



ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Project Name: Groundwater monitoring through installation of automatic data logging, transmission, and acquisition system for 10 representative boreholes aquifers of Mauritius

Country: Mauritius

Location: 10 sites scattered over the island of Mauritius

The project's main objective is to acquire real-time data for effective groundwater management by equipping 10 representative monitoring wells in the main aquifers with automatic data loggers and a telemetry system. The works will consist of two major phases: 1. Rehabilitation and securing of existing boreholes, and 2. Procurement and commissioning of data loggers.

Subgrantee: Project Manager POKHUN Rajeshwar, Principal Hydrological Officer, prajeshwar@govmu.org Water Resources Unit (WRU) – Ministry of Energy and Public Utilities)



**Contact
Details**

+27 12 051 0419
info@sadc-gmi.org
www.sadc-gmi.org



**Postal
Address**

Suite 262
Private Bag X025
Lynwood Ridge 0040
South Africa



**Physical
Address**

Building 24,
CSIR Campus
24 Meiring Naude Road
Brummeria
Pretoria 0184

Environnemental and Social Management Plan (ESMP)				
Mauritius Base Grant				
Item	Mitigation, Management, and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
A. General Requirements for ESHS Management				
<u>Responsibilities and Liabilities</u>	Ensure that all workers, suppliers, and possible subcontractors are familiar with and comply with ESMP's ESHS requirements and specifications.	Induction training performed and recorded. Contracts with subcontractors and suppliers	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Review of training records Review of Contracts to ensure that Project requirements are included
	Implement the ESMP developed for Groundwater monitoring through the installation of an automatic data logging, transmission, and acquisition system for 10 representative borehole aquifers of Mauritius and implement a monthly monitoring and reporting procedure with SADC-GMI.	Compliance with the mitigation measures outlined in this ESMP	Ministry of Energy and Public Utilities Water Resources Unit	Review before finalization of Project-specific ESMP
<u>Resources allocated to ESHS Management</u>	Assign and maintain at least one project manager to define the requirements and responsibilities and who will oversee the compliance and monitoring of E&S risk management of the activities. Appoint and maintain at least one focal point (Relations officer or Community Liaison officer) responsible for stakeholder engagement.	Compliance with the mitigation measures outlined in this ESMP Inform the relevant authorities about the ESHS that is responsible.	Ministry of Energy and Public Utilities Water Resources Unit	Review before finalization of Project-specific ESMP

Reporting	Ensure reporting of progress on incidents, accidents, observations, and near misses in compliance with the SADC GMI sub-grant manual.	Compliance with the mitigation measures outlined in this ESMP Reporting protocol for ESHS incidents	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Review once before finalization of Project-specific ESMP
Code of Conduct	Adopt and implement the Code of Conduct stated in the SADC GMI Sub-grant Manual, considering national legislation, safety rules, substance abuse, environmental sensitivity, communicable diseases, gender issues (sexual harassment), respect for local beliefs and customs, community interactions, etc.	SADC-GMI Code of Conduct in place and rules shared with personnel as per sub grants manual	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Review of Code of Conduct induction records Review of reported punishable or misconduct behavior Review of grievance records
ESHS Training	Provide H&S induction and training and raise awareness among the workforce regarding H&S risks and mitigation measures (including indirect workers) tailored to the Project scope.	Training performed and recorded	Contractor Ministry of Natural Resources – Department of Water Affairs	Review of training records

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B. Protection of the Environment				
Protection of adjacent areas	Ensure that means of protection are in place to avoid or minimize adverse effects on vegetation, soils, groundwater and surface water, biodiversity, natural drainage, and the water quality in areas within the works area. Construction methods to minimize impacts to the extent possible.	No impacts were identified in the adjacent environment Supervisory checklist	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Weekly site supervision (including monitoring of adjacent natural resources)



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B. Protection of the Environment				
	<p>Ensure that the contractor receives approval from the relevant environmental authority and from the Ministry of Energy and Public Utilities Water Resources Unit on the site plan before the start of relevant works.</p> <p>Ensure that work site boundaries and limits follow plans agreed upon in advance. All construction activities shall be carried out within the boundaries.</p>	<p>Marking the borders of the works site using danger tape</p> <p>Inform the immediate community of the borders of the work site</p>	Contractor	<p>Site inspection before the commencement of activities</p> <p>Weekly site inspection and supervision</p>
Pollution prevention	Ensure all works carried out minimize pollution risk (e.g., liquid effluents, air emissions, noise and vibration management, vehicle and equipment maintenance and selection, fuel, oil, and chemical storage and handling) throughout the project's duration.	<p>Ensure that potential pollutants are not stored and handled within 50 m of sensitive receptors (particularly watercourses).</p> <p>Ensure that potential pollutants are safely stored, i.e., stored above the catch pan.</p>	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Site inspection prior and during the commencement of works
Emissions and dust	<p>Ensure that the contractor staff are wearing appropriate PPE e.g. face mask.</p> <p>Sensitize communities to maintain a safe distance</p>	<p>Visual Inspection of the site</p> <p>No grievances received</p>	Contractor Ministry of Energy and Public Utilities Water Resources Unit	<p>Visual inspection during weekly supervisory visits</p> <p>Random site inspection</p> <p>Review of grievance records</p> <p>Review of accident/incident records</p>
	Sensitize drivers to turn off their vehicles when not in use	Vehicle engines are switched off when not in use	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Random Site inspection and weekly review of grievance records, training records

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B. Protection of the Environment				
Noise and vibration	Avoid operations like drilling and vehicle movements at night.	No work conducted between 8 pm and 6 am	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Once before the commencement of works Monitor noise levels in case equipment is used Review of grievance records
	Locate stationary equipment (such as power generators) as far as possible from nearby receptors (e.g., worker resting areas, populated areas, and environmentally sensitive areas). Ensure that noise levels don't exceed 120db in case of equipment or vehicle use.	Adequate distances between equipment and receptors are kept Use of sound detector to ensure that noise level is kept below recommended level	Contractor Ministry of Energy and Public Utilities Water Resources Unit	Once before commencement of works Monitor noise levels in case equipment is used Review of grievance records

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B. Protection of the Environment				
Waste Management	<p>Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</p> <p>Ensure that the temporary waste storage site is identified. Ensure that temporary waste storage does not obstruct the pathways.</p> <p>Mineral construction and demolition wastes will be separated from general refuse, organic, liquid, and chemical wastes by on-site sorting and stored in appropriate containers.</p> <p>Regular and effective final waste disposal and collection will be ensured. Records of waste disposal will be maintained.</p> <p>The contractor will reuse and recycle appropriate and viable materials (except asbestos) whenever feasible.</p> <p>Ensure appropriate containment and storage of drilling wastewater, including sanitary water. No untreated effluent is discharged.</p>	<p>Contracts with selected contractors include the need to comply with effective waste management measures.</p> <p>Contractor to have a waste management plan/protocol in place</p>	<p>Contractor to implement</p> <p>Ministry of Energy and Public Utilities Water Resources Unit to monitor and ensure compliance.</p>	<p>Inspect waste management or disposal sites or protocols during site visits.</p>



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C. Health and Safety				
Accident reporting	<p>Ensure all accidents, incidents, observations, and near misses (e.g., occupational and community health and safety, sexual harassment, disorderly conduct, gender-based violence, gender bias, and discrimination observations) on site are recorded and followed up properly.</p> <p>Inform the workers and communities on the methods of reporting grievances, accidents, and incidents: email safeguarding@sadc-gmi.org</p>	<p>Incident reporting protocol in place as per World Bank and SADC-GMI Sub-Grant Manual Grievance Mechanism procedure</p> <p>Email for report submission</p>	<p>Contractor</p> <p>Ministry of Energy and Public Utilities Water Resources Unit</p> <p>SADC-GMI</p>	<p>Weekly inspection Check incident/accident records</p> <p>Email</p>
Personal protective equipment	<p>Ensure the provision of Personal Protective Equipment (PPE) (i.e., hard hats, masks, safety glasses, safety boots) for workers.</p> <p>Mandate the contractor to provide adequate PPE to workers at all times. Include the mandate in the contract agreement with the selected contractor.</p> <p>The Contractor shall provide appropriate safety equipment to all his staff on site and comply with local legislation regarding Health and safety requirements.</p>	<p>Daily visual inspection</p> <p>The Contractor developed A supervisory checklist and was approved by the Ministry of Energy and Public Utilities.</p> <p>PPE Checklist</p> <p>“First-Aid, Welfare and Safety Precautions” included in the Statement of Requirement in the tender documents that mandate the contractor to provide PPE</p>	<p>Contractor,</p> <p>Ministry of Energy and Public Utilities Water Resources Unit</p>	<p>Random and weekly supervisory visits to check PPE as per “First-Aid, Welfare and Safety Precautions” in the Statement of Requirement in the tender documents.</p> <p>Inspect incident report</p> <p>Weekly checklist inspection on-site</p>

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C. Health and Safety				
First-aid	<p>The Contractor shall provide and maintain all equipment necessary to render first aid in case of accidents or other emergencies in operative conditions. This equipment shall be kept in readiness at the works' sites, at camps, and wherever the Contractor's staff may regularly live and work.</p> <p>The Contractor shall ensure that there are persons available at all such places with knowledge of simple first-aid procedures and can administer help in the event of injury.</p> <p>The Contractor will be responsible for the cost of all site welfare arrangements, health requirements, warning signs, and all other safety precautions.</p> <p>All work is to be executed in a safe and responsible manner, and the Contractor is to proceed in accordance with the provisions of the appropriate legislation.</p>	<p>First aid is on site and adequately stocked</p> <p>Visual inspection</p> <p>The Contractor developed a supervisory checklist, which was approved by the Ministry of Energy and Public Utilities.</p>	<p>Contractor</p> <p>Ministry of Energy and Public Utilities</p> <p>Water Resources Unit</p>	<p>Weekly supervisory visits to check the availability of first aid kit</p>
Hygiene	<p>Ensure provision of Health and Safety (H&S) and hygienic and sanitary facilities at the site e.g toilets, potable water, and shaded rest area.</p>	<p>Daily visual inspection</p>	<p>Contractor</p>	<p>Basecamp site inspection prior to commencing work</p>



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D. Labour and relations with local communities				
Local recruitment	Ensure local communities are preferred for the supply of services. Adhere to the Labour Management Procedures stipulated in the Subgrants manual, WB ESF, and national laws of Mauritius.	Inspection of daily labour roster Contracts stipulate adherence to SADC-GMI LMP conditions and code of conduct.	Ministry of Energy and Public Utilities Water Resources Unit Contractor	Contracts review
Community interaction	Engage/ communicate/inform communities. Ensure consultations with the local authorities and communities regarding the project. In the case of a need for a right of access, ensure that consent from local communities is achieved and documented and that there is no adverse impact on those landowners' livelihoods.	Minutes of Meetings Grievance Mechanism Photos and videos	Ministry of Energy and Public Utilities Water Resources Unit Contractor	Weekly Review of grievance register Minutes of consultation/ community meetings

