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Environmental Mitigation and Monitoring Plan (EMMP)

SOUTHERN AFRICA REGIONAL ENVIRONMENTAL PROGRAM



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CONTENTS

Acronyms	i
SAREP and Environmental Compliance	1
A. SAREP Environmental and Mitigation Approach	1
A.1 Negative Determination with Conditions	1
A.2 Deferral	2
Table 1 Environmental Due Diligence	3
B. Reporting	5
C. Environmental Mitigation and Monitoring Plan	5
Table 2 Environmental Mitigation and Monitoring Plan	8

ACRONYMS

BMP	best management practices
CBNRM	community-based natural resource management
COR	contracting officer's representative
DCOP	deputy chief of party
EIA	environmental impact assessment
EGSSAA	USAID Environmental Guidelines for Small-Scale Activities in Africa
EMMP	environmental mitigation and monitoring plan
ESF	environmental screening form
GCC	global climate change
IEE	initial environmental evaluation
MOMS	management-oriented monitoring system
OKACOM	Permanent Okavango River Basin Water Commission
REA	regional environmental officer
SADC	Southern Africa Development Community
SAREP	Southern Africa Regional Environmental Program
WSS	water supply and sanitation

SAREP and Environmental Compliance

This Environmental Mitigation and Monitoring Plan (EMMP) responds to the Southern Africa Regional Environmental Program's (SAREP) initial environmental examination (IEE), request for categorical exclusion, and complements the project work plan. It is intended to cover the life of the project, but will be amended and/or updated to cover project activities not covered therein, if and when deemed necessary.

A. SAREP Environmental Mitigation Approach

SAREP is a three-year project (with an optional two-year extension) to support the initiatives of the Southern Africa Development Community (SADC) to address threats to ecosystem services and biodiversity within priority shared river basins. The project works with the Permanent Okavango River Basin Water Commission (OKACOM) to implement strategies and activities centered on conserving biodiversity, improving water supply and sanitation services, and strengthening regional capacity to respond to the effects of climate change and HIV/AIDS. Project implementation reflects the trans-boundary aspects and the interlinked dynamics of the targeted watersheds, while taking into account specific national and community needs.

A.1. Negative Determination with Conditions

This EMMP describes SAREP's mitigation and monitoring plan for activities that fall into the *negative determination with conditions* category. We will conduct an environmental screening using the checklist attached to SAREP's IEE in order to identify and assess potential environmental impact with a view to eliminate or reduce them through appropriate mitigation measures and monitoring protocols. The environmental review plan will provide for ensuring environmental compliance, and protecting the health of the environment and population. As appropriate, SAREP will use the Environmental Due Diligence process outlined in the table below to ensure the environmental soundness of its project activities.

Chemonics will include environmental compliance language in all SAREP solicitations and awards, will encourage partner organizations to adopt environmentally-safe processes and practices, and incorporate appropriate environmental analyses in their development planning processes. We will also contribute to building partner organizations' capacity to implement the EMMP recommendations, and monitor the impact and effectiveness of the mitigation measures. As appropriate, SAREP will adhere to the relevant guidelines set forth in USAID Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA), namely chapter 2 "community-based natural resource management" (CBNRM), chapter 3 "small-scale construction"; and chapter 16 "water supply and sanitation".

In collaboration with the technical staff of the partner organizations, the SAREP team will monitor environmental compliance in accordance with the EMMP and the IEE recommended environmental threshold decision. The environmental monitoring results will be included in the project reports.

The SAREP deputy chief of party (DCOP) will serve as the designated environmental compliance coordinator. He will oversee the implementation of the EMMP in close collaboration with SAREP technical coordination specialists, and with short-term technical support from Chemonics' home office environmental team. The SAREP field staff,

including the M&E specialist, will receive appropriate training in environmental compliance in order to facilitate and support environmental mitigation monitoring.

Activities not specifically identified in this EMMP and the SAREP work plan will be subject to an environmental screening, using the environmental screening form (ESF) in the IEE. The instructions accompanying the ESF provides the necessary guidance to determine the levels of risks (low, moderate, and high) associated with these activities in order to decide on appropriate mitigation actions. If these activities are related to community-based natural resources management and ecotourism, the CBNRM supplemental screening (see IEE) will apply.

SAREP will take steps to avoid the potential negative impact by:

- Employing the best practice guidance for community-based natural resource management found in the *Environmental Guidelines for Small Scale Activities in Africa* (www.encapafrika.org);
- Providing training to implementing partners in using the ESF for all relevant project activities, implementing the mitigation measures, monitoring their impact, and preparing the relevant mitigation and monitoring report;
- Securing appropriate local community's and authorities' commitment, and contributing to strengthening their capacity to carry out the project activities;
- Promoting effective resource monitoring and policing;
- Assisting in clarifying the relevant legal, regulatory and administrative frameworks;
- Promoting adaptive management;
- Facilitating appropriate information and knowledge sharing; and
- Ensuring local active participation at all levels.

A.2. Deferral

For the SAREP key result area “access to safe water supply and sanitation increased” — both the core project and the USAID/Namibia buy-in — the leveraging of resources to maximize program impact and sustainability has a deferral determination, because the activities are not yet identified. Therefore, they have potential for negative impact to the biological, physical and social environment depending on the activities planned with the leveraged funds.

If the proposed project activities are already covered under SAREP's IEE, they will be reviewed in light of this EMMP, which will be amended for the regional environmental advisor (REA) and the COR's approval before activities can begin. If the activities are not specifically covered under SAREP's IEE, an amendment to the IEE will be called for before these activities can begin.

Table 1. Environmental Due Diligence

Potential Adverse Impact	Mitigation Measures
<p>Planning and Site Selection Phase:</p> <ul style="list-style-type: none"> • Important habitat or ecosystems sensitive to disturbances may be located within proposed project site boundaries or may be affected by the project; and • Habitat for threatened or endangered species and/or threatened or endangered species may be found within proposed project site boundaries or may be affected by the project. 	<ul style="list-style-type: none"> • Any important habitat or ecosystems that are located within proposed project boundaries (project boundaries include all ancillary features) shall be protected • Any important habitat or ecosystems that may be affected by the project (affected may be temporary/short-term or long-term, direct or indirect, and “project” includes ancillary features) shall be protected • Any cultural or historical assets that are within project proposed boundaries or that may be affected by the project shall be protected • If SAREP DCOP determines that the proposed mitigation plan is not adequate to protect flora, fauna, and sensitive ecosystems), and cultural/historical resources, an alternative site shall be considered • If any threatened, endangered, or other sensitive species, or habitat for threatened, endangered, or other sensitive species is within proposed project boundaries or may be affected by the project, an alternative site shall be chosen • If protected areas are within proposed project boundaries or may be affected by the project, an alternative site shall be chosen • Any social and environmental concerns that cannot be mitigated by the measures in this mitigation plan shall be brought to the attention of SAREP DCOP for action. An alternative site shall be chosen or an EA amendment shall be initiated • All relevant government legislation and guidelines pertaining to environmental protection and water quality testing and monitoring shall be complied with
<p>Design and feasibility phase:</p> <ul style="list-style-type: none"> • If project documents do not include mitigation measures and a budget to implement them, the project could result in adverse environmental impact. 	<ul style="list-style-type: none"> • Mitigation measures identified during the planning and site selection phase shall be incorporated into the relevant project documents; costs for environmental management shall be included in overall project budget • Initial water quality testing results shall be discussed with the relevant stakeholders, and alternative plans assessed if water quality does not meet governments’ or WHO requirements • Construction plans must be approved by a certified engineer, and construction works must be performed by qualified contractors
<p>Construction phase:</p> <ul style="list-style-type: none"> • Location where fill and other construction material are obtained may not be environmentally sound and material may not be sourced sustainably. That may result in ecological, hydrological, aesthetic, and land use impact. 	<ul style="list-style-type: none"> • Steps shall be taken to ensure that all material to be used in construction is sourced in an environmentally sound and sustainable manner
<ul style="list-style-type: none"> • Flora, fauna, and sensitive ecosystems could be destroyed or degraded. 	<ul style="list-style-type: none"> • Identify areas to be cleared and limit vegetation removal to only what is needed to repair or construct the system, and provide ancillary features • Limit encroachment into riparian areas • Delineate sensitive and/or high quality habitat, and keep all foot and motorized traffic and equipment out; where riparian habitat/vegetation is of good quality, limit worker traffic • Save vegetation removed for replacement at the end of construction phase (as practicable) • Construction or excess material from the construction process (fill, rocks, etc.) shall not be stockpiled temporarily or permanently in wetlands or waterways or in a manner that will damage vegetation or soil

Potential Adverse Impact	Mitigation Measures
<ul style="list-style-type: none"> Cultural/historical resources could be destroyed or degraded. 	<ul style="list-style-type: none"> Delineate cultural/historical resources to be protected, and keep all foot and motorized traffic and equipment out
<ul style="list-style-type: none"> Threatened and endangered species (TES) and other sensitive species and/or habitats and cultural resources could be found within project boundaries or areas that are being affected by the project. 	<ul style="list-style-type: none"> Educate workers about procedures to be implemented in case protected species or artifacts are found on-site Contracts shall include a stop-work clause that requires project work to stop if these resources are found on site or found to be affected by the project. Work shall resume only after proper clearance from SAREP DCOP.
<ul style="list-style-type: none"> Delayed removal of waste could affect water quality, and waste could contaminate the disposal site. 	<ul style="list-style-type: none"> Dispose of waste in a timely manner, and at an approved location that uses environmentally sound practices
<ul style="list-style-type: none"> Erosion could result in increased turbidity, decreased water quality, and degraded aquatic ecosystem. This could have impact on wildlife and humans that rely on these resources. 	<ul style="list-style-type: none"> Use erosion control measures during construction Place erosion control barriers prior to starting construction and do not remove erosion control barriers until construction is complete, and vegetation is re-established Replace soil and return land to pre-construction condition, as much as possible after laying water pipe network
<ul style="list-style-type: none"> Machine and/or mechanical equipment not well-maintained and properly stored could degrade water quality and soils. 	<ul style="list-style-type: none"> Provide a maintenance area at least 50 meters from waterways and any sensitive terrestrial habitat Keep emergency response equipment on work sites to deal with spills and/or leakages, as appropriate
<ul style="list-style-type: none"> Noise from the use of machine and/or mechanical equipment could affect wildlife breeding, feeding and/or behavior; and Noise could affect human environment. 	<ul style="list-style-type: none"> If during environmental monitoring, noise is found to disrupt wildlife breeding, feeding, or behavior, limits shall be placed on use of such equipment, movement of personnel, or other abnormal noise-producing activities. These limits shall remain in place until determined by SAREP DCOP that they may be removed. As much as possible, limit unusual noise from project activities to daylight hours.
<ul style="list-style-type: none"> Public and worker safety could be compromised. 	<p>To ensure the safety of the public:</p> <ul style="list-style-type: none"> Develop and implement a communication plan for regular public awareness of project activities; and hold meetings to educate and inform residents and/or community members of the work to be or being carried out Restrict public access to hazard or unsafe areas related to the project Reduce vehicle speed in work zone <p>To ensure the safety of employees and workers:</p> <ul style="list-style-type: none"> Provide adequate safety equipment and training on their use and in other safety procedures Post proper signage Enforce safety zones and procedures Implement a work place health and safety plan
<ul style="list-style-type: none"> Gender concerns and local labor 	<ul style="list-style-type: none"> A gender ratio as close as possible to that of the local community(ies) shall be strived for Local sources of labor should be used to the greatest extent possible
<p>Operation and maintenance phase:</p> <ul style="list-style-type: none"> Construction camps and other ancillary features will degrade over time, and potentially impact water quality, degrade soils, and create a public hazard, if not dismantled or properly disposed of. 	<ul style="list-style-type: none"> Unless other provisions are made, temporary camps and other ancillary features shall be removed once construction is complete. Removal shall include environmentally sound disposal of solid waste, buildings, etc.

Potential Adverse Impact	Mitigation Measures
<ul style="list-style-type: none"> Leaks or spills that are not cleaned up can continue to contaminate the environment. 	<ul style="list-style-type: none"> Any areas where leaks or spills have occurred shall be cleaned up prior to transferring project.
<ul style="list-style-type: none"> Flooding, ponding, and destruction of vegetation and other terrestrial resources could result if site hydrology and grade are not restored. 	<ul style="list-style-type: none"> Once construction work is complete, restore site hydrology and grade to pre-construction condition (or improved drainage) on work sites and adjacent affected areas.
<ul style="list-style-type: none"> Erosion and landslides could result if vegetation is not restored, and soil is left bare. 	<ul style="list-style-type: none"> Re-vegetate areas disturbed with naturally occurring vegetation, if possible with vegetation retained from site.
<ul style="list-style-type: none"> It is unlikely the system, facilities or infrastructure will be properly maintained if a practical maintenance plan is not in place with appropriate funding, and if those responsible for operation and maintenance are not properly trained. 	<ul style="list-style-type: none"> Ensure the development and implementation of the operation & maintenance training program as well as the operation & maintenance plan.

B. Reporting

SAREP will monitor environmental compliance in accordance with the IEE recommended threshold decision. SAREP quarterly reports will include an environmental compliance and monitoring section, and will also report on SAREP successes, failures, and experiences in implementing the mitigation measures.

C. Environmental Mitigation and Monitoring Plan

The table below describes the mitigation and monitoring plan for SAREP activities that fall into the **negative determination with conditions** category. It will be use together with the detailed description of the potential adverse impact and mitigation measures provided in the environmental due diligence table.

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
		recommended mitigating measures, the EMMP will be revised to recommend the appropriate mitigation measures for the REA and the COR's approval before this activity begins.							

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
3. Leverage resources to maximize program impact and sustainability	There could be potential impact to the biological, physical and social environment depending on activities planned or proposed with the leveraged funds.	<p>If the proposed activity is already covered under the IEE and the EMMP, the relevant mitigation measures will apply. If it will not result in potential impact, no further action is required; if there is some potential for adverse impact, mitigation measures will be incorporated in the design; if there are potential for substantial but mitigatable adverse environmental effects, the EMMP will be revised to include the proposed activities for the REA and the COR's approval before this activity begins.</p> <p>If the proposed activity is not covered under the IEE, an amendment to the IEE will be called for before activities can begin.</p>	TBD	Quarterly	[REDACTED]	SAREP DCOP			
4. Identify institutional responsibility and strengthen capacity for water and sanitation services	Potential impact to the biological, physical and social environment depending on activities implemented could result from the	<p>The WSS facilities will comply with WHO and the relevant governments water quality standards, taking into account, as appropriate:</p> <ul style="list-style-type: none"> the principles for allocation of the 	<ul style="list-style-type: none"> Assessment reports Strengthening capacity documents and materials 	Quarterly	[REDACTED]	SAREP DCOP			

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log			
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up	
delivery	implementation of these project activities. These include contamination of water with human pathogens and animal manure; creation of stagnant water pools, exhaustion of water supply.	<p>resource among downstream and upstream communities</p> <ul style="list-style-type: none"> the incorporation of health concerns into the management plan the protection of the aquatic environment; the need to limit encroachment into riparian areas the management of demand; the need to delineate sensitive and/or high quality habitat, and to keep construction footprints to the minimum the development of a maintenance plan for the operation and maintenance of the facilities in consultation with relevant community members and government authorities <p>Environmental due diligence will be conducted at Planning & Site Selection Phase.</p>	<p>with BMP recommendations</p> <ul style="list-style-type: none"> ESF reports on proposed activities 		<p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p>					
5. Design and implement safe drinking water	Potential impact to the biological, physical and social	The WSS facilities will comply with WHO and the relevant governments	<ul style="list-style-type: none"> Design documents with BMP 	Quarterly	<p>██████████</p> <p>██████████</p> <p>██████████</p>	SAREP DCOP				

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
<p>projects</p> <p>6. Design and implement improved sanitation services in tandem with drinking water supply improvements</p>	<p>environment depending on activities implemented. These include contamination of water with human pathogens and animal manure; creation of stagnant water pools, exhaustion of water supply.</p>	<p>water quality standards, taking into account, as appropriate:</p> <ul style="list-style-type: none"> the principles for allocation of the resource among downstream and upstream communities; the incorporation of health concerns into the management plan; the protection of the aquatic environment; the need to limit encroachment into riparian areas; the management of demand; the need to delineate sensitive and/or high quality habitat, and to keep construction footprints to the minimum; and the development of a maintenance plan for the operation and maintenance of the facilities in consultation with relevant community members and government authorities <p>Environmental due</p>	<p>and mitigation measures recommendations</p> <ul style="list-style-type: none"> ESF reports on proposed activities 		<p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p>				

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
		diligence will be conducted at Planning & Site Selection Phase.							
7. Leverage resources to maximize program impact and sustainability	Potential negative impact to the biological, physical and social environment depending on activities implemented with the leveraged funds. If the activities are already covered under SAREP IEE, an EMMP will be developed for the REA and the COR's approval before activities can begin. If the activities are not specifically covered under SAREP IEE, an amendment to the IEE will be called for before these activities can begin.	<p>If the proposed activity is already covered under the IEE and the EMMP, the relevant mitigation measures will apply. If it will not result in potential impact, no further action is required; if there is some potential for adverse impact, mitigation measures will be incorporated in the design; if there are potential for substantial but mitigatable adverse environmental effects, the EMMP will be revised to include the proposed activities for the REA and the COR's approval before this activity begins.</p> <p>If the proposed activity is not covered under the IEE, an amendment to the IEE will be called for before activities can begin.</p>	TBD	Quarterly	██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████	SAREP DCOP			

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
8. In tandem with SAREP interventions for WSS delivery, biodiversity and ecosystem protection, and community welfare, design and deliver climate change adaptation measures	The delivery of GCC adaptation measures may have biophysical impact, due to the fragility of the ecosystems and their vulnerable to climatic shocks.	The ERR/ESF process is required in order to analyze potential impact before resulting activities can begin. Environmental due diligence will be conducted at Planning & Site Selection Phase.	<ul style="list-style-type: none"> Project documents and materials with BMP and environment ally sound climate change adaptation measures and recommendations ESF reports on proposed activities 	Quarterly	██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████	SAREP DCOP			
Total Estimated Cost: Core Contract					██████████				
Namibia Buy-in									
1. Provide the communities with incentives to diversify away from their reliance upon subsistence agriculture and natural-resource harvesting at the current levels	(See detailed description in Section E.2. KRA 2) As the specific activities are not yet identified, the ESF will be used to analyze potential impact before initiating them.	Based on the ESF reports: <ul style="list-style-type: none"> If the proposed activities will not result in potential impact, no further action is required; If there are little potential for adverse impact, specific mitigation measures recommended in this EMMP will be incorporated in the design. 	<ul style="list-style-type: none"> Project activities documents with BMP and mitigation measures recommendations ESF reports on proposed activities 	Quarterly	██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████	SAREP DCOP			

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
decision-making processes	activities.	<p>design. Specific mitigations measures recommended in this EMMP will be selected.</p> <ul style="list-style-type: none"> If there are potential for substantial but mitigatable adverse environmental effects, and if the proposed activity does not fit well under recommended mitigating measures, the EMMP will be revised to recommend the appropriate mitigation measures for the REA and the COR's approval before this activity begins. 							
<p>4. Design and implement WSS projects in pilot communities</p> <p>5. Design and implement improved sanitation services in tandem with drinking water supply improvements</p>	<p>Potential impact to the biological, physical and social environment depending on activities implemented. These include contamination of water with human pathogens and animal manure; creation of stagnant water pools, exhaustion of water</p>	<p>The WSS facilities will comply with WHO and the relevant governments water quality standards, taking into account, as appropriate:</p> <ul style="list-style-type: none"> the principles for allocation of the resource among downstream and upstream communities; the incorporation of health concerns into the management plan; 	<ul style="list-style-type: none"> Design documents with BMP and mitigation measures recommendations ESF reports on proposed activities 	Quarterly	<p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p> <p>██████████</p>	SAREP DCOP			

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
	supply.	<ul style="list-style-type: none"> the protection of the aquatic environment; the need to limit encroachment into riparian areas; the management of demand; the need to delineate sensitive and/or high quality habitat, and to keep construction footprints to the minimum; and the development of a maintenance plan for the operation and maintenance of the facilities in consultation with relevant community members and government authorities <p>Environmental due diligence will be conducted at Planning & Site Selection Phase.</p>							
6. Leverage resources to maximize program impact and sustainability	Potential impact to the biological, physical and social environment depending on activities implemented with the leveraged funds. If proposed	If the proposed activity is already covered under the IEE and the EMMP , the relevant mitigation measures will apply. If it will not result in potential impact, no further action is required; if there is some potential	TBD	Quarterly	██████████ ██████████ ██████████ ██ ██████████ ███ ██████████ ██████████	SAREP DCOP			

Activities	Potential Adverse Impact	Mitigation Measure(s)	Monitoring Scheme		Estimated Cost	Person Responsible	Monitoring Log		
			Monitoring Indicator(s)	Monitoring and Reporting Frequency			Date	Result	Follow-up
	activities are only rehabilitation, ESF/ERR process will be required to analyze potential impact if the activities fit well under the recommended mitigating measures; otherwise, an IEE amendment will be called for before activities can begin.	for adverse impact, mitigation measures will be incorporated in the design; if there are potential for substantial but mitigatable adverse environmental effects, the EMMP will be revised to include the proposed activities for the REA and the COR's approval before this activity begins. If the proposed activity is not covered under the IEE , an amendment to the IEE will be called for before activities can begin.			██████ ██████ ██████ ██████ ██████				
Total Estimated Cost: Namibia Buy-in					██████				
Sum Total Estimated Cost					██████				