UPDATED ENVIRONMENTAL MANAGEMENT PLAN

Harambee Agro-Produce's Hardap Irrigation Scheme Project situated about 10 km Northwest of Mariental, Hardap Region

Compiled for: Harambee Agro Produce
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Proponent	Mr. Monty Ndjavera Harambee Agro-Produce P. O. Box 22458 Windhoek - Namibia, 9000 Mobile: +264 81 129 7551	
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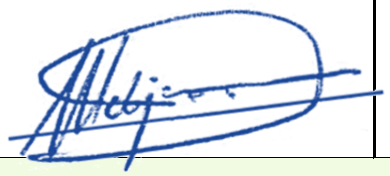
Approval – Client		
Mr. Monty Ndjavera (Proponent)		28 October 2024

ECC – 01427

Serial: jyQY1U1427

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

Harambee Agri-Produce (Pty) Ltd
P. O. Box 22458, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Proposed Harambee Agri Produces Irrigation Scheme near Mariental, Hardap Region

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
Private Bag 13306
WINDHOEK NAMIBIA
17 JUN 2021
ENVIRONMENTAL COMMISSIONER
REPUBLIC OF NAMIBIA

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executive summary

Project Overview

Harambee Agro-Produce (Pty) Ltd is a registered Namibian company, which ventures in the production and trading of agronomic produces involving cultivation of Livestock Fodder crops which includes forage sorghum, pennisetum, millet, lablab, cowpeas, soybeans, grain sorghum and maize. The activity is proposed to be undertaken within the Hardap Green Scheme project area, on a 635 Ha area situated about 10 km north of the Mariental Municipal Town (**Figure 1**).

The proposed activity entailed the construction of irrigation associated infrastructure, and the operation and maintenance of these infrastructure thereof. In particular, the construction activity consist of the landscaping, installation of power and water lines, and the erection of boundary fences. The operation activities entails the cultivation of fodder crops (mainly Lucerne), irrigation, harvesting and baling, and marketing.

An Environmental Clearance Certificate (**ECC 01427**) was previously obtained on **17 June 2021**, and the implementation of the activity subsequently commenced, which lapsed in June 2024. Hence, the relevant compliance Audit was also conducted and the report shall be submitted accordingly to the Ministry of Environment, Forestry and Tourism.

In particular to this assignment with Enviro-Leap Environmental Consulting, Harambee Agri-Produce (Pty) Ltd intends ensure compliance with its environmental obligation relating to the Environmental Management Plan and ECC's conditions. Therefore, it appointed Enviro-Leap on the **28th September 2024** to conduct an environmental audit and compile for submission to the Department of Environmental Affairs and Forestry the bi-annual report and to facilitate the renewal of the ECC.

Process Approach

In this instance the, an environmental Audit has to be undertaken to assess whether the Harambee Agri-Produce's operation were undertaken in compliance with the ECC Conditions:
The specific objectives of this report is therefore to:

- Review the initial environmental assessment documents (including ECC Conditions) in order to identify the potential impacts that require mitigation and compliance.
- Review the previous Audit report and environmental obligations (including ECC Conditions) in order to evaluate compliance with set EMP and ECC obligations
- Compile an Environmental Audit report (for the outstanding reporting terms i.e. **July – December 2021** and **January – June 2024**) for submission to the regulatory authority.

The audit was conducted adopting a desktop study, which entailed a detailed review of the company's available environmental compliance documents and analysis of data from its monitoring programs.

Overall Recommendation

Overall, with an 89 % compliance rate Enviro-Leap Consulting is confident to provide a positive recommendation and in favor of the renewal of the Harambee Agri-Produce's when it's environmental clearance certificate by the Department of Environmental Affairs and Forestry (DEAF) accordingly harnessed to increase the net marginal benefits relating to the socioeconomic aspects of the operations.

Enviro-Leap environmental practitioner confidently recommends that the proposed project can proceed and should be authorized by the DEAF. The proposed operations is considered to have an overall low negative environmental impact and an overall moderate positive socio-economic impact (with the implementation of respective mitigation and enhancement measures).

Based on this, it recommended that the proponent must upon obtaining their Environmental Clearance Certificate (ECC), implement all appropriate management and mitigation measures and monitoring requirements as may be stipulated in their EMP and or as condition of the ECC. These measures must be undertaken to promote and uphold good practice environmental principles and adhere to relevant legislations by avoiding unacceptable impacts to the receiving environment.

Taking into consideration the findings of the environmental scoping assessment process and given the national and regional strategic requirements for infrastructure development and economic growth, it is the opinion of the EAP that the project benefits outweigh the costs and that the project will make a positive contribution towards steering Namibia on its pathway towards its vision of becoming a Logistic Hub. Provided that the specified mitigation measures are applied effectively, it is recommended that Harambee Agri-Produce's operations receive an ECC in terms of the Section 32 of the EMA No. 7 of 2007 and it's EIA Regulations of 2012.

CBD	Central Business District
CA	Competent Authority
DEAF	National Department of Environmental Affairs and Forestry
EA	Environmental Authorization
ECC	Environmental Clearance Certificate
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
FTU	Floating Transfer Unit
GPS	Geographical Positioning System
GPS	Geographical Positioning System
OEC	Office of Environmental Commissioner
PM10	Particulate Matter 10
PPP	Public Participation Process

1. INTRODUCTION

This section provides an overview of the conceptual operational design and an overview of the project site, operation activities and technology selection process proposed to be undertaken as part of the Harambee Agri-Produce Irrigation scheme operations at the Hardap Irrigation Scheme area (***Figure 3***, illustrates the proposed fodder crop production operation's process flow).

***Figure 3**: The proposed project's activity flow, detailing the flow or steps followed in the fodder production chain and which Harambee Agri-Produce intends to adopt*

The proposed irrigation scheme represents an opportunity for advanced agri-produce in order to secure climate friendly and long-term supply of fodder crops. The activity entails both the construction of irrigation associated infrastructure, and the operation and maintenance of these infrastructure thereof.

In particular, the area earmarked for construction activities shall be cleared and levelled mechanical prior to the installation of all supporting infrastructure which includes:

- Boundary fences
- Administration block (consisting of office space, parking area, ablutions)
- Water supply pipe-lines and Electricity lines
- Sub-division and creation of farm (irrigation) plots
- Installation of irrigation systems e.g. pumps, centre-pivot and sprinkler irrigations

Operations of the project entail; preparation of land, planting and harvesting of fodder crops, irrigation (center pivot systems (**Figure 4**), drip systems and micro-sprinklers), application of fertilisers and pesticides, and transporting crops to markets. Maintenance and small-scale construction occur on site, the construction of tar and paved roads helps with dust suppression near lands.

***Figure 4**: Illustration of the scale and methods of the proposed irrigation scheme (Source: internet, 2020)*

2.1. SITE SELECTION

Harambee Agri-Produce (Pty) Ltd, proposed irrigation operation is to be undertaken within the Hardap Green Scheme project area (Figure 5), corner GPS coordinates presented in (**Table 3**), and on a 635 Ha area situated about 10 km north of the Mariental Municipal Town. As derived from the Hardap Irrigation Scheme, the land-use in the surrounding area is mainly variant, in terms of both scale and type of crops, horticultural and agronomic operations.

The site is mainly accessible via the B1 (Trans-oranje Highway / Corridor), and then by an informal gravel road. Consideration for the site selection included but not limited to therefore, accessibility and equally the close proximity of the site to key infrastructure required to enable the sustainable operation of the proposed activity i.e. power and water supply. Other key site selection factors are the land availability, proximity to sensitive receptors, topography, risks and potential or current land use conflict.

***Table 3**: Corner coordinates of the proposed development site*

Corner point	Latitude	Longitude
A – Mariental - Hardap	-24.589202°	17.959164°
B – Mariental - Hardap	-24.588715°	17.963534°
C – Mariental - Hardap	-24.566135°	17.972448°
D – Marietal - Hardap	-24.567720°	17.957058°

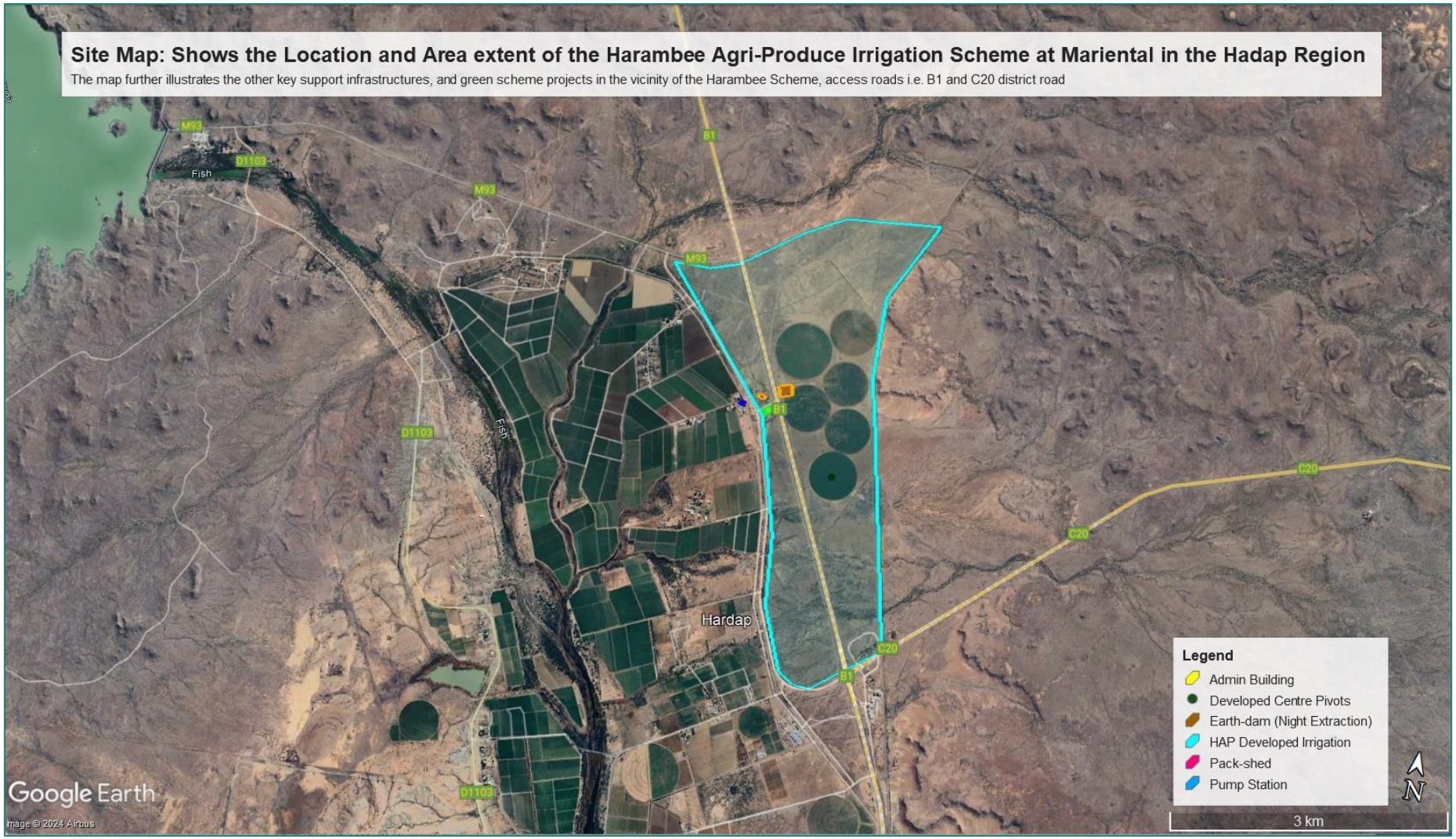

Figure 5: *Site of the Proposed Harambee Agri-Produce's Irrigation Project at the Hardap Irrigation Scheme, Hardap Region*

In terms of water sources, the proposed activity is intended to depend on the Hardap Dam for its irrigation water. The Hardap Dam was constructed in the early 1960's and in the years 1963 – 1964, shortly after the Hardap dam was completed, the irrigation scheme was established.

Water is bought from the water parastatal, NamWater, by the Ministry of Agriculture, Water and Land Reform (MAWLR), which in turn distributes the water to the farmers in the scheme; there are currently 32 commercial farmers benefiting from the scheme. The irrigated area also includes the Hardap Research Station, which consists of governmental experimental farms with an area of 135 ha, and a 20 ha plot farmed by the Mariental prison. Apart from the irrigation scheme, NamWater also supplies water from the dam to the local population and to a tourist camp located in the Hardap dam National Park (Muduva & Williams, 2001).

2.2. KEY COMPONENTS OF HARAMBEE AGRI-PRODUCE'S OPERATIONS

In particular, the area earmarked for construction activities shall be cleared and levelled mechanical prior to the installation of all supporting infrastructure which includes:

- Boundary fences
- Administration block (consisting of office space, parking area, ablutions)
- Water supply pipe-lines and Electricity lines
- Sub-division and creation of farm (irrigation) plots
- Installation of irrigation systems e.g. pumps, centre-pivot and sprinkler irrigations

Operations of the project entail; preparation of land, planting and harvesting of fodder crops, irrigation (centre pivot systems, drip systems and micro-sprinklers), application of fertilisers and pesticides, and transporting crops to markets. Maintenance and small-scale construction occur on site, the construction of tar and paved roads helps with dust suppression near lands.

2.3. DESRCIPTION OF FODDER CROPS TO BE CULTIVATED

2.3.1. Forage / Grain Sorghum (Sorghum bicolor)

Forage sorghum is a large, warm-season annual grass that is can be grown as a silage crop. Forage sorghum can be a profitable alternative crop, provided that it is managed well and used in the right situations (Heuzé et al., 2015a). *Sorghum bicolor*, native to Africa with many cultivated forms now, is an important crop worldwide, used for food (as grain and in sorghum syrup or "sorghum molasses"), animal fodder, the production of alcoholic beverages, and biofuels (Heuzé et al., 2015a).

Most varieties are drought- and heat-tolerant, and nitrogen-efficient, and are especially important in arid regions, where the grain is one of the staples for poor and rural people.

2.3.2. Forage Grass (Pennisetum purpureum)

Pennisetum *purpureum*, also known as Napier grass, elephant grass or Uganda grass, is a species of perennial tropical grass native to the African grasslands (Heuzé et al., 2020). It has low water and

nutrient requirements, and therefore can make use of otherwise uncultivated lands. Historically, this wild species has been used primarily for grazing, recently, however, it has been used as part of a push–pull agricultural pest management strategy.

Napier grasses improve soil fertility, and protect arid land from soil erosion. It is also utilized for firebreaks, windbreaks, in paper pulp production and most recently to produce bio-oil, biogas and charcoal (Heuzé et al., 2020).

2.3.3. Forage Finger Millet (*Eleusine coracana (L.) Gaertn.)*

Finger millet (*Eleusine coracana* (L.) Gaertn.) is a cereal grass grown mostly for its grain, which is a staple food in many African and South Asian countries. Finger millet is a robust, tufted, tillering annual grass, up to 170 cm high, with erect, slender stems rooting at the lower nodes (Heuzé et al., 2015b).

Finger millet is cultivated as a fodder grass across the globe and provides excellent hay and is used as green forage for cattle, sheep and goats. The straw resulting from the grain harvest is valuable and can be grazed directly by the animals or used in cut-and-carry feeding systems. In Africa, finger millet straw is also used for making strings and for thatching (Heuzé et al., 2015b).

2.3.4. Forage Lablab (Lablab purpureus L. Sweet)

Lablab (Lablab purpureus L. Sweet) a dual-purpose legume, traditionally grown as a pulse crop for human consumption and or also used as a fodder for livestock or as green manure. *Commercial crop: Lablab purpureus* is grown as a pulse crop (crop harvested for dry seed) in Africa, Asia, and the Caribbean (Heuzé et al., 2016a). It is also consumed as a green vegetable (green bean, pod, leaf). *Forage: L. purpureus* is used as forage, hay, and silage. As forage, it is often sown with sorghum or millet. The leaf is very palatable but the stem is not. The seeds are moderately palatable. Overall, it is one of the most

2.3.5. Forage Cowpeas (Vigna unguiculata (L.) Walp.)

The cowpea (Vigna unguiculata (L.) Walp.) is an annual herbaceous legume cultivated for its edible seeds or for fodder and one of the most popular legume grains in Africa. Cowpea has great flexibility in use: farmers can choose to harvest it for grains or as forage for their livestock, depending on economic or climatic constraints (Heuzé et al., 2015c). Dual-purpose varieties have been developed to provide both grain and fodder while suiting the different cropping systems encountered in Africa

2.3.6. Forage Soybean (Glycine max. L)

Soybean is a fast growing herbaceous annual native to Asia that is currently grown worldwide. Like other forage legumes, soybean forage has many valuable traits as fodder. Soybean leaves and stems can be grazed, ensiled or dried to make hay. The foliage is very palatable to cattle, and has a high nutritive value and good digestibility (Heuzé et al., 2016b).

2.3.7. Forage Maize (Zea mays L.)

Maize (Zea mays L.) green forage, particularly when it contains the stalks, leaves and ears, is an energy-rich feed for ruminant livestock. While maize forage is usually ensiled in cooler regions,

yearround maize production in the tropics may allow the continuous harvesting of green forage, making ensiling unnecessary (Heuzé et al., 2017).

Maize is a high energy feed, better than most other tropical forage crops, of which the DM is often below 40% digestible. In the tropics, while grass forages must be harvested almost monthly, maize forage matures within three months, is harvested only once, and does not require much labour and high machinery costs (Heuzé et al., 2017).

2.3. PROJECT ACTIVITIES TO BE CONTINUED

The Harambee Agri-Produce's key operational activities revolves around the cultivation and sales of the various fodder cops, and these entails the following activities:

- Soil tillage, ploughing and sowing/ seeding
- Crop care (fertilization and pests management),
- Harvesting and storage, and as need may arise
- Servicing and maintenances of farm implements or equipment

The predominant land-use in the surrounding of the proposed activity, consist of a combination of irrigation projects where different systems are adopted to produce a various agronomic crops such as maize and legume such as Lucerne and grass to the production of fodder.

The proponent (Harambee Agri-Produce), however plans to focus on the production of fodder crop, therefore the land preparation and cultivation entails mechanical ripping, tilling and seeding with a tractor and associated implements.

Considering the scale and magnitude of the proposed fodder crop production, it is essential that crops are supplemented with fertilizers and were necessary pests are managed with. This crucial in ensuring that the desired yield are attained, hence it is also important that these (fertilizers and pesticides) are applied following strict application specifications and in accordance with individual crop requirement.

In particular, the proponent intents on adopting the "Liquid Fertilizer Application" method where fertilisers are mixed with water and fed into the irrigation systems for delivery to the crops. In terms of pest management, the pesticides will be administrated as and when it is required i.e. in accordance to when there is pest outbreak.

Harvesting of both the grain and legume crop will be done mechanically, using the appropriately suited harvesting implements attached to a tractor i.e. "grain harvester" or "mower and bailer" as may apply to the grain and legume crop respectively. Once harvested the maize, millet and sorghum will be processed to remove the grain from the corns and the grain stored in different silo storage facilities, while the legume crops will be processed into bails and stored under the appropriate sheds where they will be protected from rain and heat.

2. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

2.1 OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for the Harambee Agro Produce's project:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimization of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimization, recycling, management, temporary storage and removal of waste.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

2.2 KEEPING EMPS UP TO DATE

This Environmental Management Plan (EMP) document is designed to meet legal requirements and avoid or minimize the impacts associated with the implementation of Deep Kalahari Trading cc exploration and mining development. It is the intention that this EMP should be seen as a "living document" which will be amended during the operation, as the activities might change or new ones be introduced.

Should a listed activity(s) as defined in the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) be triggered (as a result of future modifications/changes at the mine), this EMP will be updated as a result of another EIA process as stipulated in the regulations.

2.3 IMPACTS MANAGEMENT / MITIGATION MEASURES

Potential impacts in respect to the Biophysical environment (**Table 4**, **5** and **6**) involves mainly the faunal species and ground contamination as a result of both the use of fertilizer, pesticides and hydrocarbons as well as generation of waste material, while in respect to socio-economic it relates to culture and heritage, health and safety and livelihoods.

These are particularly associated to various phases of the proposed project i.e. the construction, operational and closure and decommissioning of the proposed Harambee Agri-Produce's irrigation scheme activity.

2.2.1 IMPACTS ON THE BIOPHYSICAL ENVIRONMENTS

Table 4. Impact on the Terrestrial Ecology

Impact Event	**Disturbances to the terrestrial ecology i.e. Fauna and Flora**					
Description	Although the site is located in a suitably zoned area within the Hardap Irrigation Scheme, the land has not been appropriately developed yet, hence pre-construction work such as minor clearing and ground levelling is required. Other ecological impacts associated with the operational phase of the proposed activity may result from the use of fertilizers and pesticides and generation waste (domestic, effluent and hazardous)					
Nature	Impacts in the terrestrial environment as a result of the project could result from the following: • Generation of dust contaminating the environment • Secondary impacts on Fauna and Flora (use of chemical fertilizer or pesticides, hydrocarbon contamination, in case back-up generator fuel storage)					
Phases: Phases during which sources of terrestrial ecology impacts apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk**.**						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Use of earth-moving equipment for ground clearing and levelling	• Use of tractors and associated implement for cultivation and harvesting • Use of chemicals		• Use of earth-moving equipment for demolishing infrastructure and rehabilitation		N/A	
Severity	Taken together, the disturbances is of medium severity in the unmitigated scenario. In the mitigated scenario, many of these disturbances can be prevented or mitigated to acceptable levels, which reduces the severity to low.					
Duration	The Significance of the potential impacts is subject to the proposed operation's life-time, however duration is short-term.					
Spatial Scale	Low, very localized					
Probability	Very Low, most impact are contained within the appropriately zoned environment					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	M	**M**	**L**	**H**	**L**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**M**
Description of Mitigation Measures	Strictly company policies relating to no-poaching and vegetation clearing must be adhered to all times. The Principle of zero tolerance to killing and collecting of biodiversity i.e. no poaching (including collection firewood) will be allowed and poaching offenders will be prosecuted. Area designated for the construction activities must be clearly demarcated and activities contained to a these area and unnecessary potential disturbance prevented including avoiding unnecessary clearing of vegetation as much as possible. Sighting of any extraordinary animal and or cultural, heritage and or archaeological artefacts must be reported immediately to the relevant authorities. Equally, appropriate permits and license for the purchase, storage and use or handling of chemicals (including fertilizes, pesticide, fuel and lubricants) must be obtained prior to commencing the operational phase of the proposed activity					

Table 5. Impact relating to Waste Generation

Impact Event	**Disturbances to the environment through waste disposal**					
Description	There exist a potential for the generation of various waste material result from different phases of the proposed activity i.e. construction / maintenance, operational and decommissioning. These waste material may include domestic and construction material (mainly generated during the construction phase and less during the operation phase).					
Nature	Domestic waste consist of both construction waste such as building rubble and discarded materials and domestic waste which may include litter / office materials. If not well managed, these may present health and safety risks to both human and wildlife.					
Phases: Phases during which waste generation apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Construction activities may result in the generation of building rubbles and other litter material	• Waste generation from packaging material for office or workshop activities • Potential spillage / leakage of hazardous substance (oil, fuel, lubricants etc.)		• Construction activities may result in the generation of building rubbles and other litter material		N/A	
Severity	In the unmitigated scenario, the potential risks associated with waste generation such litter (paper, plastics and boxes) and construction material (wood, wires and rubbles) is high. However, in the mitigated scenario, most waste material may be well contained through both appropriate temporary storage, handling and disposal to designated waste disposal sites					
Duration	The Significance of the potential impacts is high although duration is short-term.					
Spatial Scale	Low, localized					
Probability	Very Low, most impact can be contained					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	M	**M**	**M**	**H**	**M**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**M**
Description of Mitigation Measures	• Waste material management mitigation measures is targeted to prevent both scavenging of waste by both human and wildlife species. • Hence, the installation of a suitable temporary storage facility for both domestic and construction waste is highly recommended. • Waste material must be segregated, then regularly and properly disposed-off at a nearest registered waste disposal site in Mariental.					

Table 6. Impact relating to Effluent and Hazardous substances

Impact Event	**Disturbances to the ground and groundwater**					
Description	It is prudent that the administrative and ablution facilities are connect to central effluent management system and that these system operates safely. Equally, any hydrocarbons such fuel and lubricants are managed properly to prevent ground contamination.					
Nature	There is great need for utilisation of both hydrocarbons (fuels and oil) and chemicals such as fertilizer and pesticides in most irrigation scheme production operations Therefore, there is also potential for spillage of these substances into the environment and may result in some instances into soil contamination and or drainage into water system.					
Phases: Phases during which waste generation apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Maintenance of construction vehicles and other equipment • Storage and use of fuel and lubricants	• Use of fertilizers and pesticides in fodder production • Use and maintenance of effluent and sewer system		• Removal of effluent system's pipelines • Cleaning of manholes and sewer drainage systems		N/A	
Severity	In the unmitigated scenario, the potential risk for soil / groundwater contamination is high. However, in the mitigated scenario, most risks can be contained through continuous monitoring and maintenance of the drainage systems					
Duration	The significance of the potential impacts is high, and requires attention throughout the project life-time. Therefore impact is rated Medium.					
Spatial Scale	Low, localized					
Probability	Very Low, most impact can be contained					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	M	**M**	**M**	**H**	**M**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**M**
Description of Mitigation Measures	Waste material management mitigation measures is targeted to prevent both 1.) Scavenging of waste by both human and wildlife, and 2.) The contamination of soil and groundwater. Hence, the installation of a suitable temporary storage facility for both domestic and hazardous substance waste is highly recommended. Waste material must then also regularly and properly disposed-off at a nearest registered waste disposal site.					

2.3.2 IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

Potential impacts in respect to the socio-economic environment (Table 11, 12 and 13) relates mostly to culture and heritage, health and safety and livelihoods. Equally, these are associated to the construction, operational phases of the proposed Harambee Agri-Produce's irrigation scheme activity.

Table 7. Impact on the Health and Safety

Impact Event	**Disturbances to the human receptors including pets and other household animals**					
Description	Human labour will be required in most of the activities and therefore potential risk to human health and safety exists, mainly during the construction phase of the proposed project and to some extend also during the operational phase. This is so, given that heavy earth-moving equipment, tractor / truck and farm implement s requires to be operated by human, as well as the need to use chemical fertiliser and pesticides.					
Nature	Any mechanical failures and or human errors that may occur during the construction / operation activities e.g. a failing electrical equipment may increase the risk of a fires safety hazard.					
Phases: Phases during which sources of Health and Safety impacts apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Any mechanical failures and or human errors while operating equipment	• Handling of farm implements and other equipment • Handling of hazardous substance pesticides and fertilizers		• Any mechanical failures and or human errors while operating equipment		N/A	
Severity	High severity in the unmitigated scenario. In the mitigated scenario, severity shall reduce to low.					
Duration	The Significance of the potential impacts is high with potentially long-term impacts extending beyond the project operations in the unmitigated scenario.					
Spatial Scale	Low, localized and mainly limited to the project sites					
Probability	Very Low, most impact can be contained through an appropriate EMP and HR Policy					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	H	**L**	**M**	**H**	**M**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**M**	**L**	**L**	**M**
Description of Mitigation Measures	Preparation of a health and safety plan for workers and impacted communities addressing issues including education on measures to prevent the spread of disease outbreaks through awareness campaigns, provision of safety equipment for the staff and temporary workers, child labour prohibited Implement an integrated Health and Safety plan / system which integrate both disease prevention and emergency response e.g. fire protection plan in the event of a fire, and quick response time by trained staff will limit the spread and impact of fire. The plan must include amongst other topics that empower the employees with first aid medicals skills, dealing with potential disease outbreak and water-related sickness such as malaria...					

Table 8. Impact relating to Traffic and Noise

Impact Event	**Disturbances to the marine ecology including the fish stock and other marine life**					
Description	Potential noise pollution may be related to mainly the construction, cultivation and harvesting activities when machineries (tractor and grain / fodder processing implements). Given the location of the project site and that the nearest receptors are about 10 km away from the site, the noise generated from operations will insignificant to cause nuisance to the nearby community.					
Nature	Highly localized and occasional noise will be generated, and arise mainly from the cultivation and harvesting activities associated with the proposed project. Traffic impacts may be as a result of transportation of employee to and from the project site, particularly during the construction period					
Phases: Phases during which waste generation apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.						
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure			
• Transportation of construction material and operation of machineries	• Transportation of employees and delivery of inputs • Operation of agricultural implements	Transportation of construction waste (building rubbles) material and operation of earth-moving equipment	N/A			
Severity	Potential impacts severity will be very low across-board and scenarios					
Duration	Significance of the potential impacts is subject to the proposed operation's life-time					
Spatial Scale	Low, localized					
Probability	Very Low, most impact are occasional / seasonal					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**H**	**M**	**L**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**M**
Conceptual Description of Mitigation Measures	While there may be no sensitive receptors in the vicinity of the proposed activity, the employees must be treat as such and therefore, the necessary health safety protocols relating to noise (World Health Organization guidelines on maximum noise levels i.e. guidelines for community noise, 1999) and national regulation on public transportation must be strictly adhered to.					

Table 9. Impact relating to Livelihood and Economic Aspect

Impact Event	**Disturbances to the marine ecology including the fish stock and other marine life**					
Description	Potential economic gains that may never be realized if the proposed project activities does not go-ahead include: loss in income through tax and levies, unemployment and the loss of an opportunity to boost the micro-socio-economic benefits surrounding local community.					
Nature	Impacts relating to the local socio-economic activities may arise from proposed the construction and operation phases of the proposed Harambee Agri-Produce's activities. At this stage the significant impact associated to the activity is on a positive note at that is employment creation (directly) and boost of micro-economy for the Mariental Town's inhabitants (Indirectly, though purchase of good from the town and outsourcing of service to SME businesses).					
Phases: Phases during which waste generation apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Sourcing of construction material from local dealers and business, and or provision of service • Contracting of local business for the supply	• Employment of local community • Outsourcing of various services from the local SME Business		N/A		N/A	
Severity	In the unmitigated scenario, this implies in the case where the activity takes no effect, no economic benefits shall realize hence, the severity in respect to unemployment shall be very high. However, with the implementation of the proposed operations, the severity of unemployment shall be reduced to medium.					
Duration	The Significance of the potential impacts is subject to the proposed operation's life-time, with a long-term potential					
Spatial Scale	Low, localized and mainly limited to the surrounding community					
Probability	Medium to High probability in respect to job creation on both the temporary during construction phase of warehouse facilities and long-term during operation phase					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	H	**L**	**L**	**L**	**L**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**M+**	**M+**	**H+**	**H+**	**H+**
Description of Mitigation Measures	It is critical that timely and continuous communication and dissemination of information with the local community is ensured to alleviate potential sense of social marginalization, drive gender equality and enhance the understanding and perception of the benefits associated with Harambee Agri-Produce's operations					

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

Harambee Agri-Produce (Pty) Ltd is a registered Namibian company, which ventures in the production and trading of agronomic produces involving cultivation of Livestock Fodder crops which includes forage sorghum, pennisetum, millet, lablab, cowpeas, soybeans, grain sorghum and maize.

However, while the proposed irrigation operations shall create employment opportunities and thus trickling benefits down to the larger population, it may also create opportunity for unprecedented negative impacts.

Potential impacts may vary in terms of scale (locality), magnitude and duration e.g. minor negative impacts in the form of visual intrusion, dust and noise pollution especially during the handling (loading and off-loading will be experienced. Below is a summary of the likely positive impacts that have been assessed for the different phases of the proposed Harambee Agri-Produce's operations:

- Raising awareness about the benefits of ecologically sustainable natural resource use (Likely impacts are high).
- Socio-economic development and capacity building through partnering with South African Operators, skills transfer and training the import / export industry shall be achieved (Likely impacts are high).

The following is a summary of the likely negative impacts that have been assessed for the different phases of the proposed project:

- Ambient Air Quality (Likely impacts are high but localized and can employ dust suppressing measures).
- Traffic and Noise impact (Likely impacts are low for traffic congestion as the preferred haulage method is rail, a method currently under-utilized).
- Ecological and biodiversity loss (Likely impacts are localized and low).
- Health and safety (Overall likely impacts are low with handling of commodities in closed warehouse and use of correct PPE).
- Accidental Spill of Hazardous substance (Likely impacts are low with a contingency and environmental management plan in place).

In a case of a contingency operation which my trigger deviation of actions from the approved mitigation measures, approval must be obtained from all relevant competent authorities prior to deviation with the approved condition.

3.2 RECOMMENDATONS

Based on the findings of the environmental scoping assessment, which concludes that all potential negative impacts associated to the proposed Harambee Agri-Produce's operations are minimal and practical mitigation measures are available. Equally, the positive impacts can be harnessed to increase the net marginal benefits relating to the socio-economic aspects of the operations.

Enviro-Leap environmental practitioner confidently recommends that the proposed project can proceed and should be authorized by the DEA. The proposed operations is considered to have an overall low negative environmental impact and an overall moderate positive socio-economic impact (with the implementation of respective mitigation and enhancement measures).

Based on this, it recommended that the proponent must upon obtaining their Environmental Clearance Certificate (ECC), implement all appropriate management and mitigation measures and monitoring requirements as may be stipulated in their EMP and or as condition of the ECC. These measures must be undertaken to promote and uphold good practice environmental principles and adhere to relevant legislations by avoiding unacceptable impacts to the receiving environment.

Taking into consideration the findings of the environmental scoping assessment process and given the national and regional strategic requirements for infrastructure development and economic growth, it is the opinion of the EAP that the project benefits outweigh the costs and that the project will make a positive contribution towards steering Namibia on its pathway towards its vision of becoming a Logistic Hub. Provided that the specified mitigation measures are applied effectively, it is recommended that Harambee Agri-Produce's operations receive an ECC in terms of the Section 32 of the EMA No. 7 of 2007 and it's EIA Regulations of 2012.