noise

Noise is generated through the operation of machinery and vehicles accessing the site. Construction and maintenance activities may increase the amount of noise generating activities which may lead to hearing loss in workers.

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

Actions

Prevention:

- Follow World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- Service all machinery regularly to ensure minimal noise production.

Mitigation:

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

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

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

2.2.9 Waste production

Various waste streams result from the operational and construction / maintenance phases. Waste may include hazardous waste associated with hydrocarbon products and chemicals as well as soil and water contaminated with such products. Construction waste may include building rubble and discarded equipment. Domestic waste will be generated by the farm and related operations. Waste presents a contamination risk and when not removed regularly may become a health and / or fire hazard and attract wild animals and scavengers.

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.

Mitigation:

- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers and contaminated materials, soil and water).
- Empty chemical containers that may present a contamination / health risk must be disposed of as hazardous waste. Prevent workers and other people from collecting such containers for purposes of storing water.
- Liaise with the applicable municipality regarding waste and handling of hazardous waste.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

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

2.2.10 Ecosystem and Biodiversity Impact

Agriculture and related activities are ongoing at the farm and no expansion is foreseen in the nearby future. No further impacts on vegetation are expected. Pollution of the environment may however impact on the ecosystem and biodiversity. Poaching and illegal collection of plant and animal materials may occur.

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

Actions.

Prevention:

- Obtain the necessary permits from the Directorate of Forestry, Ministry of Agriculture, Water and Forestry for removal of protected species, if any.
- Educate all contracted and permanent employees on the value of biodiversity.
- Strict conditions prohibiting harvesting and poaching of fauna and flora should be part of employment contracts. This includes 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.
- Take disciplinary action against any employees failing to comply with contractual conditions related to poaching and the environment.
- 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.
- Install screens in all new boreholes if existing boreholes are known to extract aquatic animals like amphipods from groundwater. Consider the same for existing boreholes. This will not only prevent entrainment of possibly endemic range restricted species, but also protect pumps from damage.

Mitigation:

- For construction 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 Ministry of Environment and Tourism.
- 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.

Responsible Body:

- Contractor
- 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.

2.2.11 Groundwater, Surface Water and Soil Contamination

Leakages and spillages hazardous substances from earthmoving vehicles and accidental fuel, oil or hydraulic fluid spills during the construction phase. Increase of nutrient levels (from over application of fertilizers) in the soil that can leach to the groundwater. Overuse / incorrect application of pesticides, herbicides and fertilisers may also pose a risk. Leakage from sewerage systems.

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

Actions

Prevention:

- Appoint reputable contractors.
- Service vehicles on a suitable spill control structure at all times.
- 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, pesticides and herbicides to prevent over application.
- Maintain sewerage systems and conduct regular monitoring.
- Removed and dispose all hazardous waste of timeously and at a recognised hazardous waste disposal facility, including any polluted soil or water.

Mitigation:

- Immediately clean any spill that occurs.
- Consult relevant Material Safety Data Sheet information and a suitably qualified specialist where needed.

Responsible Body:

- Proponent
- Contractors

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 are maintained.
- Sample and analyse groundwater annually to test for nitrate concentrations from the fertilizers and for traces of chemicals used in pesticides and herbicides.
- Keep registers on the type, quantities and frequency of application of fertiliser, pesticides and any other chemicals utilised in crop production.
- Maintained a register of all incidents on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- Reported on and cleaned up all spills or leaks immediately

2.2.12 Groundwater Availability

The over abstraction of groundwater for irrigation and other activities may lead to declining water levels. This may negatively impacts 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 farms, as well as on a bigger scale due to the cumulative impact. Over abstraction from surrounding users may contribute to the decline in water levels (cumulative impact).

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.
- Maintain safe abstraction rates prescribed by MAWF in the abstraction permit.

Mitigation:

- Reduce abstraction when the water levels decrease with more than 5 m below the long-term average.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Monthly water rest water level monitoring.
- Review baseline water level values every 3 years based on all historic water level data collected.
- Maintain a register of all incidents on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.

2.2.13 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the infrastructure on the farm.

Desired Outcome: To minimise aesthetic impacts associated with the farm.

Actions

Mitigation:

- 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.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Compile a report of all complaints received and actions taken.

2.2.14 Impacts on Utilities and Infrastructure

Existing infrastructure and services supply like roads, pipelines and power lines may get damaged during operational, construction and maintenance activities. This may lead to services disruption in certain sections of the area.

Desired Outcome: No impact on utilities and infrastructure.

Actions

Prevention:

- Appointing qualified and reputable contractors and employees (for specific tasks) are essential.
- Determine exactly where amenities and pipelines are situated before construction commences (utility clearance e.g. ground penetrating radar surveys).
- Liaison with the suppliers of services is essential.

Mitigation:

- Report any damages without any delay.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Emergency procedures for corrective action available on file.
- Compile a report on all incidents that occurred and corrective action taken.

2.2.15 Cumulative Impact

Possible cumulative impacts associated with the operational phase and any maintenance / construction activities are mainly linked to traffic, reduction in soil and groundwater quality and groundwater availability.

Desired Outcome: To minimise cumulative all impacts associated with the farm.

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.

2.3 DECOMMISSIONING AND REHABILITATION

Closure and decommissioning of agricultural activities on Hiebis-Ost as a whole is not foreseen during the validity of the environmental clearance certificate or in the foreseeable 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. Prior to decommissioning, assess the future land use plans and implement rehabilitation measures if the land will not be used for similar future purposes. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production during structure dismantling. Maintain noise levels within WHO standards and contain waste and dispose of it at an appropriately classified and approved waste facility. The Environmental Management Plan for the farm 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.

2.4 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

3 CONCLUSION

The above updated EMP, if properly implemented will help to continually minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. To ensure the relevance of this document to the specific stage of project, it needs to be reviewed throughout all phases.

The EMP should continue to be used as an on-site reference document during all phases of the project, and auditing should take place in order to determine compliance with the EMP for the proposed site. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

Monitoring reports must be submitted to the Ministry of Environment, Forestry and Tourism every six months (bi-annually) to allow for the future renewal of the ECC.

4 REFERENCES

Faul A, Botha P, Coetzer W; van der Merwe J, Short S; 2019 August; Agricultural Activities on Farm Hiebis-Ost Tsumeb District. Environmental Assessment Scoping Report