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Ministry of Education

ZAMBIA ENHANCING EARLY LEARNING PROJECT

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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR BOREHOLE DRILLING IN 110 ECE HUB CENTERS

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ABBREVIATIONS AND ACRONYMS

DEBS	District Education Board Secretary
ECE	Early Childhood Education Center
EIA	Environmental Impact Assessment
E&S	Environmental and Social Risks
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
HIV	Human Immune - deficiency Virus
MOE	Ministry of Education
PMU	Procurement Management Unit
PEO	Provincial Educational Officer
PIC	Project Implementation Committee
PTA	Parent Teachers Association
WB	World Bank
ZEEL	Zambia Enhancing Early Learning
ZEEP	Zambia Education Enhancement Project
ZEMA	Zambia Environmental Management Agency
ZEPCU	Zambia Education Project Coordinating Unit

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EXECUTIVE SUMMARY

The World Bank will be supporting the Government of the Republic of Zambia (GRZ) through the Ministry of Education (MoE) in implementing the Zambia Enhancing Early Learning Project (ZEEL). The objective of this ESMP is to ensure that the ZEEL Project meets all the project requirements of the World Bank which examines the environmental and social risks and impacts in which the projects are being implemented. This ESMP includes the relevant international, regional, and local laws and policy documents used in the project implementation and budgets for ZEPCU, an agency responsible for reducing of risks and impacts and the monitoring of the risks and impacts of projects on the communities and the environment.

The ZEEL Project will enhance improved access to children of 3-6 years of age in Early Childhood Education Center (ECE). The other objective is ensuring children of ages 3-6 years are well prepared for Grade 1. The Environmental and Social Management Plan (ESMP) for the drilling of boreholes at the proposed sites in the 10 provinces of the country for water supply and construction of ECE hub Centers is a critical document that outlines the measures to minimize environmental and social risks and impacts during the project activities. The ESMP includes provisions for managing various aspects such as water sourcing, construction activities, and community health and safety.

The ESMP addresses potential environmental impacts such as contamination of the aquifer, loss of arable land due to borehole drilling and water infrastructure, and noise nuisance to surrounding communities from drilling activities. It includes specific measures to minimize these impacts, such as undertaking a geohydrological assessment to determine groundwater available for abstraction without substantially affecting upstream and downstream users and ensuring drilling activities are undertaken within stipulated ambient noise limits for rural areas.

The ESMP emphasizes the importance of ensuring full compliance of contractors with the Environmental and Social Management Plan. It includes provisions for mitigation measures and ensuring that contractors prepare their own ESMP under the framework for the project ESMP.

It maps out the Zambian laws and regulations and the World Bank Environmental and Social Standards (ESSs) as contained in the Environmental and Social Framework (ESF) applicable to the Project and describes the principles, approaches, implementation arrangements, and environmental and social mitigation measures to be followed.

Potential Positive Impacts of the Project:

- ❖ Reduced spread of public health diseases and improved hygiene for children.
- ❖ Increased access to Primary school education and employment creation.

The Potential environmental and social risks for project activities:

- ❖ Soil and groundwater contamination during activities of boreholes drilling (oil and grease).
- ❖ Soil erosion.
- ❖ Loss of flora and fauna
- ❖ Noise pollution, air pollution from emissions of dust and exhaust fumes
- ❖ Accidents, incidents, and diseases involving the projects affected communities and workers.

- ❖ Spread of HIV and AIDS.
- ❖ Child and forced labour.
- ❖ Gender based Violence (GBV) Exploitation.
- ❖ Sexual Harassment.
- ❖ Indiscriminate disposal of electronic waste.
- ❖ Collapsing of boreholes from structural failure

These risks will be managed and mitigated through the application of:

- ❖ Emergency fuel and oil storage facilities,
- ❖ Restoration of ground through growing of trees
- ❖ Minimizing the clearance of vegetation on site.
- ❖ Landscaping the site post construction.
- ❖ Promoting non-mechanized methods of construction
- ❖ Project use of local labour, and use of manual labour.
- ❖ Minimizing dust generation on-site by soil dampening.
- ❖ Implementation of the electronic waste management plan
- ❖ Implementation of the ESMP and the code of conduct.
- ❖ Implementation of best practices for waste management.
- ❖ Ensure proper management of excavation and drilling activities.
- ❖ Follow approved and standard borehole drilling and equipping specifications and codes.

Implementation Arrangements

Project implementation will be in four (4) levels, namely at national, provincial, district and community levels. The implementation team will comprise the Zambia Education Program Coordinating Unit (ZEPCU), The Zambia Education Projects Implementing Unit (ZEPIU) Ministry of Education (MoE) staff in Infrastructure section under the Directorate of Planning and Information. At provincial level, the sub-projects will be coordinated by a team of staff comprising the Senior Planner, Resident Engineer, and Senior Buildings Officer under the Provincial Office, MoE. At district level the sub-projects will be coordinated by the DEBS office which shall include District Planning Officer under MoE, and other officers as may be determined by the DEBS to facilitate community mobilization and training.

Monitoring

Monitoring of the ESMP implementation will be done by ZEPCU and Third-Party Verifier during the verification process. The World Bank will monitor the implementation of the ESMP during its regular supervision mission.

A separate **Stakeholder Engagement Plan (SEP)** has been prepared for the Project, based the World Bank's Environmental and Social Standard 10 on Stakeholder Engagement. The Stakeholder Engagement Program (SEP) seeks to define a technically and culturally appropriate approach to consultation and disclosure. The goal of SEP is to improve and facilitate decision making and create an atmosphere of

understanding that actively involves project-affected people and other stakeholders in a timely manner and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence project decisions. The SEP is a useful tool for managing communications between MoE and its stakeholders.

1. INTRODUCTION

The Ministry of Education has planned to float a tender to employ contractors, through a competitive bidding process to drill one (1) borehole at each of the 110 proposed sites for the construction of Hub Centers, in the 10 provinces of the country. The drilling shall however be phased as follows: Phase 1 comprising of 52 Hub Centers and Phase 2 comprising 58 Hub centers located in all the 10 Provinces. The Project Implementation Unit (PIU) has planned to drill 1 borehole at each of the 110 sites as part of the scope before construction works except for cases where the host schools have more than two already existing boreholes.

2. PROJECT DESCRIPTION

The Zambia Enhancing Early Project (ZEEL) under the Directorate of Early Childhood Education (ECE) in the Ministry of Education will be constructing in total 110 ECE hub centers in needy areas of the Country, with financial support from the World Bank. ZEEL has nationwide impact with implementation of activities concentrated in selected districts across all 10 provinces and interventions supporting broader ECE system enhancements. To ease construction works, ZEEL will facilitate the drilling and equipping of boreholes at each of the sites before the commencement of construction.

Considering that most of the proposed schools are in the rural parts of Zambia which are scarcely connected to the hydro power grid, the water supply for construction will be supplied using solar panels and hand pumps. Water distribution network shall comprise a 10,000 L PVC storage tank, 6.0 m tank stand (composed of concrete) and PVC distribution lines to supply selected facilities in the school including toilets, gardens, and taps. For selected sites, run off from roof tops shall be directed into water harvesting facility, whose assembly shall comprise 6 x 10,000 L PVC storage tanks interconnected to supply selected facilities in the school including toilets, gardens, taps.

The ESMP at hand refers to the boreholes that shall be drilled on all the proposed 110 sites. The scope of works for the contractor includes, borehole sitting, drilling, and equipping. The scope for the drilling of boreholes does not include the installation of electricity connection/ alternative power sources for drilling works.

The objective of the ESMP is to assess and mitigate potential environmental and social risks and impacts of the Project consistent with the Environmental and Social Standards (ESSs) of the World Bank (Environmental Social Framework (ESF) and national requirements. More specifically the ESMP aims to (a) assess the potential environmental and social risks and impacts of the proposed mitigation measures; (b) establish procedures for the drilling of boreholes, (b) specify roles and responsibilities, outline reporting

procedures, for managing and monitoring environmental and social issues related to the subproject activity.

3. NATIONAL LEGAL FRAMEWORK AND WORLD BANK ENVIRONMENTAL AND SOCIAL STANDARDS.

The boreholes shall be drilled on land that has been reserved for school construction. On this account, access to the land is guaranteed. The land sites are currently not in use and has scanty vegetation as most of them are brown fields. However, to access the site and drill the boreholes, there are fears that the drilling activities are likely to result in the following environmental and social impacts; loss of vegetation, generation of general and construction waste, surface and groundwater contamination, elevated dust levels, reduced safety and security risks for community and staff/learners, increased incidences of HIV/AIDS. It is, therefore, essential that the contractor complies to the environmental and social risk management in line with the national laws and the World Bank Environmental and Social Standards during the planning and implementation of the drilling works.

3.1 APPLICABLE ZAMBIAN LAWS AND LEGISLATION ON THE DRILLING OF BOREHOLES

Table 1 indicates applicable national laws.

Table 1: National Legislation Applicable to Borehole Drilling

LEGISLATION	INTERPRETATION OF LEGISLATION	RELEVANCE AND COMPLIANCE APPROACH ON THE PROJECT
National Construction Council (NCC) Act No 10 of 2020	This legislation provides for the establishment of the council for construction to guide construction and regulate construction qualification and standards	<p>Relevance: It regulates the qualifications and competence of the key staff working on the project.</p> <p>Compliance: Ensure the buildings are constructed in accordance with a national building standard. The contractors to be engaged in borehole drilling should have registered with NCC.</p>
Engineering Institution of Zambia (EIZ) Codes of Practice	This legislation provides for the establishment of the EIZ to geoen지니어ing works in construction industry and regulate engineering qualification and standards	<p>Relevance: It regulate the qualifications and competence of the key staff working on the project</p> <p>Compliance: The contractor personnel must be registered with the EIZ for quality control and competence.</p>
The Standards Act No. 4 of 2017	Act to continue the existence of the Zambia Bureau of Standards and re-define its powers and functions; provide for standardization and quality assurance of products and services through the setting of national standards and provision of conformity assessment services for products and services.	<p>Relevance: It regulates the standards and codes of products, and services across various sectors</p> <p>Compliance: All products sourced, from casings, tank stands, tanks and casing materials will be done in accordance with the standards and codes set by this Act.</p>
Forestry Act No. 4 of 2015	Forest Act 2015 applies to the extent of Part I section 3: The ownership of all trees standing on, and all forest produce derived from, customary areas, National Forests, Local Forests, State Land, botanical reserves, and open areas is vested in the President, on behalf of the Republic, until lawfully transferred or assigned under this Act or any other written law	<p>Relevance: The project is unlikely to involve activities that will involve loss of vegetation. The drilling of boreholes will be in existing schools and will have a small footprint and the loss of vegetation will be minimal.</p> <p>Compliance: Vegetation clearance to be restricted to drilling sites only.</p>

<p>Extended Producer Responsibility (EPR) SI No. 65 of 2018</p>	<p>This act extends the responsibility of the producer of a product or class of products to the post-consumer stage of the product or class of products. The EPR Regulations also regulate non-returnable glass and plastic bottles, cartons, beverage cans, waste oils, pesticides, or chemical containers, used tyres, electrical and electronic equipment, and their resultant waste. The Regulations require a person or persons whose activities generate waste with potential to pollute the environment to employ measures essential to minimize waste through treatment, reclamation, re-use, recovery, or recycling.</p>	<p>Relevance: The Act extends responsibility of the polluter pays principle.</p> <p>Compliance: Managing and collecting all waste generated by the project activities shall be managed by the contractor during drilling.</p>
<p>The Environmental Management (Licensing) Regulations, SI No. 112 of 2013</p>	<p>To provide legislation on emitting or discharging a pollutant or contaminant into the environment one shall apply to the Agency for an emission license</p>	<p>Relevance: The contractor shall endeavor to:</p> <ul style="list-style-type: none"> i. Take reasonable steps to contain the discharge of emissions from the site to prevent, mitigate or remedy their adverse effects on human and fauna health, animal or plant life and the environment. ii. Part III, Section 11 of the regulations states that a person shall not conduct open air burning of waste from industrial, commercial operations or domestic or community activities except with the written consent of the Agency. <p>Compliance: The PIU will ensure compliance to the provisions of these regulation by closely monitoring the works.</p>
<p>The Employment Code Act No 3 of 2019</p>	<p>To provide legislation relating to the employment of persons; to make provision for the engagement of persons on contracts of service and to make provision for the protection of wages of employees.</p>	<p>Relevance: This contract will result in the creation of jobs through, for example, site clearing, drilling, and equipping of the boreholes. The Act safeguards the rights of all the workers engaged on the project to ensure that they work in a humane environment.</p> <p>Compliance: The PIU will work with the contractor to ensure workers' rights are protected, and that they work in a humane environment devoid of any form of exploitation.</p>

<p>Environmental Impact Assessment Regulations, SI No. 28 of 1997</p>	<p>A developer shall not implement a project for which a project brief or an environmental impact statement is required under these regulations unless the project brief or an environmental impact assessment has been concluded in accordance with these Regulations and the Council has issued a decision letter.</p>	<p>Relevance: The various activities to be undertaken on the project are likely to trigger environmental and social impacts and this will require that site specific environmental instruments be prepared to eliminate or minimize possible risks. At national level, in Zambia the Environmental Impact Assessment (EIA) regulation of 1997 gives guidance, schedules and categories the various project types and the relevant EIA studies to undertaken. It further gives provision on post EIA approval management of projects and guidelines for developing Environmental Social Management Plans (ESMPs).</p> <p>Compliance: This ESMP has been prepared in accordance with the SI.</p>
<p>Environmental Management Act, No. 12 of 2011 as read together with the Environmental Management (Amendment Act) No.8 of 2023.</p>	<p>The Act provides for: the integrated environmental management, protection, and conservation of natural resources, and sustainable; prevention and control of pollution and environmental degradation; public participation in environmental decision making and access to environmental information.</p>	<p>Relevance: The Act provides for overall guidance on environmental management and assessments. It further provides for an integrated environmental protection and conservation of biodiversity through sustainable management and use of natural resources.</p> <p>Compliance: The PIU through the district planner to ensure the contractor is compliant with the provisions of this Act in environmental management.</p>
<p>Occupational Health and Safety Act No. 36 of, 2010</p>	<p>Provides for the protection of persons, other than persons at work, against risks to health or safety arising from, or in connection with the activities of persons at work. Part IV, Section 16 (1 and 2) has provided for duties of the employee, and they generally are: providing a safe working environment; making sure that the employees are healthy and fit to work in the provided work environment; provide protective clothing or equipment; making sure there are health, safety, emergency and first aid measures; providing information on safety and health and compliance with the standards; conduct suitable and sufficient assessment of risks; eliminate hazards or reduce risks, provide plant and safe system of work,</p>	<p>Relevance: - The Act provides for the safety and welfares of workers to be recruited by the contractors and contractors' daily operations. The Act provides for the establishment of safety committees and protection of workers from any potential risks by provision of personal protective clothing (PPE).</p> <p>Compliance: The PIU will ensure that the contractor for all project sites comply with OHS requirements of this Act. The plan, will include as a minimum, construction and operational hazard identification, risk assessment, the provisions of control measures, the inclusion of worker welfare, relevant training requirements and training register, accident and incident reporting forms, safe systems of work, emergency preparedness and control measures, the provision of PPE etc.</p>

	provide information, instruction and training measures.	
Mental Health Act No. 6 of 2019	The Act provides for the promotion and protection of the rights of persons based on mental wellbeing.	<p>Relevance: Mental health affects everyone in diverse ways and in any environment including workplaces</p> <p>Compliance: PIU and technical supervisor shall seek to support all staff in project working environments for the protection of mental wellbeing</p>
Water Resources Management Act, No. 21 of 2011 read together with Statutory Instrument No 18 of 2018 (ground water and borehole regulations)	<p>An Act to establish the Water Resources Management Authority and define its functions and powers; provide for the management, development, conservation, protection and preservation of the water resource and its ecosystems.</p> <p>provide for the equitable, reasonable, and sustainable utilizations of the water resource; ensure the right to draw or take water for domestic and non-commercial purposes, and that the poor and vulnerable members of the society have an adequate and sustainable source of water free from any charges; create an enabling environment for adaptation to climate change;</p>	<p>Relevance: Activities may result in water contamination through accidental discharge of oil and grease into surface or ground water bodies.</p> <p>Compliance: The borehole drilling will put in a place a rigorous environmental monitoring regime to ensure that both surface and ground water flows are not affected in a manner that is undesirable and unsustainable during the use of water resources in the project lifecycle.</p>
Roads Traffic Act, No. 8 of 2022	An Act to establish the Road Transport and Safety Agency and to define its functions; to provide for a system of road safety and traffic management; to provide for the licensing of drivers and motor vehicles; to provide for the registration of motor vehicles and trailers; to provide for compulsory third-party insurance of motor vehicles; to provide for the licensing and control of public service vehicles; to provide for the promotion of road safety.	<p>Relevance: All project related vehicles including drilling rigs must be fit for purpose, passed the necessary vehicle inspections, registered, possess test certificates and all drivers possess valid driving licenses for the vehicle driven or operated, that the driver is competent, the driver is physically fit to drive and within all legal parameters such as age etc.</p> <p>Compliance: The PIU will ensure that the technical uses of construction vehicles is in a manner that is appropriate and safe.</p>

<p>Public Health Act Cap. 295 of the laws of Zambia and National Public Health Institute Act No. 19 Of 2020</p>	<p>This law together with this Act provides for various lines for the prevention and suppression of diseases and the general regulation of all matters connected with public health in Zambia. Amongst other things, the Act prohibits anyone from causing a nuisance.</p>	<p>Relevance: The Act is relevant to this project because project activities could result in an outbreak of a disease at sites.</p> <p>Compliance: The contractor and the PIU will ensure that the place of work and the surrounding environment do not pose any health risks to the workers and the general populace. The pit latrines to be used will be kept in clean and sanitary conditions in accordance with the Act.</p>
<p>Anti-Gender-Based Violence Act, 2010.</p>	<p>An Act to provide for the protection of victims of gender-based violence; constitute the Anti-Gender-Based Violence Committee; establish the Anti-Gender-Based Violence Fund; and provide for matters connected with, or incidental to, the foregoing. The act was also established to assist with shelters to support victims and or survivors of gender-based violence, provide emergency monetary relief and address harmful traditional practices.</p>	<p>Relevance-. The Project Committee at school level will champion the awareness teaching. All site workers will made to sign Code of Conduct which shall be explained to them in detail before engagement. The GRM will be publicized and GRM boxes will be made accessible to both workers and community members.</p> <p>Compliance: A GBV action plan has been prepared which guides and includes GBV/SEA activities and mitigation measures . Further the project has a GBV/SEA/SH sensitive Grievance Redress Mechanism (GRM).</p>

3.2 WORLD BANK ENVIRONMENTAL AND SOCIAL STANDARDS

The ZEEL project will comply with the World Bank’s Environmental and Social Standards throughout the project life cycle. The relevant standards for this project are in Table 2 below.

Table 2: Relevant World Bank Environmental and Social Standards

World Bank Environmental and Social Standards	Description of the Relevant ESS
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	<p>Relevance: The Project will undertake borehole drilling which may impact the environment negatively.</p> <p>Compliance: The assessment of environmental and social risks and impacts of the proposed sub-project was done for which this ESMP has been submitted.</p>
ESS2 Labor and Working Conditions	<p>Relevance: Owing to the nature of the project, labor aspects play a cardinal role in its implementation. The objective of the project is to empower the local community with employment and income. ESS2 is relevant for the project because there are certain labor risks for project workers. Labor-related risks include (i) security risks to project workers, (ii) traffic and road safety issues, (iii) inadequate terms and conditions of employment, and (iv) occupational health and safety risks.</p> <p>ESS2 also provides workers with accessible means to raise workplace concerns. The worker GRM should be proportionate to the nature and scale and potential risks of the project.</p> <p>Compliance: Code of conduct, workforce, GRM and Labor Management Plan will be closely adhered to.</p>
ESS3 Resource Efficiency and Pollution Prevention and Management	<p>Relevance: Borehole drilling may generate oil and grease and construction waste that may cause soil and groundwater pollution. Providing appropriate, timely and effective WASH cleaning, maintenance and monitoring activities are planned and implemented the impacts will be kept low.</p> <p>Compliance:</p>
ESS4 Community Health and Safety	<p>Relevance: Construction works that will be undertaken within existing school premises may further expose children to risks of GBV/SEA which can be exacerbated by the presence of construction workers. There exists a risk of exposure of community to HIV and Aids.</p> <p>Compliance: The ESMP puts in place awareness campaigns on the risks of GBV/SEA, and awareness campaigns on prevention of HIV/AIDS.</p>
ESS5 Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	<p>Relevance: The proposed project will support the expansion of early childhood centers using a two-pronged approach of constructing facilities within existing primary school premises and the establishment of standalone centers.</p> <p>Compliance: All proposed school sites will need to be screened to ensure the sites do not require compensation due to loss of land, economic losses, or restriction of access. If sites require compensation, appropriate land acquisition processes will</p>

	need to be adhered to as prescribed by the Banks ESS5. The RPF will guide the process in terms of preparation of a Resettlement Action Plan, as per the project RPF.
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	<p>Relevance: Following ESS6, screen potential ECE hub sites to exclude those potential sites within environmentally protected areas and natural areas considered of local, regional and/or international importance due to biodiversity, as well as sites located near natural protected areas that could be indirectly adversely affected by the Project.</p> <p>Compliance: Environmental and social screening of sites will allow the project to identify and exclude a project activity if any is situated in protected areas.</p>
ESS 8 Cultural Heritage	<p>Relevance: Common cultural heritage likely to be encountered during the implementation of the ZEEL project include archaeological or national heritage sites, traditional shrines, graves, and cemeteries which may be affected by land access.</p> <p>Compliance: screening measures to identify risks and impacts on cultural heritage and presents a chance to find procedures.</p>
ESS 10 Stakeholder Engagement and Information Disclosure	<p>Relevance: ESS10 is relevant for all projects given the need to engage with beneficiaries and stakeholders on development activities that affect their lives. Meaningful consultations with all stakeholders for the successful implementation of the project is a critical aspect of the project, including enhanced community participation. Various consultations were held and these focused on (i) collecting information to advance project development, (ii) assessing possible implementation arrangements (iii) identifying key stakeholders and (iv) disclosing information on timelines for project preparation.</p> <p>Compliance: A SEP has been prepared in consultation with stakeholders identified as directly or indirectly impacted by the anticipated project.</p>

4.0 BASELINE INFORMATION

Zambia is divided into ten provinces, namely Central, Lusaka, Luapula, Western, Southern, Northern, North-western, Muchinga, Copperbelt and Eastern Provinces. The ZEEL project will be implemented in all the 10 provinces. Drilling of boreholes will be in 110 ECE Hub Center sites in these provinces in selected districts. Figure 1 shows the 10 provinces where boreholes will be drilled.



Figure 1: Map of Zambia’s Ten Provinces and Districts

Baseline information on utility services in the 10 provinces of Zambia. Utility companies provide water and sanitation services to most urban parts of the provinces. The rural population still lacks access to basic sanitation. Many schools that are in rural areas depend on onsite sanitation facilities including pit latrines. The Hub Centers constructed will have VIP (flushable) toilets with a modern soak away system. The source of energy in urban areas is prime power. However, most rural areas are not connected to the national grid. Hence, most schools will have solar energy and the drilled boreholes will be solar powered. Solid waste management services are provided by the local authorities in urban areas while in rural areas, it remains a challenge and as such the community resorts to burying or burning waste.

Baseline information on water resources availability and climate: In the recent past, Zambia has been experiencing drought conditions since the end of 2018 largely because of below–average precipitation from the seasonal rains. The rainy season, typically lasting from November to March, was delayed and only started in early January. Zambia has been receiving below average precipitation in the rainy season for the second consecutive year. Limited rainfall compounded with extremely high temperatures has resulted in mostly stressed vegetation conditions as of March 2019 (FAO 15/04/2019; FAO 22/01/2019; WFP 05/2019; Lusaka Times 10/07/2020).

Since the regional start of the 2018/2019 rainy season, often around October, countries in southern Africa have been facing abnormal dry conditions. 2018/2019 marks the driest season since 1981 in central and western parts of Southern African region due to a weak El-Niño cycle (WFP 11/07/2019).

The El-Niño weather conditions in the 2023/2024 rainy season has caused a devastating drought in most parts of the country affecting water availability. The drought has been declared as a national disaster and emergency (<https://www.lusakatimes.com/2024/03/01/president-hichilema-declares-drought-as-a-national-disaster-and-emergency/>).

Provinces noticeably hit by the prolonged dry period in Zambia include, Central, Southern, Western, Eastern, Lusaka, North-western and Copperbelt Provinces. It's in this regard, that the drilling contractor must take extra precaution when drilling and siting for water to avoid dry boreholes as the water levels must have reduced. A drilling contractor must conduct a thorough geohydrological study before drilling for water. This ensures groundwater extraction doesn't harm water availability for others in the region.

5.0 IMPLEMENTATION

Implementation Arrangements

Project implementation will be in four (4) levels, namely at national, provincial, district and community levels. The implementation team will comprise the Zambia Education Program Coordinating Unit (ZEPCU), The Zambia Education Projects Implementing Unit (ZEPIU) Ministry of Education (MoE) staff in Infrastructure section under the Directorate of Planning and Information. At provincial level, the sub-projects will be coordinated by a team of staff comprising the Senior Planner, Resident Engineer, and Senior Buildings Officer under the Provincial Office, MoE. At district level the sub-projects will be coordinated by the DEBS office which shall include District Planning Officer under MoE, and other officers as may be determined by the DEBS to facilitate community mobilization and training.

Monitoring

The Environmental and Social Management Plan (ESMP) is a vital element for the successful execution of the ZEEL Project, ensuring adherence to environmental and social standards. The ESMP's implementation will be monitored by the ZEPCU and an independent Third-Party Verifier, while the World Bank will oversee the ESMP during its regular supervision missions. At the national level, the ZEPIU and ZEPCU are tasked with the ESMP's execution. Capacity building for Provincial Education Officers and District Education Board Secretary Officers is planned to enhance their skills in formulating and implementing the ESMP. The Senior Planner, District Planner, and Assistant District Buildings Officer will receive training on environmental and social risk management.

The District Planning Officer, supported by the Assistant District Buildings Officer, will serve as the focal point for the ESMP at the district level and ensuring its day-to-day implementation. They are also responsible for community sensitization and regular monitoring visits.

Annex 1 of the ESMP document provides the contact details for these focal point persons, facilitating communication and coordination for the ESMP's implementation.

6.0 POTENTIAL IMPACTS AND MITIGATIONS

This Environmental and Social Management Plan (ESMP) has been prepared to identify the potential environmental and social risks and impacts that may arise from the drilling of boreholes and propose suitable mitigation measures to manage these risks and impacts. The Implementation arrangement and the environmental and social mitigation measures outlined as to be followed.

Table 3: Environmental and Social Management Plan

Activity	Aspect	Risk & Impact*	Mitigation measures	Responsible for Mitigation	Cost of mitigation (\$)	Frequency of monitoring	Performance indicator (suggested)	Responsible person	Cost of monitoring (\$)
Pre-Construction									
Design of Boreholes	Tank standard and water tank designs	<ul style="list-style-type: none"> Collapsing of boreholes 	<ul style="list-style-type: none"> Use approved standards and designs. Improve and approved design against WBG EHS guidelines for facility design, make sure contractors and skilled workers are registered with NCC and EIZ. 	Contractor/MoE	500	Once off	<p>Copies of approved designs & borehole specifications.</p> <p>EIZ practicing certificate for the drilling company and the contractor personnel.</p> <p>NCC certificates for the contractor and personnel.</p>	DPO/ZEPCU	500
	Drilling approvals	<ul style="list-style-type: none"> Delays or work stoppage due enforcement water tension in the community Drilling of dry boreholes 	<ul style="list-style-type: none"> Prior to borehole drilling, obtain drilling permits from WARMA Conduct geohydrological assessment to determine groundwater availability 	Contractor/MoE	3000	Once off	<p>Copies of drilling borehole permits.</p> <p>Geohydrological assessment report and submitted for permit application.</p>	DPO/ZEPCU	200
Land Acquisition	Landowner letters/ Title/ Offer Letters	<ul style="list-style-type: none"> Delays of works. Risk drilling a borehole on land that is not 	<ul style="list-style-type: none"> Prior to drilling of boreholes, ensure the land is secured. 	MoE	200	Once off	<p>Copies of offer letters from the chief.</p> <p>Land titles from local authorities</p>	ZEPCU, Headteacher, DEBS.	1000

		secured by the school.	<ul style="list-style-type: none"> Proposed land for borehole drilling is in already existing primary school premises/provided by the chief through the process of voluntary land donation. 						
Construction									
Drilling of boreholes	Dust Generation Exhaust fumes generation	Poor air quality from dust and fumes from machinery	<ul style="list-style-type: none"> Provide drill crew with dust masks. Sprinkle water on the ground and on earth stockpiles. Ensure proper working conditions of exhaust systems of the borehole drilling and construction machines. 	Contractor	3500	Throughout the drilling process	Site Inspection Report	Contractor (implement) DEBS building officer/district Planner, Resident Engineer, Technical Supervisor & PIC	2000
	Water resource quality and quantity	Reduced quality and quantity of water resources	<ul style="list-style-type: none"> Prevent construction materials and other debris (mud from the drill, grout, etc.) from entering waterways. Use of feasibility studies to guide the borehole siting. 	Contractor	5000	Once Off	Drilling report Water Quality Report	DEBS building officer/district Planner Resident Engineer.	2000

			<ul style="list-style-type: none"> Comply with the WARMA abstraction permit 						
	Oil spills and grease Excavations	<ul style="list-style-type: none"> Soil and land degradation 	<ul style="list-style-type: none"> Ensure all fuel and oil are in original containers and stored on hard standing surfaces. Avoid of refueling machinery on site Use of drip pans when oiling and greasing machinery Reuse extracted soils for foundation compaction. 	Contractor	2500	Daily	<ul style="list-style-type: none"> Absence of oil contaminated soil/land Covered and well levelled excavated pits 	District Planner (DEBS E&S Focal Point) to monitor	
	Flora and fauna biodiversity	<ul style="list-style-type: none"> Vegetation loss and soil cover due piling of building materials. Soil erosion 	<ul style="list-style-type: none"> Construction workers will be sensitized on the need to conserve vegetation around the sites. Designate specific areas for stock-piling construction materials. Reuse extracted soils for foundation compaction. Incorporate soil erosion management in site plans design. 	Contractor	3500	Daily	<p>Monthly site reports with area of revegetated site</p> <p>Stockpile construction waste stored in designated areas.</p> <p>Records good housing keeping rules on site.</p> <p>No complaint from school or the community</p>	MoE, DEBS building officer, DPO/DBO	1500

	Water Resource	<ul style="list-style-type: none"> Blockage of water channels, water turbidity from land preparation and stockpiling, and erosion 	<ul style="list-style-type: none"> Create run-off settling ponds to allow sediment collection before discharge to local water channels. 3R strategy where applicable To avoid boreholes contamination, septic tanks will be located at least 50 meters away from borehole location. 	Contractor	700	Daily	Monthly site logbooks/reports on water use/quality	DEBS DPO/DBO.	1500
	Dust generation	Air pollution	<ul style="list-style-type: none"> Dust suppression measures employed to minimize dust. Nasal filter masks as appropriate PPE Dust suppression through use of water sprinkling methods. Trucks would be covered during haulage of construction materials. Keep construction vehicle speeds to a minimum on site. 	Contractor	2000	Daily	<p>Number of trucks covered during haulage of construction materials.</p> <p>Number of workers issued with dust masks where required.</p> <p>Reduced dust levels on site</p> <p>Number of complaints recorded.</p> <p>Number of workers found with PPE.</p>	DEBS building/district planner.	1500

			<ul style="list-style-type: none"> Workers to wear dust filter masks where required. 						
	Construction traffic	<ul style="list-style-type: none"> Reduced public road safety 	<ul style="list-style-type: none"> Ensure drivers are licensed and respect speed limits. Training of drivers in road safety 	Contractor	1000	Daily	<ul style="list-style-type: none"> Number of licensed drivers/driving licenses, Vehicle maintenance register Number of speed humps around the sites Number of accidents or incidents involving construction traffic and the local community/workers 	DEBS building/district planner.	500
	Noise and vibration and dust emissions	<p>Increased noise levels and vibrations (Workers hearing affected) and to the learners.</p> <p>Increased dust levels and vehicle emissions from drilling vehicles.</p>	<ul style="list-style-type: none"> Provision of PPE for workers for noise pollution Train workers on the use of PPEs for noise mitigation and reprimand those not complying Switch off equipment when not in use Minimise the use of machinery on site Suppress dust generation at project sites 	Contractor	700	During Drilling	<ul style="list-style-type: none"> Records of PPE issued. Records of vehicle maintenance log sheet/certificate of fitness Records of training conducted/materials used 	MoE, Technical Supervisor DEBS building/district planner/PIC	500
	Cultural heritage	<ul style="list-style-type: none"> Damage to artefacts or anything of national or international scientific significance 	<ul style="list-style-type: none"> Implement "chance-find procedure 	Contractor	200	Daily	Cultural Heritage Site reports	DEBS building/district planner	500

	Occupational Health and Safety	<ul style="list-style-type: none"> Sickness falls from height, injury, snake and insect bites, heat stroke, dust inhalation, - cuts and abrasions, musculoskeletal injuries, injuries to the eyes and increased noise. Safety and security of learners, community and technical supervisors or community workers during drilling works. 	<ul style="list-style-type: none"> Implement an OHS measures to prevent fall from heights and pits impact injuries (from machinery, vehicles and dropped items) and many other OHS risks. Use of fall protection devices, e.g., full body harnesses Use of other appropriate PPE (eyewear, ear plugs and nasal masks) Making sure that all workers on site are masked up and Toolbox talks on health and safety. On the job training of workers and provision of appropriate PPE. The construction areas will be properly secured with signposting, warning signs, barriers. Adjustment of working hours to prevent disruption of pedestrian access and local traffic patterns. 	Contractor	3500	Daily	<p>Number of incidents/accidents recorded.</p> <p>OHS risk register on site.</p> <p>Records of PPE issued.</p> <p>Records of toolbox talks conducted/ material used.</p> <p>Records of trainings conducted including the attendance register.</p>	DEBS building/district planner	500
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	Gender Equity, Sexual Harassment	Gender based violence, sexual exploitation, abuse, and harassment	<ul style="list-style-type: none"> • Provide and implement a gender-based violence action plan, which will include: • Gender mainstreaming in employment at the worksite with opportunities provided for females to work, in consonance with local laws and customs. • Prevention of SEA/SH including signing of code of conduct and sensitization of contractor workers and communities • Grievance redresses mechanisms including non-retaliation. • Provide and implement an employee code of conduct. • Sensitization to the community on GBV/SEA/SH • An inclusive approach shall be adopted to provide equal opportunity and meaningful participation of women. 	Contractor	300	Through the drilling operations.	Number of incidents/complaints recorded. Record of signed worker's code of conduct Number of sensitization meetings held	MoE/DEBS district planner	600
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			<ul style="list-style-type: none"> • Communication about the works that will be undertaken will be shared to all project stakeholders 						
	Child Labour and Protection	Child labour, increase in number of children dropping out of schools	<ul style="list-style-type: none"> • Ensuring no children are employed on site in accordance with national labour laws • Continuous sensitizations 	Contractor	300	Throughout the drilling sub project	<p>Number of incidents/complaints recorded.</p> <p>Record of signed worker's code of conduct</p> <p>Number of sensitization meeting held</p>	PIU, PEO, DEBS ABO and District Planner (E&S Focal Point)	400
Operations & Maintenance									
Water Reticulation and supply	Water Quality (Surface & Ground)	<ul style="list-style-type: none"> • Contamination and pollution of water boreholes • Sedimentation of run-of and drainage water channels 	<ul style="list-style-type: none"> • Regular water tanks maintenance • Corrosion control on all steel works • Water quality monitoring and management • Ensure waste segregation and removal from the site at regular intervals. • Keep install automatic switches to boreholes that control water 	Headteacher/MoE	100	Throughout the drilling	Wastewater quality logs sheets/reports	MoE/Head Teacher/DEBS/	300

			pumping and overflow control in good condition.						
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7.0 MONITORING

Monitoring of the implementation of this ESMP shall be undertaken by the focal point persons, the District Planners and the Senior Planning Officers who are required to be present during the implementation of the ESMP. The District Planners with the help of the Assistant Building Officers shall prepare the final monitoring report for the attention of the Senior Planning Officers.

8.0 CONCLUSION AND RECOMMENDATION

The project, overall, will have considerable substantial social, economic, and environmental benefits that will impact the project positively. It will establish sufficient potable water supply system for the respective schools, that will benefit even the nearby communities. Monitoring and control of local processes during drilling has been identified as an important process in the management of the protection of the environment of the project area and understanding social concerns since it will reveal changes and trends brought about mainly by the construction and operational activities. The project activities are likely to cause although on a small scale, disturbance of vegetation, risk of accidents, health, emission of dust, increase in noise. Further, the risk of gender-based violence (GBV) and/or sexual exploitation and abuse are very unlikely considering that the activity will be undertaken over a period of 5 hours. However, the Head teacher and the community will be educated to register a social complaint should any matter arise. The adverse impacts on the physical and natural environment will not be significant and can be well managed through the recommended mitigation measures. The ESMP emphasizes the importance of ensuring full compliance of contractors with the Environmental and Social Management Plan. It includes provisions for mitigation measures and ensuring that contractors prepare their own ESMP under the framework for the project ESMP.

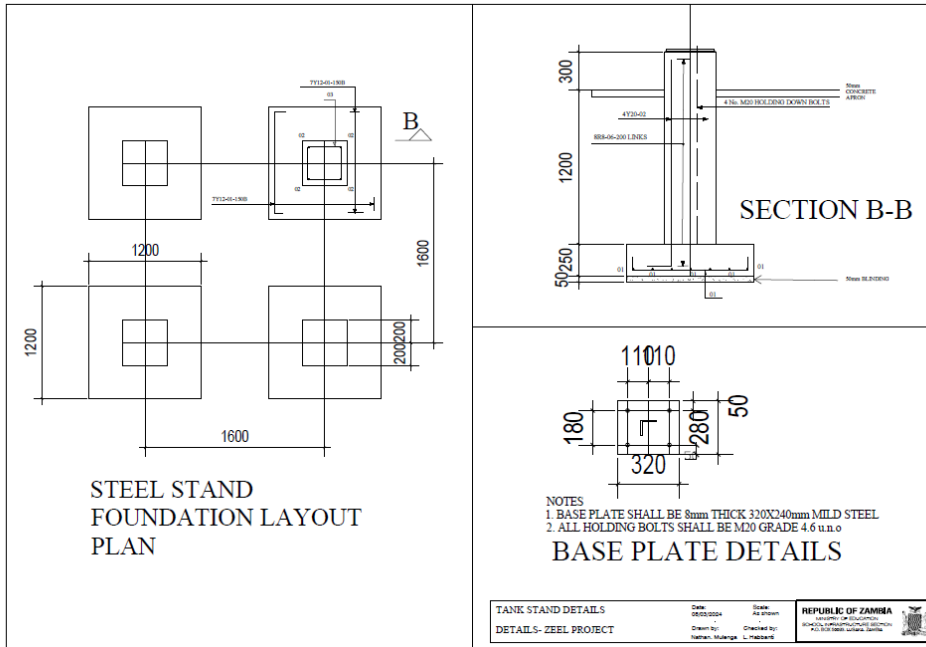
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ANNEXES

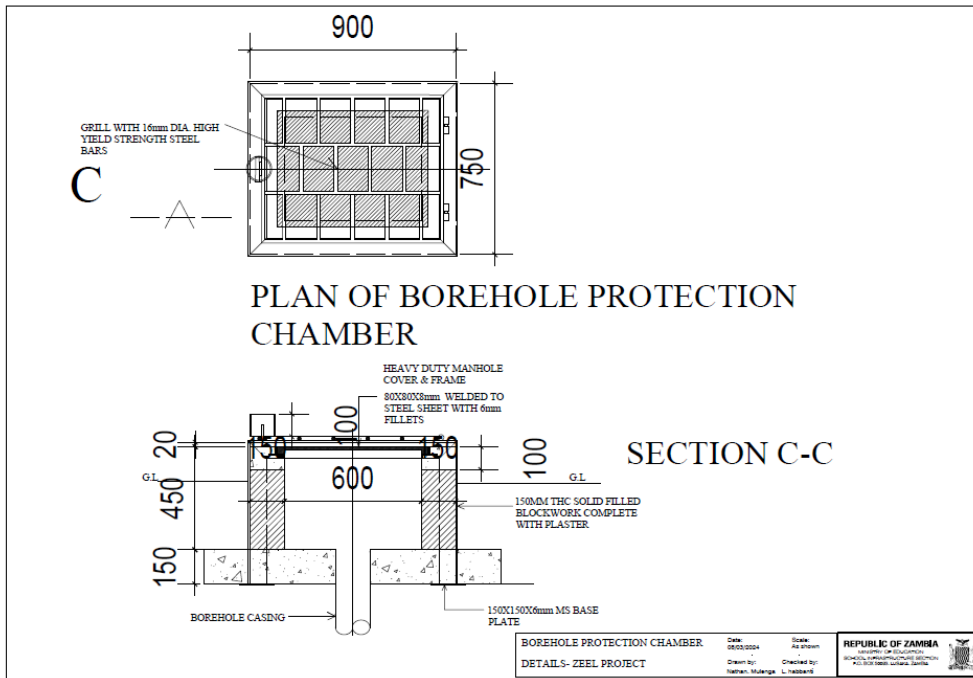
ANNEX 1: ESMP FOCAL POINT PERSONS FOR BOREHOLE DRILLING

ZAMBIA ENHANCING EARLY LEARNING PROJECT (ZEEL) DRILLING OF BOREHOLES			
LIST OF SENIOR PLANNERS AND CONTACT NUMBERS			
	PROVINCE	SENIOR PLANNER NAME	PHONE NUMBER
1	CENTRAL	GIFT UNENE	0973743555
2	COPPERBELT	KENNEDY MITI	0966994465
3	EASTERN	CHARLES MAKWENDA	0976057494
4	LUAPULA	BENJAMIN KAPANDE	0975817127
5	LUSAKA	PRISCA INNONGE NGENDA	0979380996
6	MUCHINGA	KAPEMBWA TITUS	0977723167
7	NORTHWESTERN	HUMPHREY LUWAYA	0966110750
8	NORTHERN	FRANSHY KENNEDY	0976047550
9	SOUTHERN	OSWARD SIWAKWI	0977634183
10	WESTERN	WEBBY SIYAMANA	0974661796

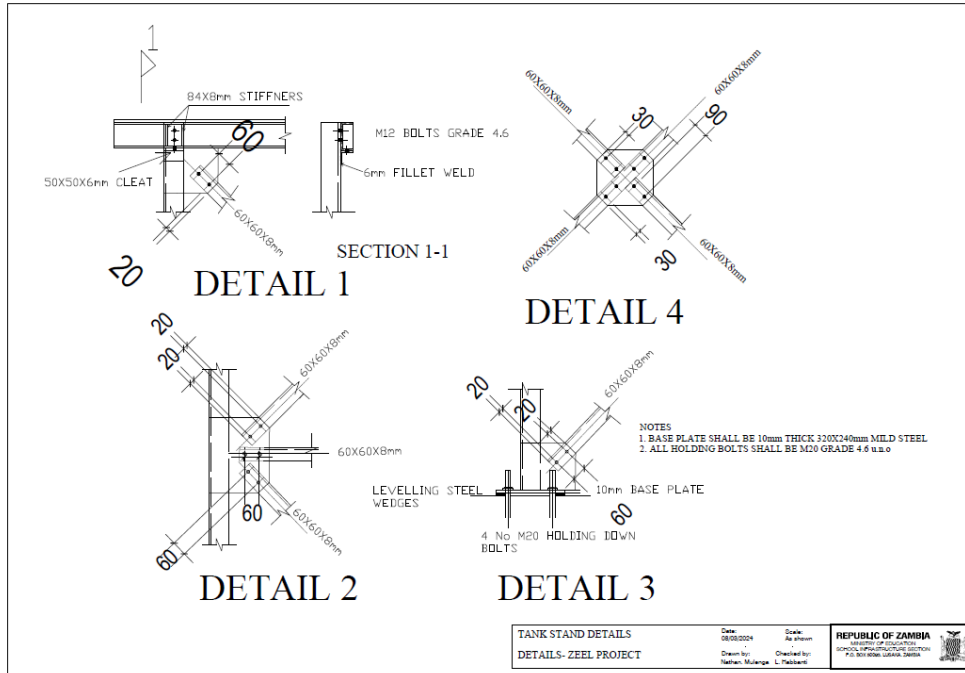
ANNEX 2: TANK BASE DETAILS



ANNEX 3: BOREHOLE CHAMBER



ANNEX 4: TANK DETAILS



ANNEX 5: TANK ELEVATION DETAILS

