Environmental Management Plan for the Proposed Drilling of a Borehole for Water Supply at Garden of Eden Conservation Agriculture Project in Bamunu Conservancy, Zambezi Region.



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1. Acronyms

List of Acronyms

- CLD-HWCM Community Livelihood Development and Human-Wildlife Conflict Mitigation
- EMP Environmental Management Plan
- **EMA** Environmental Management Act
- MEFT Ministry of Environment, Forestry, and Tourism
- MAWLR Ministry of Agriculture, Water, and Land Reform
- **PPE** Personal Protective Equipment

2. Environmental Management Plan (EMP)

2.1 Introduction

The Bamunu Conservancy borehole Environmental Management Plan (EMP) is designed to provide a structured approach to minimising and addressing environmental risks associated with borehole drilling and water abstraction. It establishes a framework for impact mitigation, monitoring, and compliance to ensure sustainable water resource management while reducing negative environmental and social consequences.

2.2 Legal Framework and Compliance

This EMP operates under the Environmental Management Act, 2007 (Act No. 7 of 2007) (EMA), which mandates that water resource development activities must comply with environmental regulations. Bamunu Conservancy, in partnership with the Community Livelihood Development and Human-Wildlife Conflict Mitigation (CLD-HWCM) Project, is responsible for adhering to these legal requirements. Compliance ensures that borehole operations do not compromise environmental integrity or community well-being.

3.Roles and Responsibilities

3.1 Project Proponent

The Bamunu Conservancy, with support from the CLD-HWCM Project, is the key entity responsible for implementing and enforcing the EMP for the Garden of Eden project.

3.2 Site Manager (SM)

The SM serves as the liaison between workers, management, and regulatory bodies regarding EMP enforcement and compliance.

3.3 Conservancy Workers and Community Beneficiaries

All individuals involved in borehole-related activities, including conservancy employees and local community members who benefit from the project, must follow EMP guidelines. Their active participation is essential for maintaining environmental sustainability and operational efficiency.

3.4 Regulatory Oversight

Government-appointed compliance officers, operating under the Ministry of Environment, Forestry, and Tourism (MEFT), are tasked with monitoring, auditing, and enforcing adherence to the EMP. These officials conduct routine assessments to ensure that borehole operations align with Namibia's environmental laws and best practices. The Ministry of Agriculture, Water, and Land Reform (MAWLR), **under the** Water Resources Management Act 11 of 2013, is responsible for regulating, protecting, and managing water resources to ensure sustainable use and conservation. It oversees water service monitoring and enforces compliance with abstraction limits set by water permits to maintain aquifer health.

3.5 Punitive Measures

This EMP is a legally enforceable document, and failure to comply may result in penalties as stipulated under the provisions of the EMA.

4.The EMP Plan

This EMP is divided into two sections: the construction and operational phases, focusing on monitoring and assessing mitigation measures for socio-economic, bio-physical, and heritage resource impacts. As a dynamic document, it may be updated as necessary to enhance environmental protection.

4.1 Environmental Management Plan Logical Framework

Table 1. EMP logical framework

Environmental Mar	nagement Plan (EMP)			
A. Drilling Phase					
Cluster	Impact	Objective	Mitigation Measures	Monitoring	Responsible
				Indicators	
Socio-Economic	Conflicts Over	Ensure	Engage local	Signed agreements	Bamunu Conservancy
Considerations	Water Use	equitable water access for all	communities and authorities before drilling.	and feedback from	
		stakeholders	establish clear water use	contracting mootings	
			agreements		
Health and Safety	Air and Noise	Minimize air and	Use dust suppression	Air quality reports;	Bamunu Conservancy
Concerns	Pollution from	noise pollution	hours; provide PPE for	noise level	
	Drilling	during drilling	workers	assessments; PPE	
		activities		availability	
Biophysical	Soil Erosion and	Prevent soil	Implement erosion control	Presence of erosion	Bamunu Conservancy
Considerations	Land Degradation	degradation around	measures such as	control measures	
		drilling sites	vegetation barriers and		
			silt traps		

Biophysical Considerations	Disruption of Wetlands and River Systems	Maintain natural water flow to support biodiversity	Avoid drilling near wetlands; conduct hydrological assessments before site selection	Hydrological impact assessment reports	Bamunu Conservancy
Heritage	Damage to	Preserve cultural	Conduct heritage	Heritage assessment	Bamunu Conservancy
Resources	Archaeological	and historical	assessments before	reports; incident	
	Sites	heritage	drilling; report findings to	reports to authorities	
			the National Heritage		
			Council		
B. Operational Pha	Se				
Cluster	Impact	Objective	Mitigation Measures	Monitoring	
				Indicators	
Socio-Economic	Theft of Borehole	Ensure security of	Implement fencing and	Incident reports;	Bamunu Conservancy
Considerations	Infrastructure	borehole installations	security measures; involve community in monitoring	presence of security measures	
Socio-Economic	Reduced Livestock	Improve livestock	Position boreholes near	Reduction in reported	Bamunu Conservancy
Considerations	Attacks by	safety and	protective fencing around	IIVESTOCK IOSSES	
	Predators	minimize predator	water points		

Health and Safety Concerns	Water Contamination	Ensure safe drinking water for communities	Regular water quality testing; proper borehole sealing	Water quality test results; sanitation practices	Bamunu Conservancy
Concerns	Communicable Diseases	transmission in borehole areas	campaigns; provision of sanitation facilities	community engagement records	Bamunu Conservancy
Biophysical Considerations	Groundwater Depletion	Sustain groundwater levels for long-term use	Monitor abstraction rates; implement water conservation measures	Groundwater level monitoring records	Bamunu Conservancy
Biophysical Considerations	Infrastructure by Damage Elephants	Prevent damage to borehole infrastructure by wildlife	Install elephant deterrents such as chili fences and reinforced structures	Incident reports; functionality of deterrent measures	Bamunu Conservancy
Biophysical Considerations	Destruction of Trees	Reduce deforestation and habitat loss	Minimize tree clearing; implement reforestation programs	Number of trees replanted; satellite imagery	Bamunu Conservancy
Heritage Resources	Heritage and Archaeology Risks	Protect cultural and historical artifacts	Report findings to relevant authorities; halt work if artifacts are discovered	Reports to heritage authorities; documentation of findings	Bamunu Conservancy

5. Decommissioning and Rehabilitation Plan

The decommissioning phase aims to minimize environmental risks when a borehole is no longer in use. Key steps include:

- **Sealing:** Boreholes should be properly sealed with cement or bentonite to prevent groundwater contamination.
- Infrastructure Removal: All pipes, pumps, and solar panels must be dismantled and removed.
- Land Restoration: The site should be levelled, vegetation replanted, and natural drainage restored.

Responsibilities

- The proponent (Bamunu Conservancy) oversees and funds decommissioning.
- The Environmental Compliance Officer ensures adherence to regulations.

Monitoring and Evaluation

- Regular assessments should confirm site safety and environmental stability.
- Groundwater quality testing ensures no contamination of the aquifer.

6. Recommendation and Conclusion

6.1 Recommendation

Stakeholder Collaboration: Continued engagement with the Ministry of Agriculture, Water and Land Reform (MAWLR), Ministry of Environment, Forestry and Tourism (MEFT), and other key stakeholders should be maintained to ensure compliance and support.

6.2 Conclusion

The borehole installation project is a crucial initiative to enhance water accessibility, improve livelihoods, and support agricultural productivity in the community. While the project has significant benefits, it also presents environmental and socio-economic challenges that require careful management. With proper implementation of the Environmental Management Plan (EMP), sustainable water abstraction practices, and strong stakeholder engagement, the borehole project can contribute to long-term water security and socio-economic development in the region.

6.3 Declaration for the Submission of Assessment Reports

No. 4878

Government Gazette 6 February 2012

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ANNEXURE 1 FORMS

Form 1

REPUBLIC OF NAMIBIA

ENVIRONMENTAL MANAGEMENT ACT, 2007

(Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE

Revenue stamp or revenue franking machine impression

PART A: DETAILS OF APPLICANT

1. Name: (person or business) Bamunn Conservanc-1
2. Business Registration / Identity No. Gazette 4669 Number 29 (if applicable)
3. Correspondence Address: P.O BOX 1533 MONELE
4. Name of Contact Person: JErOME Lutibezi
5. Position of Contact Person: Chair PErson
6. Telephone No .: 0814172029
7. Fax No.:
8. E-mail Address : (if any) bscmzila @gMoul. Cam

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PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

The environmental clearance certificate is for:

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Details of the activity(s) covered by the environmental clearance certificate:

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 Nature of Activity: Note: Note: Plans to form the thetare plant to activity: Note: Note: Plant to activity: Note: Plant to activity: Note: Note: Plant to activity: Note: Plant to act

PART C: DECLARATION BY APPLICANT

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.

ne in Block Letters	Position
1.52	
G 02	44/25
4	CF 02 Date

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