## **ENVIRONMENTAL MANAGEMENT PLAN**

FOR THE PROPOSED UPGRADE AND OPERATION OF A SUPERMARKET AND ENTERTAINMENT PARK IN ETOSHAPOORT OUTJO, KUNENE REGION-NAMIBIA



# **ENVIRONMENTAL MANAGEMENT PLAN**



## **JULY 2022**

Prepared by: Junior Baiano Industrial

Consultants cc

Postal Address: PO Box 23537, Windhoek

Contact Person: Fredrich Nghiyolwa Contact number: +264 (61) 219 773

Cell: +264 (0) 81 1472029

Email: JuniorB200581@gmail.com

Prepared for: Outjo Properties (Pty)

Ltd

Po Box 115, Outjo

Contact Person: P. Mostert Cell: +264 (0) 811 242 040

Email: deonver123@gmail.com

#### 6.1 INTRODUCTION

The planned Supermarket and Entertainment Park project is likely to have an impact on the biophysical and socio-economic environment, as was mentioned in the chapter before. The Environmental Management Plan (EMP) for impacts related to the proposed development is described in this section. The objectives of the EMP include to prevent negative impacts where possible; reduce or minimise the extent of impact during project life cycle; and prevent long term environmental degradation

The expected project area and any potentially affected nearby sites are described in the Environmental Management Plan (EMP), together with the organizational structure, planning, and monitoring for environmental protection.

## 6.2 EMP ADMINISTRATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (project manager) to ensure the successful implementation of the EMP as highlighted below.

Table 6-1: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES				
Proponent	Responsible to enforce EMP implementation to contractors				
Environmental Control Officer	<ul> <li>Implement, review and update the EMP.</li> <li>Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed</li> <li>Conduct environmental site training (tool box talks) and inductions with the support of an environmental consultant.</li> <li>Conducts environmental audit at work site with the support of environmental consultant.</li> <li>Close out all non-conformances.</li> <li>Ensure materials being used on site are environmental friendly and safe.</li> </ul>				
The Department of Environmental Affairs	<ul> <li>Approve the EMP and any amendments to the EMP.</li> <li>Approve reports of environmental issues and non-conformances as issued.</li> <li>Review and approve environmental reports submitted as part of EMP implementation</li> </ul>				
Environmental Consultant	<ul> <li>Conduct and monitor actions required by the EMP if required</li> <li>Conduct environmental site training (tool box talks) and inductions if assistance is required</li> <li>Conducts environmental audit at work site</li> </ul>				

ROLE	ENVIRONMENTAL RESPONSIBILITIES						
	Ensure materials being used on site are environmental friendly						
	and safe.						
Site Technical Team	<ul> <li>Control and monitor actions required by the EMP.</li> </ul>						
	<ul> <li>Report all environmental issues to Environmental Control Officer.</li> </ul>						
	<ul> <li>Ensure documented procedures are followed and records kept on site.</li> </ul>						
	<ul> <li>Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.</li> </ul>						
Workers	Follow requirements as directed by site technical.						
	<ul> <li>Report any potential environmental issues to site</li> </ul>						
	engineer/project manager, indicating spilt oil, excess waste,						
	excessive dust generation, dirty water running off the site and						
	other possible non-conformances						

## 6.3 EMP Management Actions

The management actions aim to avoid potential impacts where possible. Where impacts cannot be avoided, management actions are outlined in order to minimize the significant impacts.

The tables below outline the specific management actions which need to be undertaken during the construction and operational phase of the development to ensure that the site activities are compliant.

#### 6.4 CONSTRUCTION PHASE MANAGEMENT ACTIONS

The table below outlines the management actions to be undertaken during the construction phase of the project to ensure compliance with the EMP.

Table 6-2: Construction EMP

Impact	Description	Effects	Time frame	R	esponsibility	Ā	ction
Noise pollution	Noise will be generated through:  Construction of drainage services and water reticulation systems.  Construction of site structures  Moving of vehicles.	The health of working personnel could be disturbed. Passers-by could be disturbed by the noise. General annoyance Drive away local animal species near the project site	6-8 months	•	ECO Site Manger	•	A construction interval will be established, used and adhered to, daytime only (6am to 5pm).  During operation the facility will operate 24 hrs a day.  Workers will be issued ear plugs to protect them from excessive noise.  Public will be notified through printed timetable stating planned operational activities.  Site notices will be erected on and around the site notifying visitors and nearby residents of different hazards on site.
Dust Generation	Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose	<ul> <li>Can lead to respiratory illnesses especially to those working in the area.</li> <li>General air pollution.</li> <li>Nuisance to nearby residents</li> </ul>	6-8 months	•	ECO Project Manger	6	Dust suppression will be done through watering dust sources surfaces.  Ensure that protective equipment such as respirators are distributed to employees and ensure their use.

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Impact	Description	Effects	Time frame	Responsibility	Action
	material during construction and tipping.				<ul> <li>Site notices to be erected on and around the site to inform visitors and surrounding residents.</li> <li>Avoid construction operations during windy days.</li> <li>Regular testing of dust levels during construction period (PPM), maintain dust levels at minimum by monitoring construction activities, stop operations if dust levels are high.</li> </ul>
Debris Accumulation	Debris will accumulate due to construction activities, removal of existing dilapidated infrastructure on site	Can be an eyesore. Can be source of water and soil pollution. Can result in scenic pollution	2-3 months	ECO	<ul> <li>Reuse reusable material such as bricks.</li> <li>Recycle where possible</li> <li>Reduce debris accumulation by acquiring/procuring only material that is sufficient, avoid over stocking of construction material.</li> </ul>
Loss of Biodiversity	<ul> <li>Vegetative plants on site will be removed</li> <li>Habitat destruction for both ground dwelling species</li> </ul>	<ul> <li>The clearing of vegetation will result in the breaking of the ecosystem processes in the area.</li> <li>Loss of aesthetic value of the proposed project area.</li> </ul>	Constru ction phase	ECO     Site     Manager	The proposed project area surroundings are already developed, hence there is little vegetation to be affected by the development.

Company Confidential
Junior Baiano Industrial Consultants cc | © 2022

Page 46 of 68

Impact	Description	Effects	Time frame	Re	esponsibility	A	ction
Greenhouse	and tree dwelling species.  Soil disturbance on and around the site.  Green House Gasses	<ul> <li>The few small animals still habituating the place such as small rodents and birds will be forced away.</li> <li>The ecosystem food chain on and around the area will be broken.</li> <li>Global climate change</li> </ul>	12	6	ECO	•	Encourage the use of ethanol
gas emissions	(GHGs) emissions will be produced from the following activities:  • Fuels  combustion for transport  (construction vehicles and equipment)  • Ground  excavation  releases  phosphorus  found	- Air pollution	Months	•	Project Manager Department of Environment al Affairs.	•	blended fuels wherever necessary.  Design an operation system that cuts on fuel consumption.  Promote the use of energy efficient machinery, equipment and electricals during construction and operation

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 47 of 68

Impact	Description	Effects	Time frame	Responsibility	Action
Pollution from	underground and releases particulate matter into the atmosphere. Construction is	Chemical pollution from oil	Constru	• ECO	Ensure that all waste from
construction	associated with a lot of raw material and activities that results in pollution	spills resulting from the handling of various machineries used during the construction phase  Construction rubble, empty packaging containers/bags and materials remnants.  Construction workers can also pollute the surrounding environs if they are not provided with adequate toilet facilities and a waste management system for domestic waste.	ction	Project     Manger	construction activities is stored and contained in designated skip containers and transported to a nearby waste disposal site.  Bulky waste such as building rubbles must be collected and disposed of at any of the various municipal satellite sites or for landfilling.  Adequate mobile toilets must be provided at the construction camps for the use of the workers.  A skip container will be put on site and regularly emptied to handle domestic waste.

Company Confidential
Junior Baiano Industrial Consultants cc | © 2022

Page 48 of 68

Impact	Description	Effects	Time frame	Responsibility	Action
Hydrocarbons release into the environment	Oil/fuel spillages from construction machinery and vehicles pose a risk of spillage of hydrocarbons additionally also from vehicles and machinery operations, maintenance through leakages and spillages which may result in environmental contamination	<ul> <li>Washing away of contaminated soils by rains into nearby rivers</li> <li>Pollution of soil and affecting small living organisms habituating the soil</li> <li>Result in possible groundwater pollution.</li> <li>Possible fire risk on and around the site</li> </ul>	Constru ction Phase	ECO     Project     Manager     Department     of     Environment     al Affairs.	<ul> <li>Implement a maintenance programme to ensure all vehicles, machinery and equipment are remain in proper working order</li> <li>Vehicle maintenance should be Conducted in designated areas only preferably off-site.</li> <li>Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler.</li> <li>Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site.</li> <li>No bins containing organic solvents such as paint and thinners shall be cleaned on site, unless containers for liquid waste disposal are provide on site.</li> </ul>

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 49 of 68

Impact	Description	Effects	Time frame	Responsibility	Action
Safety and Health risks	Construction related Safety and Health hazards	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Constru ction phase	Project manager	<ul> <li>Equip workers with Personal         Protective Equipment (PPE), provide trainings on how to effectively use the PPE.     </li> <li>Provide platforms for briefings and meetings about possible safety and health hazards in the workplace.</li> <li>Provide site signs warning and informing about different hazards on site.</li> </ul>
Population Influx	The project will bring in skilled and unskilled workforce into the areas from other places increasing population density in the area.	<ul> <li>There is potential for cultural systems conflict between locals and new people in the area</li> <li>Potential for rife prostitution and spread of HIV/AIDS and other STDs</li> <li>Potential for scaring away of local wild animals, poaching and removal of protected indigenous vegetative species</li> </ul>	Constru ction phase	• ECO • Project Manger	<ul> <li>Train and brief employees to respect local cultures and leaders,</li> <li>Engage on massive sexual health training and awareness and providing contraceptives such as condoms, as well as provide means counselling for those that are affected by HIV/AIDS and other STDs,</li> <li>Provide environmental trainings and continue a regular basis briefing the employees about nature</li> </ul>

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 50 of 68

Impact	Description	Effects	Time frame	Responsibility	Action
					conservation (animal and plants) and discourage indiscriminate vegetation clearance.
Land use change	The existing environment will drastically change from a dormant piece of land to a modernised urban development.	Sudden change in landscape appearances may be unfavourable to the residents who frequent the area.	Perman ent	ECO     Project     Manger	<ul> <li>The development should blend into the existing area through designing and colour coding.</li> <li>Green designing will bring life to the site and blend with surrounding areas.</li> <li>The project area is already within an existing depot, hence there are no anticipated impacts to the land use change, since the proposed development will have a low significance in impacting current land uses.</li> </ul>
Employment creation	The construction exercise provides an opportunity of outsourcing work	Improves disposable income to those employed and their immediate families.	Project lifetime	Project Manger	Work with local leadership (councillor) on acquiring non-skilled labour from the residents.

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 51 of 68

Impact	Description	Effects	Time frame	Responsibility	Action
Business linkages	Raw materials acquiring and contracting companies provide an opportunity for businesses.	Local suppliers will be presented with an opportunity to empower their businesses.     Construction workers can be provided with accommodation, food and services from the local community increasing business activities.	Constru ction phase	Project Manger	The proponent will outsource most of its materials and services from the CBD.

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 52 of 68

### 6.5 OPERATIONAL PHASE

The operational phase is the most critical component of project implementation since it is more on a long term, however and it is normally associated with less impacts as compared to construction phase. This phase will comprise of the actual day to day running of the Mini-Supermarket and Entertainment Park. This phase is expected to last permanently, but with upgrading activities occasionally. There will be several impacts that will occur on a daily basis or other sequential routine. The phase forms the basis of an Environmental Management Plan that is detailed in Chapter and will be followed by the decommissioning phase. The major impacts identified by this study for the operational phase are as detailed in the previous chapter.

Table 6-3 Operation EMP

Aspect	Description	Effects	Time Frame	Responsibility	Action
Solid Waste	Solid waste will be generated by the activities and operations at the Mini-Supermarket and Entertainment Park. It will consist mainly of organic wastes, packaging wastes, hazardous wastes (e.g. electronic wastes) amongst others, therefore very important to construct appropriate infrastructure to management thus waste types like bins etc.	Eyesore to the environment     Blockage of drainage systems, choking of water bodies and negative impacts on animal health.     Biodegradable waste which produces odours and methane, which is a greenhouse gas known to contribute to global warming.     Non-biodegradable wastes which persistent in the environment such as plastic/polythene.	Permanent	Site manager	<ul> <li>Use of an integrated solid waste management system i.e. through a hierarchy of options: 1. Source reduction 2. Recycling 3.Composting and reuse 4. Combustion 5. Sanitary landfilling.</li> <li>Visual inspections and monitoring</li> <li>All waste will be managed by the municipality from collection to dumping, the developer will ensure that domestic waste handling facilities such as solid waste bins and skip containers are available at the Supermarket and Entertainment Park.</li> <li>Waste separation will be provided for to allow for recycling of recyclable materials.</li> <li>Donate redundant but serviceable equipment to charities and institutions.</li> </ul>
Noise pollution	Vehicle movements     People at the operational sites	The health of working personnel could be disturbed. Residents could be disturbed by the noise. General annoyance	Project lifetime	ECO	Provide public notices through printed timetable showing schedule of planned work.

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 54 of 68

Aspect	Description	Effects	Time Frame	Responsibility	Action
Air Quality	Increased in traffic will lead to increased greenhouse gas emissions     Undesirable odours due to poor waste management practices		Project lifetime	ECO	Raise awareness on impact of climate change     Ensure effective and efficient waste management
Occupational health and safety risks and accidents	Fire hazard may exist due to the use of electricity and related appliances.     Workplace accidents during maintenance work     Poorly constructed stairs, floors etc. may lead to accidents to the occupants of the building		Project lifetime	ECO	<ul> <li>Equip workers with Personal Protective Equipment (PPE).</li> <li>Provide trainings on how to effectively use the PPE.</li> <li>Provide platforms for briefings and meetings about possible safety and health hazards in the workplace</li> <li>OHS legal appointments on site in accordance with the Labour Act and the OHS regulations.</li> <li>Specific safety measures should be in place in case of fire.</li> <li>On site staff should be trained in firefighting</li> </ul>
Spillages and leakages	Hydrocarbons release/spillages into the environment due to vehicles and machinery on site	Land and water contamination: Both chemical and physical contamination	Project lifetime	DEA Namwater	<ul> <li>Visual monitoring of any spillages and treatment of affected areas.</li> <li>Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks.</li> <li>There shall be spoil cleaning kits on site at all times, and employees shall be trained on use and storage of used spill cleaning materials.</li> </ul>

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 55 of 68

Aspect	Description	Effects	Time Frame	Responsibility	Action
					<ul> <li>Hazardous chemicals (such as fuels) are to be handled over areas provided with impervious surfaces.</li> <li>Any chemicals, oil and fuel must be stored securely to prevent any accidental spills.</li> <li>Spills of hazardous chemicals are to be contained and cleaned-up to ensure protection of the environment.</li> </ul>
Energy usage	Operation of the Supermarket	Energy supply through the	Permanent	Building/Site	The proponent should explore the use of
	and Entertainment Park	main grid will be strained		manager	energy efficient appliances.
	consume electrical energy	(H			
	daily on some cases				
	generators and standby, this				
	can affect the atmosphere				
Sewerage and	Sewer and wastewater	<ul> <li>Health hazard</li> </ul>	Permanent	Site Manager	All sewerage waste will be channelled
effluent waste	release into the environment	<ul> <li>Communicable diseases</li> </ul>			into the town council sewer reticulation system.
		<ul> <li>Eutrophication of rivers</li> </ul>			<ul> <li>Provide adequate and safe means of</li> </ul>
		Groundwater     Contamination			handling liquid waste at the premises  Conduct regular inspections for pipe
					blockages or damages and fix appropriately
Increased storm	The area is undeveloped	<ul> <li>Enhance the chances of</li> </ul>	Permanent	<ul><li>Site</li></ul>	Standard storm water drainage will be
water flow	hence most water quickly	flood occurrences		Engineer	part of the water reticulation designs
	infiltrates as it reaches the			• ECO	indicating the storm water deposit areas.
	ground, but due to the paving				

Company Confidential Junior Baiano Industrial Consultants cc | © 2022

Page 56 of 68

Aspect	Description	Effects	Time Frame	Responsibility	Action
Infrastructure hazards	and hard surfaces storm water will increase  Infrastructure hazards are potential risks that building pose to its inhabitants, local environment or surrounding residents.	and gully formation will be increased  There is potential for building collapse.	Permanent	Site     Engineer     Contractor-     Project     proponent     Buildings     inspectorat     e     Ministry of     Health and     Social     Services.     Ministry of     Safety and     security	Sewerage infrastructure will be regularly monitored and inspected over time.     Standard buildings will be constructed     Fire emergency evacuation plan will be put in place to avoid fatalities and injuries in case of an emergency.
Development of the area	The project will further develop the project area.	Ripple effects will result in construction of supporting infrastructure such as schools, hospitals, car services and supermarkets.	Permanent	Regional council	The Development should be regulated in such a way that the local people are empowered and benefit from the development activities.

Company Confidential
Junior Balano Industrial Consultants cc | © 2022

Page 57 of 68

Aspect	Description	Effects	Time Frame	Responsibility	Action
Revenue generation	The development is bound by to pay tax and rates to the Regional Council and the government.	-The municipality and other service providers will benefit from revenue generation from the development -Business facilities will be paying tax to the government benefiting the country at large.	Permanent	Project     proponent	The project will benefit the locals, authorities and the government if all dues, rates and taxes are adhered to.
Rehabilitation maintenance of the environment.	Currently the project environment is already degraded	-After construction trees will be planted and a green zone created improving the aesthetic value of the environment to a better position than it was before.	Permanent	Building/site manager	<ul> <li>During operation phase tree planting will continue and maintenance of the green zone.</li> <li>Regular watering of the lawns that will be planted.</li> </ul>

#### 6.6 ENVIRONMENTAL MONITORING PLAN

Monitoring is very important for identifying the success of mitigation measures formulated for the significant impacts identified. Monitoring of activities will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impacts. Survey records and results must be maintained for these monitoring and inspections, highlighting any problems and the measures taken to address it.

Prior to site preparation and construction activities, the main contractor should present an environmental monitoring plan (including, *inter alia*, facilities, location of material storage areas, solid waste management plan, dust control measures, activity schedule, etc.) for review and approval by the DEA, the environmental control officer and the project manager. The developer should present a landscape plan and the trees/vegetation earmarked for protection should be flagged and hoarded by the contractor.

The entity selected to carry out environmental monitoring of the construction works should then prepare an environmental monitoring programme based on the above, the requirements of the EIA, and conditions of the development permit. The major elements of the environmental impact monitoring programme to be implemented during the construction phase of the project are as follows:

- Site clearance to ensure that trees marked for protection are left untouched and that large areas of soil are not left exposed and uncovered for extended periods of time.
- Site drainage and surface runoff, especially during and shortly after major rainfall events, to ensure there is no flooding, ponding and runoff of surface water Compliance of construction works with site management and landscape plans.
- Ensure transportation of earth materials is done by covered trucks and from approved sites.
- The contractor must immediately and completely clean up spills of materials in public areas.
- Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dump.

## 7 CONCLUSION AND RECOMMENDATIONS

The EIA study has established that the proposed construction and operation of the supermarket and entertainment park is a worthwhile investment by the proponent and will no doubt contribute significantly to the improving economic standing of the investor, employees as well as goods and service providers and by extension spur economic development. This will be through positive impacts which include; growth of the economy, boosting of the informal sector during the construction phase, provision of market for supply of building materials, employment generation, increase in government revenue, area infrastructure development among others as has been outlined within the report.

However, the EIA study has established that the proposed project will also come along with some negative impacts. The negative environmental impacts that will result from establishment of the proposed project which include solid waste generation, land degradation, noise pollution, dust emissions, increased water demand, increased energy consumption, generation of exhaust emissions, workers accidents and hazards during construction, possible exposure to workers to diseases, increased electricity consumption, increased traffic and storm water among others can however be sufficiently mitigated.

The proponent of the proposed project is committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life cycle of the project. It is recommended that in addition to this commitment, the proponent shall focus on implementing the measures outlined in the EMP as well as adhering to all relevant national and international environmental, health and safety standards, policies and regulations that govern establishment and operation of such projects. It is expected that the positive impacts that emanate from such activities shall be maximised as much as possible as exhaustively outlined within the report. These measures will go a long way in ensuring the best possible environmental compliance and performance standards.

It is our recommendation that the project be allowed to go on provided the mitigation measures outlined in the report are adhered to, Environmental Management Plan (EMP) is implemented and the developer adhere to the conditions of approval of the project. Failure to observe these measures will significantly affect the local environment and lead to non-compliance. Therefore, implementation environmental protection measures should be executed in consultation with the key stakeholders.

## 8 REFERENCES

Enviro Dynamic.2014. Environmental Assessment Keetmanshoop Signal transmission, Namibia

FAO, 1998. World reference base for soil resources. World Soil Resources Report, vol. 84. FAO, Rome.

FAO, 1998. World reference base for soil resources. World Soil Resources Report, vol. 84. FAO, Rome.

Government of Namibia. 2008, Government Gazzette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek

Government of Namibia.2008, Government Gazette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek

IFC.2007. Stakeholder Engagement: A good practice handbook for companies doing business in emerging markets. IFC, Washington D.C

IFC.2007. Stakeholder Engagement: A good practice handbook for companies doing business in emerging markets. IFC, Washington D.C

Mendelsohn, J., el Obeid, S.2003. A digest of information on key aspects of Namibia's geography and sustainable development prospects. Research and Information Services of Namibia

MET (Ministry of Environment and Tourism). 2012. *Environmental Management Act no. 7 of 2007*. Windhoek: Directorate of Environmental Affairs, Ministry of Environment and Tourism <a href="https://tradingeconomics.com/namibia/unemployment-">https://tradingeconomics.com/namibia/unemployment-</a>

<u>rate#:~:text=Unemployment%20Rate%20in%20Namibia%20is,macro%20models%20and</u> %20analysts%20expectations.