



Environmental and Social Management Plan (ESMP)

Project Name: Chiparamba Aquifer Mapping and Well field Development Sub grant Project in Zambia, Chiparamba, Kasenengwa District, Eastern Province.

Country: Zambia

Project Activities: Main objective of the project is to conduct Chiparamba Aquifer Mapping and Wellfield Development in Kasenengwa district. Specific Objectives
a) Identify and characterize aquifers at Chiparamba Sub center of Kasenengwa district in Eastern province with a view to ascertaining areas with sufficient productive capacity such that they can be used for water supply.; and b) Develop at least one well field for settlement level water supply as it is a well-known fact that Kasenengwa district is rapidly growing. c) Buffering and afforestation of the identified well field within Chiparamba sub center. d) Protect the zoned and developed wellfield through Fencing. e) Sensitize the community on sustainable water source protection through afforestation and sustainable agriculture

Subgrantee: Ministry of Water Development and Sanitation, Department of Water Resources Development, Zambia.

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Environmental and Social Management Plan (ZAMBIA)				
Competitive 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 and comply with the ESHS requirements and specifications of this ESMP.	Induction training performed and recorded. Contracts with suppliers	Contractor Ministry of Water Development and Sanitation – Project Team	Review of training records Review of Contracts to ensure that Project requirements are included
	<p>Notify the stakeholders, local construction and environment inspectorates and communities of upcoming activities.</p> <p>Notify the public through appropriate notification in the media and/or at publicly accessible sites (including the site of the works).</p> <p>Acquire all legally required permits for construction.</p> <p>Carry out all work in a safe and disciplined manner designed to minimize impacts on residents and environment.</p> <p>Provide workers' personal protection equipment in compliance with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)</p> <p>Provide appropriate signposting of the sites informing workers of key rules and regulations to follow.</p>	<p>Notification issues</p> <p>Public notices issues</p> <p>Permits obtained</p> <p>Safety log maintained</p> <p>Visual inspection</p> <p>PPE purchase log</p>	Contractor Ministry of Water Development and Sanitation	Review prior to finalization of the ESMP



<u>Resources allocated to ESHS Management</u>	The Ministry of Water Development and Sanitation has designated an Environmental and Social expert for this project, who will diligently adhere to the requirements outlined in the ESMP and will be responsible for engaging with stakeholders.	Compliance to the mitigation measures outlined in this ESMP. Inform the relevant authorities about the ESHS responsible. Progress reports or assessments highlighting the contributions to the implementation of the ESMP and the management of environmental and social risks throughout the project lifecycle.	Ministry of Water Development and Sanitation	Review prior to finalization of ESMP
<u>Reporting</u>	Reporting of progress and incidents, accidents, observations, near misses. This will also be included in the ESS monthly reports	Monthly ESS Monitoring reports submitted to SADC-GMI as per sub grant manual. Reporting protocol for ESHS incidents as per sub grants manual.	Ministry of Water Development and Sanitation, Contractor	Review once prior to finalization of the ESMP
<u>ESHS Training</u>	Provide H&S induction and training and awareness to the workforce regarding H&S risks and mitigation measures (including indirect workers) tailored to Project scope. Training on environmental risks/mitigation that may arise from the project and awareness education on communicable diseases	Training performed and recorded	Ministry of Water Development and Sanitation Contractor	Review of training records



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B. Protection of the Environment				
Protection of adjacent areas	Use temporary bunding to reduce the risk of sediment, oil or chemical spills to the receiving waters.	Site inspections Supervisory checklist developed by the Contractor and approved by the Ministry of Water Unsuccessful boreholes backfilled Excavation on-hold during intense rainfall	Contractor Ministry of Water Development and Sanitation, WARMA, ZEMA	Check weather forecast Inspect the site conditions prior and during excavation.
	Establishment of appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers			
	Rehabilitate affected areas immediately after completion of drilling activities			
	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 identified in the adjacent environment Supervisory checklist developed by the Contractor and approved by the Ministry of Water	Contractor Ministry of Water Development and Sanitation, ZEMA	Monthly supervision (including monitoring of adjacent natural resources).
	Ensure that work site boundaries and limits are in accordance with plans agreed upon in advance. All construction activities should be carried out within boundaries.	Marking the borders of works site using danger tape Inform immediate community of the borders of work site	Contractor Ministry of Water Development and Sanitation	Site inspection prior to commencement of activities; and monthly supervision



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	Ensure to stay out of surrounding wetland areas.	Site inspections Supervisory checklist Pre-construction survey	Contractor Ministry of Water Development and Sanitation, Forest Department	Site inspection prior to commencement of activities; and monthly supervision
	Ensure to keep the minimum distances from permanent water course and outside of floodable areas; sensitive urban services and buildings (health centre, school, water supply for populations, community housing).	Marking the borders of works site boundaries in line with given limits and usage of warning signs	Contractor Ministry of Water Development and Sanitation,	Site inspection prior to commencement of works; and monthly supervision
	After construction, form reshaped land so that it is inherently stable, adequately drained and suitable for the desired long-term land use and allows natural regeneration of vegetation	Visual inspection and comparison with adjacent undisturbed areas.	Contractor Ministry of Water Development and Sanitation	Site inspection before and after completion of works



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B. Protection of the Environment				
Pollution prevention	<p>Ensure all works carried out minimise 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) including the whole duration of the Project.</p> <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 catch pan.</p> <p>Ensure that all drilling related vehicles and equipment are serviced regularly and not leaking oil and or fuel.</p> <p>Train the workers to respond to and to manage emergency spill and leakages.</p>	Site inspection	Contractor Ministry of Water Development and Sanitation	Site inspection prior and during (monthly) commencement of works
Effluents	Ensure appropriate containment and storage of construction wastewater, including sanitary water. No untreated effluent is discharged.	No untreated wastewater discharge	Contractor, Ministry of Water Development and Sanitation	Monthly site inspection Review of grievance records
Emissions and dust	<p>Ensure that the contractor staff are wearing appropriate PPE e.g face mask</p> <p>Sensitize communities to maintain safe distance</p>	<p>Daily visual inspection of site</p> <p>Supervisory checklist developed by the Contractor and approved by the Ministry of Water</p>	Contractor, Ministry of Water Development and Sanitation	Visual inspection during regular supervisory visits



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	Sensitize drivers to turn off the vehicles when not in use	Vehicle engines are switched off when not in use Through air quality monitoring/Periodic usage of air samplers	Contractor, Ministry of Water Development and Sanitation, Contractor, ESS focal point person, ZEMA	Random site inspection and monthly review of grievance records Monthly reviewing of periodic air monitoring reports
Noise and vibration	Avoid operations like drilling and vehicle movements at night.	No work conducted between 8 pm and 6 am	Contractor, Ministry of Water Development and Sanitation	Site Inspection and monthly 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). Make sure that noise levels don't exceed 120db in case of equipment or vehicle use.	Effective distances between equipment and receptors are kept Use of sound detector to ensure that noise level is kept below recommended level	Contractor, Ministry of Water Development and Sanitation, Contractor	Once prior to commencement of works Monitor noise levels in case equipment is used Monthly review of grievance records
Soil erosion/ disturbance due to drilling activities	Rehabilitate affected areas immediately after completion of drilling activities. The site must establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby Chiparamba stream.	Soil erosion monitoring	Ministry of Water Development and Sanitation, Contractor	Monthly review of soil erosion assessment reports



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Waste Management	<p>Waste collection/disposal pathways & sites will be identified for major waste types expected from demolition/construction activities.</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>Construction waste will be collected and disposed properly by licensed collectors</p> <p>The records of waste disposal will be maintained as proof for proper management as designed</p> <p>Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)</p>	Contractor has adopted and implemented effective waste management procedures	Ministry of Water Development and Sanitation, Contractor	Inspect waste management or disposal sites or protocol during implementation of the project
Vegetation clearing	Limit vegetation clearing to areas within the site boundary where it is strictly necessary.	<p>Visual Inspection of vegetation clearing will be conducted.</p> <p>Prior to vegetation clearing, approval will be obtained to ensure that vegetation clearing is kept to necessary areas only</p>	Ministry of Water Development and Sanitation, Contractor,	Site inspection prior to commencement of activities. Review of grievance records
	<p>Avoid clearing mature trees and endangered species.</p> <p>Re-plant trees for compensation of trees cut.</p>	Visual Inspection and comparison of matured trees before and after works.	Ministry of Water Development and Sanitation, Forest	Site inspection prior to commencement of activities. Monthly review of grievance records



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	<p>In areas where endangered species are known to exist, carry out adequate evaluation to ensure that no adverse impact to endangered species will be caused by the works. Plan adequate mitigation measures to ensure that the works will not negatively affect the endangered species.</p> <p>If endangered species are found unexpectedly during works, halt all works and provide ad-hoc assessment of the areas for endangered species and establish adequate mitigation measures.</p>	Monthly reports/Environmental monitoring ports	Department, Contractor,	Monthly review of periodic environment monitoring reports

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C. Health and Safety				
Accident reporting	Ensure all H&S related incidents (e.g. observations, accidents, observations, and near misses on OHS, GBV, environmental pollution, etc.) on site are recorded and followed up properly by the Environmental and Social Specialist.	H&S incident reporting protocol in place	Ministry of Water Development and Sanitation, Contractor,	Check incident/accident records, weekly
Gender Inequality	Issues of Gender Based Violence (GBV) on site are recorded and followed up	GBV related reports	Ministry of Water Development and	Monthly review of the GBV reports



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	<p>properly by the Environmental and Social Specialist.</p> <p>Establishment of Safe Reporting Mechanisms for individuals to report incidents of GBV.</p>		Sanitation, Contractor,	
Personal protective equipment	<p>Ensure the provision of Personal Protective Equipment (PPE) (i.e. hardhats, 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 to comply with local legislations with regard to Health & Safety requirements.</p>	<p>Daily visual inspection</p> <p>Supervisory checklist developed by the Contractor and approved by the Ministry of Water Development and Sanitation</p>	Ministry of Water Development and Sanitation, Contractor,	Weekly supervisory visits to check PPE
First-aid	<p>The Contractor shall provide and maintain in operative conditions, all equipment necessary to render first-aid in case of accidents, or other emergencies. This equipment shall be kept in readiness at the sites of the Works, 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 procedure and able to administer help in the event of injury.</p> <p>The Contractor shall be responsible for the cost of all site welfare arrangements, health</p>	<p>Visual inspection</p> <p>First aid is on site and adequately stocked</p> <p>Supervisory checklist developed by the Contractor and approved by the Ministry of Water Development and Sanitation</p>	Ministry of Water Development and Sanitation, Contractor,	Weekly supervisory visits to check availability of first aid kit



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C. Health and Safety				
	<p>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>			
Hygiene, accommodation and food	Ensure provision of Health and Safety (H&S) and hygienic and sanitary facilities at the site. (i.e. toilets, drinking water, shaded rest area)	Daily visual inspection	Ministry of Water Development and Sanitation, Contractor	Random spot checks and monthly supervisory visits to check the hygiene

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D. Labour and relations with local communities				
Local recruitment	Ensure local communities are preferred for the supply services (digging of trenches, clearing the area)	<p>Contracting will be according to the Zambian Labour Laws for casual workers</p> <p>Supervisory checklist developed by the Contractor and approved by the Ministry of Water Development and Sanitation</p> <p>Inspection of daily labour roster</p>	Ministry of Water Development and Sanitation, Contractor,	Random and monthly supervisory visit to verify local recruitment



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D. Labour and relations with local communities				
Land acquisition and land take	Avoid to the extent possible land take of both formal and informal landowners/land users.	Permit for use of government/state owned land where applicable	Ministry of Water Development and Sanitation, Contractor	Inspection during site selection Contractor, Review of grievance log
Community interaction	Engage/communicate/inform communities. Ensure consultations with the local authorities and communities regarding the construction. Obtain local knowledge regarding land acquisition matters (Citizen Science)	Minutes of Meetings Grievance Mechanism	Ministry of Water Development and Sanitation, Contractor,	Monthly review of grievance register Minutes of consultation meetings
	Initiate an efficient Grievance Mechanism to allow potentially affected individuals to raise their concerns such as discriminations during recruitments as well as sexual harassments/exploitations	Grievance Mechanism (email, phone number, suggestion boxes) in place, grievances recorded	Ministry of Water Development and Sanitation, Contractor,	Monthly review of grievance register
	Follow the established Code of Conduct (in the SADC-GMI Sub grants manual) taking into consideration legislation, safety rules, substance abuse, environmental sensitivity, communicable diseases, gender issues (sexual harassment), respect for local beliefs and customs, community interactions etc.	Labour Management Procedure as per sub grants manual in place and rules shared with personnel Code of Conduct in place and rules shared with personnel as per sub grants manual	Ministry of Water Development and Sanitation, Contractor	Review of the Labour Management Procedure records Review of Code of Conduct induction records Review of reported punishable or misconduct behaviour



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				Monthly review of grievance records