PROPOSED ENVIRONMENTAL MANAGEMENT PLAN FOR OSHIVELO AGRICULTURAL PROJECT AT OSHIVELO VILLAGE, OSHIVELO DISTRICT, OSHIKOTO REGION

Contents

Project Document

Project Document:	ENVIRONMENTAL MANAGEMENT PLAN FOR OSHIVELO AGRICULTURAL PROJECT, OSHIVELO, OSHIKOTO REGION, NAMIBIA	
Version Date	November 2023	
Prepared for:	Kekaritz Fishing (Pty) Ltd Erf 744 Simmentaler Street Northern Industrial Area P O Box 284 WINDHOEK Namibia	
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Project Location	Sandwiched between Operet Aerodrome facility and the eastern fence of Etosha National Park; Along the B1 road – 3.3 km north-west from the Oshivelo roadblock towards the town of Omuthiya; Under the jurisdiction of Ondonga Traditional Authority (*OTA*); Closer to Oshivelo Settlement.	
GPS coordinates	**Triangle 1:** Point 1: -18.5963177°, 17.1505527° Point 2: -18.6069208°, 17.1553684° Point 3: -18.6127878°, 17.1412381° **Triangle 2:** Point 1: -18.5963177°, 17.1505527° Point 4: -18.595722°, 17.151870° Point 5: -18.594958°, 17.151309°	

EXECUTIVE SUMMARY

Kekaritz Fishing (Pty) Ltd, a holder of fishing rights in Namibia's fishing industry, intends to invest in the development of an agricultural project on a 105-ha land located near Oshivelo settlement in the Oshikoto Region. The project is intended to produce a variety of food products in order to contribute towards national efforts to achieve local food self-sufficiency.

Currently. the project site is heavily encroached by bush species. Further, the project site is without fence infrastructure. It is therefore critical that implementation of the project be in distinct phases: The 1st phase will involve clearing of existing bush species to create conditions suitable for land productivity. The 2nd phase – starting midway of the first phase – will involve construction of security fence infrastructure to prevent roaming wildlife from obtaining ready access to agricultural products within the production site and, thereby, serve as a sustainable measure in mitigating human-wildlife conflicts. The 3rd phase will involve rolling out land preparation and crop production operations. Against this background, the project proponent is required to apply for an Environmental Clearance Certificate (*ECC*) that will enable production operations as per the Namibian Environmental Management Act (*Act No.7 of 2007*).

To date, the environmental assessment, or scoping, has already been conducted, and the scoping report titled '*Oshivelo Baseline Study Report*' has been compiled and submitted to the Department of Environmental Affairs (*DEA*) in support of the ECC application. This proposed Environmental Management Plan (*EMP*) has therefore been developed from the scoping report.

Based on the findings of the assessment team which involved on-site investigations and consultation with neighboring stakeholders, the baseline study/scoping report outlines the environmental concerns identified at the study area and proposes sustainable measures to

mitigate the effects of such concerns – which, in the main, involve human-wildlife conflicts (*HWCs*).

The assessment team also identified bush encroachment on the production land as another challenge to sustainable agricultural production. As delivery of bush-encroached land constitutes the 1st phase of the project, the environmental assessment process accorded a key priority to clearing existing bush species in the most sustainable, efficient and environmental-friendly manner. This Environmental Management Plan presents ample sustainable strategies and best practices for preventing and/or minimizing environmental degradation during bush clearing and value-chain biomass utilization activities (cf. *Bush Clearing and Biomass Production Model*).

In order to meet the water requirements, the project proponent will drill its own borehole(s). Oshivelo Settlement is known to have the presence of the Oshivelo Artesian Aquifer (*KOV2*) which was discovered in 1923 as a fresh water-bearing aquifer with a capacity of more than 200 m^3/hour free flowing yield (*FFY*) where, with a pressure-head of 3 bars, the water jumps almost 30 meters above ground level – as illustrated by the borehole photo attached to this submission as an appendix. (cf. **https://www.bgr.bund.de/EN/Themen/Wasser/Projekte/abgeschlossen//TZ/Namibia/groundwater namibia.pdf%Fblob%3DpublicationFile)**

Also, the environmental assessment team found that the Oshivelo settlement area is experiencing challenging socio-economic and climatic conditions which affect soil conditions, employment creation, environmental quality and resilient livelihoods of the local population. In mitigation, the project will, among other things:

- ✓ Apply natural soil ameliorants, such as bio-char, for enhanced retention of soil moisture, as well as utilize suitable fertilizers for improved land fertility and productivity on the production site;

- ✓ Provide permanent and temporary employment and income opportunities for both local residents and micro entrepreneurs (*where this is feasible*) by recruiting them for activities related to bush clearing, fence construction and crop production, including packaging and marketing of crops and fresh produce;

- ✓ Ensure that all waste materials originating from production activities are properly managed, either through recycling or creating a dump fill where such materials will be brought for treatment and management in an environmental-friendly manner.

PROJECT DETAILS

Location of Project Lands

The adjacent project lands, in the shape of two triangles, are located along the B1 road, 3.3 km north-west from the Oshivelo roadblock towards the town of Omuthiya, and are sandwiched between the Operet Aerodrome facility and the eastern fence of Etosha National Park.

The lands have the following GPS coordinates:

Triangle 1:

Point 1: -18.5963177°, 17.1505527°
Point 2: -18.6069208°, 17.1553684°
Point 3: -18.6127878°, 17.1412381°

Triangle 2:

Point 1: -18.5963177°, 17.1505527°
Point 4: -18.595722°, 17.151870°
Point 5: -18.594958°, 17.151309

Land Sizes

The combined size of the land units is approximately 105 hectares which, according to Government's certification policy, only require submission of an environmental management plan (*EMP*) to obtain an environment clearance certificate (ECC).

About 2 – 3 % of the land area along the project fence will be left uncleared so that standing biomass will serve as wind breakers, as well as serve to accommodate the construction of mitigating measures, such as beehives. When such area is deducted from the total land coverage, the land area earmarked for crop production amounts to approximately 97% of the two triangles, or nearly 102 hectares.

Mitigation of Human-Wildlife Conflicts

As amply articulated in the Baseline Study/Scoping Report, the project will construct compact fence infrastructure to serve as a sustainable mitigation measure against incidents of human-wildlife conflicts. Fence infrastructures will be constructed in a manner that would significantly minimize access to agricultural produce by roaming wildlife animals. This mitigating measure will be further complemented by beehives planted along the project's fence infrastructure — as elephants dread bees and can detect their presence up to 600 metres away.

Existing Bush Encroachment

The baseline study has determined the representative bush density equivalence (*BE/Ha*) to be between 1500 and 2000 bushes per hectare. These include protected species, as well as species with stem sizes wider than 18cm dia. The maximum tree height within the project area is determined to be less than 4.5 meters.

Given that the land will be utilized for crop production – which requires bush clearing rather than selective harvesting – it is anticipated that a special agreement will be sought from competent authorities to allow for the felling of some of the protected species and trees with stem sizes wider than 18cm dia.

Sensitive Ecosystems

Sensitive ecosystem areas, such as river beds and steep slopes, do not exist within the project area. This finding is supported by a google earth photo attached to this submission. The existing few micro habitats, namely termite mounds, will be left untouched during bush clearing activities.

Soil Conditions

The terrain of the project site and its surrounding area is plain. The soil of the area is characteristically sandy to sandy loam. Conditions of saline soils were observed in very few places while conducting the baseline study. In order to ensure land productivity and farming profitability, the project will apply natural ameliorants to enhance retention of soil moisture known to last for many years, as well as utilize suitable fertilizers to improve the pH content for increased productivity.

Availability of Water Resources and Estimated Quantities of Water Use

It is planned that, initially, about 55% of available land (*58 ha*) will be devoted to production under irrigation to produce fresh horticultural products throughout the year, whereas production on the remaining 45% (*47 ha*) will be rain-fed to produce crops for human consumption and lucerne as animal fodder. Water supplies for irrigation purposes will be sourced from own

borehole(s) that will be drilled within the Oshivelo settlement area. An application for permission to drill boreholes will be submitted to competent authorities immediately after granting of the environmental clearance certificate and harvesting permit. Water consumption under a dripping irrigation system is estimated at 30 000 litres per day – utilizing 3 x 10 000-litre elevated water tanks. As stated earlier in the executive summary of this submission, Oshivelo settlement area enjoys the presence of the Artesian Aquifer – a fresh water-bearing aquifer with a free flowing yield capacity of more than 200 m^3/hour.

Creation of Employment

The project will create both permanent and temporary employment and income opportunities for local residents and micro entrepreneurs (*where this is feasible*) by recruiting and training them for activities related to bush clearing, fence construction, crop production and packaging, including marketing of food products by survivalist micro entrepreneurs.

Waste Management

The project will ensure that all waste materials originating from production activities are optimally and efficiently managed, either through recycling to produce value-added products, such as turning stale tomatoes into paste – or creating a dump fill where such materials will be brought for proper management to ensure maintenance of the environmental quality at all times.

PROPOSED OPERATIONAL PLAN

Production Model for Bush Clearing, Wood Collection and Production of Biofuels

The project will implement the production model as presented below:

- Deploy a bush roller, with a minimum capacity of 20 ha/day, to fell bushes over approximately 5 working days;

- Establish 10m-wide firebreaks along the property fences, as well as within the production site, to contain any accidental fire and prevent it from spreading;

- Create access roads at several places within the production site to facilitate easy movement of the bush roller and reduce excessive swivelling and turning which causes soil disturbance, as well as using such roads to transport wood logs, via a trailer pulled by a tractor or pick-up vehicle, from the production sites to a centralized download base for value-chain production of biofuels;

- Recruit, employ and train teams of wood harvesters in the use of chain saws, axes and machetes and deploy them to collect wood logs (*above 100mm dia.*) and smaller pieces of wood (*16 – 100mm dia*.) from felled bushes to produce charcoal and wood chips, respectively;

- Rake together the remaining biomass less than 16mm and burn it to serve as land fertilizer.

Production at Download Base

Within the production lands, about 3.3 km away from the settlement area, the project will:

- Establish a centralized, fenced-off download base to accommodate:
  - ✓ Earth mound kilns used for charcoal production;
  - ✓ A small site for value-chain processing of wood chips;
  - ✓ FSC-approved accommodation, ablution and cooking facilities for workers;

- ✓ A storage area for charcoal and wood chips.

- Train a team of wood burners in utilizing earth mound kilns to produce FSC-certified charcoal – including wood chips;

- Clear the inside and outside of the download base from all inflammable materials and other dirt – including the outside area which will be cleared up to 50m away from the fence.

SUMMARY SAFEGUARDS AGAINST ENVIRONMENTAL AND SOCIAL IMPACTS

Environmental and social risks or impacts of the project are categorized, justified and presented. The categories include project activities that:

A. The impacts are likely to generate significant and/or irreversible adverse environmental and/or social impacts in the implementation areas – these being few in number, site-specific, largely reversible, and readily minimized by applying appropriate management and mitigation measures.

B. The impacts are likely to have detrimental site-specific environmental and/or social impacts that are less adverse and few in number – yet largely reversible and can be readily minimized by applying appropriate management and mitigation measures.

C. The impacts do not directly or indirectly affect the environment adversely and are unlikely to generate adverse social impacts assessment – and did not require an environmental and social assessment.

Assessment of Risk Category of Project Activities

The environmental and social risk aspects of the project fall under **Category B**, where proposed project activities are likely to cause mild adverse environmental and social impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation. Such risks were identified as recently as November 2023.

Impacts on Labour and Working Conditions

The project will employ young women and men above the age of 18 years and without formal employment. The terms of employment will be free from any form of discrimination or coercion. Employee will be at liberty to join any preferred labour organization. All employees will receive skills training on best bush harvesting, wood pyrolysis and agricultural production practices, use of PPEs to ensure personal health, as well as addressing all types of potential hazards.

Efficient Resource Utilization and Pollution Prevention

For purposes of land delivery, natural bush species will be harvested and utilized to produce charcoal. When burned, woody biomass generates GHG emissions. Smaller, regarded as waste, will be burned to serve as fertilizers. Wood logs will be burned in earth mound kilns that generate low levels of emissions.

Crop residue is also regarded as waste material. Much of it, however, will be re-incorporated into the soil.
The download base will utilize limited amounts of drinking water for workers. Larger quantities of water will be utilized for irrigation purposes. Water supplies will be sourced from the Oshivelo Artesian Aquifer (KOV2) at Oshivelo settlement with a yielding capacity of around 5 million m^3 per year.
(https://www.bgr.bund.de/EN/Themen/Wasser/Projekte/abgeschlossen/TZ/Namibia/oshivelo_caprivi_omaheke_fb_en.html)

Energy for heating and cooking will be provided by a generator within the download base.

An efficient waste management plan will be developed to involve storage of domestic waste on production site and transport it to a dump fill where these will be disposed and properly managed.

Community Health, Safety and Security

The charcoal production process will generate smoke. However, this activity will be conducted in accordance with the guidelines for charcoal producers as enforced by the Directorate of Forestry. The download base, a centralized centre for wood pyrolysis, will be localised far away from neighbouring communities so that they will not be affected by smoke.

The project will train workers in implementing the applicable plans and strategies on emergency cases as outlined in the Guidelines for Charcoal Producers to ensure emergency preparedness at all times.

Human-wildlife conflicts constitute a risk potential to workers and neighbouring communities. These risks, however, will be mitigated by measures outlined in the Scoping /Risk Assessment reports attached to this submission. These include the construction of an electric fence around the agricultural project and the strategic placing of bee hives. Other governance structures, when and where needed, will be put in place within the project to manage potential conflicts.

Involuntary Land Acquisition and Resettlement

The project land is government-owned being administered by Ondonga Traditional Authority as per the Communal Land Act. The land is awarded by way of a renewable 5-year lease contract with land-use rights only – without any provisions of land acquisition or resettlement. Such land-use rights entail production of food to ensure local food self-sufficiency, employment creation and serving as an outstanding model pointing the way to modernized, technology-based food production.

Biodiversity Conservation and Sustainable Management of Living Natural Resources

Cleared land will continue to be monitored for both bush regrowth and invasion of alien species – all of which will be addressed through appropriate aftercare methods.

Any micro habitats, such as termite mounds and some decayed big trees will be left untouched to continue serving as natural domiciles of living natural resources – reptiles, etc.

Indigenous Peoples

The project will provide social and economic benefits to the local San (*Hai//om*) through gainful employment opportunities, skills transfer and access to adequate food for resilient livelihoods.

The project will continue to engage all community members as strategic stakeholders through regular community engagement meetings where local leaders, farmers and residents will discuss all matters of mutual economic and social interests.

Cultural/Historical Heritage

The project is located in close proximity of the Etosha National Park - a place of greater historical significance. The project activities will have no restrictive influence on people accessing or exiting the park in the process of discovering or appreciating its beauty. The project will adopt a similar encouraging attitude towards development and preservation of other existing cultural/heritage assets.

CONCLUSIONS

The environmental and social risks or impacts of the project identified in the assessment area are minimal and can be readily minimized by applying appropriate management and mitigation measures.

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APPENDIXES:

Appendix 1: Borehole – Oshivelo Artesian Aquifer

Under pressure! Borehole penetrating the Oshivelo Artesian Aquifer with a free flowing yield of more than 200 m^3/h.

Source:

(https://www.bgr.bund.de/EN/Themen/Wasser/Projekte/abgeschlossen/TZ/Namibia/groundwater_namibia.pdf%3F__blob%3DpublicationFile, Page 55)

Appendix 2: Google Earth Photo – Kekaritz plot showing no riverbeds/steep slopes

Appendix 3: A controllable charcoal production model with down-load base in the middle