



MINISTRY OF EDUCATION

**ENVIRONMENTAL AND SOCIAL MANAGEMENT  
FRAMEWORK-ADDITIONAL FINANCING**

**Zambia Education Enhancement Project  
Project ID: No. P180401**

**January 2023**

## **EXECUTIVE SUMMARY**

The Government of Republic of Zambia (GRZ) is seeking additional financing from the World Bank for the Zambia Education Enhancement Project (ZEEP) Additional Financing (AF) to help us scale up the geographical as well as technical scope of interventions to achieve systemic impact.

### **Project Description -ZEEP Phase I**

The Zambia Education Enhancement Project (ZEEP) phase I is a national project by the Government of the Republic of Zambia (GRZ) under the Ministry of Education (MoE) that aims is to improve the quality of teaching and learning in mathematics and science in targeted primary and secondary schools and to increase equitable access to secondary education. The Project comprised three components namely:

- Improving the Quality of Teaching and Learning,
- Increasing Equitable Access to Secondary Education,
- Enhancing M&E Capacity and Project Coordination

### **ZEEP-Additional Financing**

Proposed Additional Financing (AF) to ZEEP aims to build on the on-going reforms focusing on system-wide approach with all actors aligned around learning and equitable access, so quality education reaches everyone. ZEEP, which uses an Investment Project Financing (IPF) with Results-based Financing (RBF) modality, is designed to achieve systemic impact in terms of reforming teacher's professional development practices to improve teachers' competencies; transform teaching learning practice; and provide critical teaching learning material inputs to the schools to assist better teaching and learning. ZEEP is also increasing access to secondary education through expanding eighty-two existing primary schools, where a significant number of students move out of the system after completing primary because of lack of secondary schools in the vicinity. The girls are the worst affected as they are forced to discontinue schooling because of long distance to the closest secondary school, which on an average is 15 to 20 kilometers away from the habitation without any transport facility.

Although ZEEP is supporting transformative reforms, the geographical scope of coverage is relatively small because of relatively limited resources in view of the greater needs in the country. Additional financing to the tune of US\$120 million or more to the ZEEP would help us scale up the geographical as well as technical scope of interventions to achieve systemic impact. The Project could cover a large number of low-performing primary and secondary schools and teachers out of the existing 11,000 schools and more than 100,000 teachers respectively. Furthermore, equity issues, particularly related to gender, and rural-urban in terms of access to quality secondary education could be addressed more effectively through both supply and demand side interventions.

The proposed second AF (AF2) will introduce the following changes: (i) revision of the construction package to include additional infrastructure to meet the new minimum school design standards requested by the GRZ; (ii) revision of activities under non construction component particularly those to be covered by the government sector wide programs; (iii) revision of the disbursement linked indicators (DLIs) and disbursement linked results (DLRs) in the results framework. In addition, the AF provides an opportunity to strengthen governance and transparency mechanisms including those around fiduciary and safeguards. There will be

no change to the Project Development Objective (PDO), geographical coverage, targeted beneficiaries or closing date.

An additional 120 schools are earmarked to be built in all the 10 provinces including Copperbelt, North-Western and Western. This investment will increase the current number of secondary schools by about 20 percent. Weekly boarding facilities for both boys and girls, through the costed national school infrastructure development plan is also planned to be built in 25 schools. Furthermore, the construction of teachers' residences was expected to be built on a needs-basis with water and sanitation facilities<sup>18</sup>, and electricity provision, as well as the rehabilitation of existing structures that pose safety risks to students and teachers. While construction of secondary schools will be nationwide, the critical rehabilitation, WASH, teacher residences, electricity provision, etc. will be focused on the project target schools. Other planned activities include supporting training of province and district-level building officers and engineers, technical supervisors, and community-level Project Implementation Committees (PICs) on procurement, financial management (FM), and technical aspects of construction; use of a tablet-based monitoring system and related training; hiring of an independent third party construction supervision and support consultant. To forge stronger synergy with the KGS component of the GEWEL Project, need-based weekly boarding facilities will be constructed, and WASH facilities will be provided in the schools hosting a sizable number of KGS beneficiary girls. All construction financed under ZEEP-AF will adhere to defined quality standards and disability friendly norms.

#### **Justification for ESMF Update**

Under AF2, it is envisaged that there will be an increased scope of civil work. While construction works will continue to be confined to already existing school premises and works undertaken by community members, the increased volume of works, still poses potential risks on Occupational Health and Safety, community health and safety, and environmental pollution including air pollution, water pollution, solid waste management, noise and vibration. Nonetheless, environmental impacts arising from the construction activities in the beneficiary schools are expected to be typical, construction-related impacts and hence moderate in terms of impact significance, magnitude and scope (localized), and reversibility.

This Environmental and Social Management Framework (ESMF) updates the ESMF developed for the first Additional Financing for ZEEP to address: (i) details on the changes and additions in project activities, (ii) risk mitigation measures on labor including codes of conduct; (iii) e-waste management plan to address the increase in the electronic goods to be supplied in the project; and (iv) safety measures such as safe storage, disposal, and handling practices to address occupational and community safety aspects regarding the increase in the procurement of chemical reagents for science laboratories. The updated ESMF will be disclosed by both the ZEPUCU and the Bank and will be disseminated through channels including (i) trainings to increase sensitization in the community and schools on Occupational Health and Safety, (ii) capacity building training on E&S screening to technical supervisors, and (iii) be shared in national level consultative meetings.

All subprojects funded under the AF such as construction of a building in a school compound will continue to carry out an Environmental and Social (E&S) screening to identify potential E&S risks and impacts. Relevant E&S instruments such as site-specific ESMPs will be developed prior to commencement of construction. The ESMPs will be prepared by community groups, joint committees or task forces who will be trained on the use of the screening tools. A

dedicated Environmental Specialist will be hired by the ZEPCU and take the lead in ensuring clearance of, disclosure, and support and supervision of ESMP implementation.

Following the preparation and implementation of the ZEEP, there have been institutional changes in the bank causing social mitigations to evolve with great focus assigned to the management of social risks on infrastructure projects. With the scaling up of the project, the project has taken up changes in compliance requirements to include assessment of GBV risks that may be associated with project activities. To this effect a GBV assessment was conducted in line with GBV Risk Assessment infrastructure tool to mitigate appropriate risks.

### **Objective of ESMF**

The overall objective of this ESMF is to ensure that the implementing institutions of the ZEEP-AF use this document in order to ensure that the World Bank environmental safeguard policies, with emphasis on Operational Policy OP 4.01 (Environmental Assessment) are adequately addressed. An Environmental and Social Management Framework (ESMF) remains the key instrument to ensure initial project safeguards at this stage principally because the exact locations, scope, designs and nature of sub project investments remains unknown. This ESMF is aimed at ensuring that implementing institutions in this project use it in order to ensure that the Bank's environmental safeguard policies as outlined in Operational Policy OP 4.01 (Environmental Assessment) are adequately complied with.

This ESMF is expected to ensure that environmental and social management is integrated into the development and operation of investments to be financed under the ZEEP-AF to ensure effective mitigation of potentially adverse impacts while enhancing accruing benefits. The ESMF has been prepared in line with the relevant World Bank (WB) safeguard policies on social and environmental management and further taken into account the appropriate Government of Republic of Zambia (GRZ) policies, legal and institutional framework related to environmental and social assessment.

The ESMF seeks to establish a process of environmental and social screening which will permit the institutions in charge of the implementation of the projects to identify, assess and mitigate the environmental and social impacts of sub project investments. The ESMF also determines the institutional measures to be taken during the program implementation, including capacity building activities.

The purpose of the ESMF is:

- To provide as much information as possible about environmental and social impacts (including possible land acquisition and resettlement) at the project's current state of preparation;
- To inform project planning and design process by comparing potential impacts of alternative locations, configurations, and construction techniques that are under consideration; and
- To describe procedures for subsequent assessment of impacts and development of appropriate impact management instruments when the details of the sub project investments become available.

The process of preparing this ESMF entailed detailed desk top literature review coupled with broad strategic consultation and engagement of appropriate stakeholders.

### **ESMF Implementation Under ZEEP**

The ESMF for the ZEEP provided for screening of all proposed construction activities prior to commencement of construction. The screening was significant in determining the level of environmental analysis that the proposed projects that entailed construction should be subjected to in accordance with the requirements of the Zambia Environment Management Regulations and World Bank's OP. 4.01. All projects proposed at the district level, were screened by the District Planner jointly with the local communities (through existing committees) and then submitted to the ZEPCU environmental and social specialist for review and clearances. Based on the screening, Environmental Project Briefs (EPBs) were prepared by consultants hired by the project and submitted to ZEMA for approval prior to construction. All the projects were classified under the first schedule in accordance with the Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 which provides for Environmental Impact Assessment regulations that classify projects into either the First Schedule or Second Schedule depending on the size, nature and anticipated environmental consequences of a project or sub-project. Projects under the first schedule do not require significant environmental analysis and EPB is considered sufficient and adequate.

In summary, all the projects under ZEEP were found to be having moderate impacts on the environment based on the screening forms and the EPBs prepared were used in undertaking monitoring during construction by ZEEP, 3<sup>rd</sup> party verification agent and ZEMA.

### **World Bank Environmental and Social Safeguards Policies Triggered**

The World Bank safeguards policy on Environmental Assessment (OP. 4.01) is still triggered as Component 2 of the project will involve the construction of additional classrooms, teachers housing, connection of power from the national grid or onsite solar installations and support facilities at already existing schools across Zambia. The support facilities will include the provision of sanitation facilities such as toilets and sinking of boreholes in order to provide potable water and sanitation to learners and staff. Under AF2, Component 2 will also include the procurement of chemical reagents for science laboratories to be constructed. These potentially hazardous chemicals necessitate precautionary measures such as safe storage, disposal, and handling practices to provide occupational and community safety. Additionally, Component 1 will also lead to an increase in e-waste which must be managed appropriately due to the procurement of tablets (hardware) for access to the Teacher Portal to be developed.

### **Component 2: Increasing Access to Safe Secondary Environment for Girls**

The objective of this component is to increase access to secondary education in underserved communities by constructing additional classrooms and other relevant infrastructure in some existing primary schools to create safe environment and better learning conditions for boys and girls at secondary-level education. This component will provide opportunities to children who pass Grade 7 examinations but are denied entrance to Grade 8 due to an inadequate supply of secondary school places. Under this component, secondary school classroom space will be provided at selected primary schools to be run as autonomous secondary school sections, to serve deserving students in the local underserved communities in rural areas in all 10 provinces. To enhance MHM, lockable washroom/toilets and incinerators for sanitary disposal will be added in each school receiving additional classrooms as well as primary schools targeted by the ZEEP AF. Ten all-girls weekly boarding facilities will be constructed to reduce the likelihood of girls' dropping out of school under the current ZEEP. More weekly boarding facilities might be constructed under ZEEP AF based on needs and the national costed school infrastructure plan targeting both boys and girls. Safe infrastructure standards and guidelines

for management of these boarding facilities to ensure safety of boys and girls will be developed by the Ministry of General Education acceptable to the Bank.

**School construction package.** The MoE has produced a typical school layout plan with flexibility for future expansion (scaling up the school infrastructure). A typical school package under the project will comprise the following infrastructure:

1	1xNo	1x3 classroom block
2	1xNo	1x2classroom block
3	2xNo	Toilet blocks
4	1xNo	Administration block
5	6xNo	1x2 Semi-detached houses
6	2xNo	Weekly Boarding Units
7	1xNo	1x3 Laboratory Block 1x2 Home economics/ Design
8	1xNo	technology
9	1xNo	1x2 Computer room / Library
10	1xNo	Healthy Room
11	1xNo	School hall
12		Water reticulation, Tank & stand
13		Sewer reticulation, and septic tanks
14		Power supply ( solar/ZESCO)
15	2xNo	Borehole & Accessories

### **Legal and Institutional Issues**

The following legal instruments among others were reviewed in view of the fact that they provide guidance and regulations when implementing water related programs or projects. These are principally the GRZ legislations that apply to this project and a comparative analysis has been made between some certain relevant regulations of the GRZ and the Bank safeguards.

- The Constitution of Zambia
- The Environmental Management Act
- The Environmental Impact Assessment Regulations
- The Water Resources Management Act
- The Forests Act
- The Wildlife Act
- The Lands Act
- The Lands Acquisition Act
- The Urban and Regional Planning Act
- The Employment Act
- The Public Health Act
- The Occupational Health and Safety Act
- The National Heritage and Conservation Act

### **Environmental and Social Requirements**

In order to reduce, minimize and mitigate adverse impacts and undue harm of its development projects to the environment, all Bank-financed projects are guided by environmental and social

policies and procedures commonly referred to as safeguards instruments. The following World Banks' policy<sup>1</sup> has been triggered as a result of this project:

- OP 4.01 (Environmental Assessment)

### Potential Adverse Environmental and Social Impacts

The proposed project activities are expected to have moderate environmental and social risks/impacts, which can be readily mitigated through an environment and social impacts assessment process and the ESMP. All site-specific details and approach will be informed through a demand driven and consultative approach. During the implementation of the project and associated subprojects, preparation, construction and operational activities are likely to result in the following environmental and social impacts;

**Table 0-1. Adverse Impacts**

Project Phase	Environmental / Social Impact	Mitigation Measure
Construction	Site Related Oil Spills	<ul style="list-style-type: none"> <li>• Employee awareness on company procedures for dealing with spills and leaks from oil storage tanks.</li> <li>• Containment of leaks.</li> <li>• Provision of absorbent material</li> <li>• Maintenance of contractor's equipment</li> </ul>
Construction	Soil Related Impacts	<ul style="list-style-type: none"> <li>• Stock piling of soil for reuse</li> <li>• Restoration of the ground by sowing adequate grass cover and planting of trees.</li> <li>• Planning emergency response measures in case of accidental oil spills.</li> </ul>
Construction	Impact on Water Resources	<ul style="list-style-type: none"> <li>• Proper solid and liquid wastes disposal mainly from the construction sites.</li> <li>• Ensuring proper measures are in place for collection and disposal of spilled oils and lubricants.</li> </ul>
Construction	Socio-Economic Impacts	<ul style="list-style-type: none"> <li>• The project will use local labour with no external labourers expected to be hired.</li> <li>• Use of manual labour during excavation and construction works where possible.</li> <li>• Robust Sensitizing workers and the surrounding community on awareness, prevention and management of HIV / AIDS.</li> <li>• Enhanced sensitization and awareness raising to workers on GBV and SEA</li> <li>• Enforcing and maintaining a code of conduct for his employees</li> <li>• Training of Technical Supervisors on E&amp;S</li> </ul>
Construction	Air Quality	<ul style="list-style-type: none"> <li>• Use of protective equipment by construction crew.</li> <li>• Operated and maintenance of contractor's plant in compliance with relevant vehicle emission standards and manufacturer's specification to minimize air pollution.</li> </ul>
Construction	Noise Pollution	<ul style="list-style-type: none"> <li>• Avoiding night-time construction when noise is loudest near residential areas.</li> </ul>

<sup>1</sup> The World Bank Safeguard Operational Policies (OPs) are OP4.01 – Environmental Assessment; See [www.worldbank.org/safeguards](http://www.worldbank.org/safeguards) for more information.

Project Phase	Environmental / Social Impact	Mitigation Measure
		<ul style="list-style-type: none"> <li>• Good maintenance and proper operation of construction machinery.</li> <li>• Where possible, ensure non-mechanized construction to reduce the use of machinery</li> </ul>
Construction	Impact on flora and fauna	<ul style="list-style-type: none"> <li>• Re-planting vegetation as much as possible once work is completed.</li> <li>• Sparing the vegetation that must not necessarily be removed.</li> <li>• Promoting non-mechanized methods of construction.</li> </ul>
Construction	Public Health and Safety	<ul style="list-style-type: none"> <li>• Ensuring proper maintenance and operation of Contractor's plant.</li> <li>• Providing workers with appropriate personal protective equipment (PPE).</li> <li>• Provide workers training on safety procedures and emergency response.</li> <li>• Cordon off working areas to ensure safety of communities.</li> </ul>
Construction	HIV & AIDS Impacts	<ul style="list-style-type: none"> <li>• Sensitizing workers and the surrounding communities on awareness, prevention and management of HIV/AIDS.</li> </ul>
Construction	Child Labour and Protection	<ul style="list-style-type: none"> <li>• Ensuring no children are employed on site in accordance with national labour laws</li> <li>• Ensuring that any child sexual relations offenses among contractors' workers are promptly reported to the police</li> <li>• Ensuring that the Code of Conduct is signed by contractors' workers regarding observation of Child Protection</li> </ul>
Construction	Land Acquisition	<ul style="list-style-type: none"> <li>• Construction to be undertaken within existing school premises, the event that extra land is required, signed consent letters will be retrieved from chiefs for preparation of land tenures.</li> </ul>
Construction	Gender Equity, Sexual Harassment	<ul style="list-style-type: none"> <li>• Provide and implement a gender-based violence strategy, which will include: <ul style="list-style-type: none"> <li>○ Gender mainstreaming in employment at the worksite with opportunities provided for females to work, in consonance with local laws and customs</li> <li>○ Prevention of SEA/SH including signing of code of conduct and sensitization of contractor workers and communities</li> <li>○ Response to SEA/SH including survivor-centred multi-sectoral referral and assistance to complainants; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures</li> <li>○ Grievance redresses mechanisms including non-retaliation.</li> <li>○ Provide and implement an employee code of conduct</li> <li>○ The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-</li> </ul> </li> </ul>



Project Phase	Environmental / Social Impact	Mitigation Measure
		Discrimination Policy, in accordance with national law where applicable.
Operation	Odour (ablution block)	<ul style="list-style-type: none"> <li>• Ensure proper siting of the ablution blocks</li> <li>• Provide training to students on proper use of latrines and hygiene</li> <li>• Provide hand washing facilities</li> </ul>
Operation	Air Emission (from incinerators)	<ul style="list-style-type: none"> <li>• Ensure incinerators are installed and conform to the air emission regulations by ZEMA</li> </ul>
Operation	Water pollution (ablution block)	<ul style="list-style-type: none"> <li>• Ensure proper siting of the ablution blocks and septic tanks</li> <li>• Provide training to students on proper use of latrines and hygiene</li> <li>• Provide hand washing facilities</li> </ul>
Operation	Exposure to pathogens (ablution block)	<ul style="list-style-type: none"> <li>• Ensure ablution blocks are frequently cleaned</li> <li>• Provide training to students on proper use of latrines and hygiene</li> <li>• Provide hand washing facilities</li> </ul>
Operation	Disease Spread (ablution block)	<ul style="list-style-type: none"> <li>• Ensure ablution blocks are frequently cleaned</li> <li>• Provide training to students on proper use of latrines and hygiene</li> <li>• Provide hand washing facilities</li> </ul>
Operation	Occupational and Community Safety Risks (procurement of chemical reagents for science laboratories)	<ul style="list-style-type: none"> <li>• Safety measures such as Standard Operating Procedures (SOPs), laboratory safety manuals and PPE for safe storage, disposal, and handling practices</li> </ul>
Operation	Electronic Waste (electronic equipment)	<ul style="list-style-type: none"> <li>• E-waste management plan (Annex 9)</li> </ul>
Operation	Gender Equity, Sexual Harassment/ Sexual Exploitation and Abuse (all girls boarding school)	<ul style="list-style-type: none"> <li>• Provide and implement a gender-based violence strategy.</li> <li>• Ensure that there is adequate security and safety measures to prevent gender-based violence</li> </ul>

Since the beneficiary schools and the exact locations have not yet been established, the MoE with the guidance of the Bank has developed an ESMF to assess the potential environmental and social risks of the project. Furthermore, a generic ESMP has been developed to guide the Ministry and contractors in monitoring and implementing mitigation measures. Since the project will not involve activities or subproject that require an Environmental and Social Impact Assessment (ESIA). The ESMP/EPB will provide the best practices for environmental and social management and any other safeguards concerns that will be identified during project implementation.

This ESMF which has been prepared, disclosed prior to appraisal, includes provides detailed step-by-step processes for identification and screening of the sub-projects of critical environment and social risks; procedures for evaluation of significance of environmental risks and impacts; development of site-specific mitigation and monitoring plan when subproject details are identified; and institutional arrangement for safeguards implementation and capacity building measures. The ESMF provides guidance for development of any associated Environmental and Social Management Plans (ESMP) that will present mitigation measures to address the potential environmental and social impacts of the Project at the subproject level, once the activities location and scope have been identified. The EPBs/ESMPs will be prepared,

consulted with stakeholders and disclosed prior to commencement of detailed planning and physical works, consistent with the World Bank policy on Environmental Assessment (OP4.01). Management and supervision requirements for the physical, chemical and biological environment (waste, water and sanitation etc.), health and safety of construction workers and safety and security of neighboring communities are built into the ESMF.

### **Safeguards Implementation and Monitoring Procedures**

This ESMF has developed a stepwise screening for all investments as described below.

#### **Step 1: Community screening of each proposal vis-à-vis potential environmental and social impacts.**

When the sub-project details such as scope and location are established, screening of investments will be carried out at the stage of identification and selection of subprojects. Screening will identify whether the subproject has the potential to cause significant adverse impacts on the environment and society, and thus ensure that environmental sound design of the sub projects occurs right at the project design phase. The screening shall take into account the potential impact of the subprojects on performance of environmental and social management regarding but not restricted to following aspects: emission, wastewater discharge, waste management and disposal, occupational health and safety, periodical environmental quality monitoring, land acquisition, compensation, physical relocation, livelihood restoration and vulnerability of the people in accordance to the national requirements.

The first step will be for community groups or its joint committee or task force to screen each proposed construction to identify potential environmental and social impacts. Annex 1 of the ESMF will guide the community groups in the screening process, with assistance from the ZEPUCU. Screening by community groups will commence right at the project inception phase as soon as the specific sub project details are known including nature and scope, proposed location and area among other parameters.

The ZEEP already has a screening and review form that it uses to ensure that adequate safeguards are incorporated in all the projects targeted for funding. The screening form requires that all concept proposals for potential funding indicate the location, the scope, size, and extent among others, which make it possible to conduct screening.

At district level, the Environmental Planner will carry out screening in collaboration with the community group or its joint committee or task force using the checklist provided in Annex 1. The screening checklist will then be submitted to the E&S Safeguard Specialist at the ZEEP-ZEPCU. Based on the submitted screening checklist, the ZEEP-AF E&S safeguard specialist will then determine whether:

- Full environmental and social assessment is required;
- A stand-alone environmental and social management plan (ESMP)/Environmental Project Brief; or
- No further environmental assessment required.

If the subprojects only bring about positive impacts and/or causing minimal or no adverse impact, it is appraised as environmentally eligible and beyond screening; no environmental assessment action is needed. In the event that the screening shows that there are minimal or no impacts (as determined using the checklist), the District Environmental Planner must consult with the ZEEP-AF Environmental and Social Safeguard specialist for confirmation. When

there may be doubt concerning subproject risks and impacts, the environmental planner, in consultation with the district will consult with the project E&S Specialist for guidance. Under the ZEEP, presently, when projects are screened and determined as likely to lead to adverse environmental and social impacts, an ESMP is prepared by ZEMA registered ESIA consultants (social and environment).

**Step 2: Preparation of Environmental Impact Assessment or Environmental Project Brief/ESMP based on ESMP template attached to the ESMF. ESMP to be included in the contractor's contract and program of work.**

ZEMA is the institution designated to make a decision on whether a full scale ESIA is necessary for proposed investments or otherwise. To make this determination, an environmental project brief (EPB) must be submitted to ZEMA in order to make a determination and this is part of the screening. The project/screening report will be prepared by ZEEP/PMU on behalf of the schools and then submitted to the ZEMA for further determination. The Bank also requires that sub project investments are screened in order to make a determination as to whether a full scale ESIA, a standalone ESMP or no further environmental studies are needed for investments.

*Project investment is approved.* Where ZEMA ascertain that an environmental project brief has disclosed adequate mitigation for identified impacts, the project is approved by ZEMA upon which, conditions attached to grant of an Environmental License are issued. Once these are fulfilled, an Environmental License is also issued subject to conditions which will be specific to the sub project in question. Among these is the requirement that the scheme design should not be altered without approval by ZEMA. As well, an audit report is required of each project after the first year of completion.

*Project Report discloses potential for major irreversible adverse impacts.* In this case, ZEMA may not approve the project. It is not expected that the ZEEP-AF projects will trigger the need for ESIA.

**Step 3: Independent Third-Party Verification, to verify presence of ESMP and implementation of measures set forth in the ESMP as part of verification process prior to disbursing funds.**

During the verification process, the Independent Third-Party verifier will verify the presence of ESMP, and the implementation of measures set forth in the ESMP. This will be part of verifying DLI 5 (construction of classrooms and associated facilities). Non-compliance to ESMP could delay disbursement of funds until compliance is effected or cause non-disbursement of funds.

**Step 4: ZEPCU and Bank to monitor during implementation.**

ZEPCU will also monitor construction works and the implementation of ESMP. ZEPCU will work with the Third-Party Verifier during the verification process to make sure that safeguards are included. The World Bank will also monitor implementation of the ESMF during its regular supervision mission. Monitoring will also be done by the District Environmental Planner using monitoring checklist derived from the environmental management and monitoring plans of the EPB reports. ZEMA inspectors carry out periodic inspections of approved and licensed projects. Environmental audits will also be carried out as ZEMA deems necessary.

**Implementation and Monitoring System**

**a) Ministry of General Education**

The ZEEP became effective in April 2018 with a closing date of October 31, 2022. With the Additional Financing, the closing date is proposed to be extended up to December 31, 2024 synchronizing with the Zambia fiscal year. The MoE will be the implementing agency with the full responsibility for all aspects of project implementation. Each component will have a lead department/unit within MoE to be accountable for the successful implementation of the component.

#### **b) Directorate of Teacher Education and Specialized Services**

For teacher quality improvement (Sub-Component 1.1), the Directorate of Teacher Education and Specialized Services will coordinate the execution of piloting the new approach for improving teacher competencies and skills in mathematics and Science teaching through specific taskforces (e.g., for training material development and for monitoring and evaluation). Each taskforce will be managed by a staff from the Directorate who is appointed by the Permanent Secretary (PS) with a clearly defined mandate. The members of the taskforce will represent the institutions which will jointly implement the pilot, e.g., the Teaching Council of Zambia (TCZ), MoE's Curriculum Development Center (CDC), the Examination Council of Zambia (ECZ), the National Science Center (NSC), University of Zambia (UNZA), and Colleges of Education (CoEs). Each taskforce will have a clearly defined terms of reference for the scope and responsibilities related to the pilot.

#### **c) Procurement and Supply Unit and the Directorate of Standards and Curriculum**

For textbook management system improvement and procuring actual textbooks (Sub-Component 1.2), its implementation will be jointly led by the Procurement and Supply Unit (PSU) and the Directorate of Standards and Curriculum within the MoE. Using the improved textbook management system, the actual procurement of textbooks for secondary education under the project will be carried out centrally by ZEPUCU. The delivery of the procured textbooks to secondary schools will be managed by PSU through Provincial Education and District Education Board Secretaries (DEBS) offices. The tracking of the delivery will be conducted by CDC.

#### **d) Zambia Education Project Implementation Unit**

For new classroom construction (Component 2), its implementation will take a community-based approach and be managed from the Zambia Education Project Implementation Unit (ZEPIU) at MoE. ZEPIU will oversee the technical quality control of Provincial Education Offices in construction and the coordination of DEBS for community mobilization and training. Each selected school for expansion will work with its community and form a joint committee or taskforce to manage day-to-day construction affairs such as material procurement and finance and maintenance. To ensure the phased construction work will be implemented on schedule and reach the construction targets for receiving the disbursement of the project funding, an independent verification agency will be hired by the Ministry to verify (1) the presence of ESMP and the implementation of mitigating measures during construction; and (2) the achievement of the agreed results. The verification of ESMP is included in the verification protocol of DLI 5 in the Project Appraisal Document.

#### **e) Directorate of Planning and Information**

For capacity building activities and the overall project coordination and administration (Component 3), the Directorate of Planning and Information will manage and supervise their implementation.

### **Capacity Building and Training**

Capacity development and strengthening remains a crucial component in this ESMF and will be integrated all through the project implementation phase. Capacity building will be in the form of training seminars/ workshops and short courses for project implementing partner staff from the implementing agencies to be able to successfully implement environmental and social aspects of the IFPPP-AF. The proposed training modules will cover among others:

- a) World Bank safeguards policies and ZEMA Environmental regulations;
- b) ZEEP-ESMF
- c) Subproject Screening Checklist;
- d) Environmental and Social Monitoring
- e) Code of Conduct

### **Public Consultations**

Stakeholders were identified and consulted as part of the preparation of the ESMF. A stakeholder consultation was held on the 7th November 2019 at National Science Center. Annex 6 shows the institutions and stakeholders consulted thus far and the issues and responses from the consultation process.

### **ESMF Outline**

The first three Chapters (Chapters 1 to 3) of the ESMF provide background information that starts with a description of the proposed project which is followed by a brief explanation of the methodology used in formulating the ESMF as well as baseline information. Chapter 4 provides an overview of the World Bank Operational Policies and national environmental management policies and regulations. The last four chapters of the ESMF provide guidelines on potential environmental and social impacts that are anticipated for various proto-type sub-projects, respective possible mitigation measures as well as relevant institutional arrangements for implementation and monitoring of safeguards. Chapter 8 of the ESMF takes into account prevailing institutional capacities and needs and recognizes the need for capacity building in safeguards application and monitoring.

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## ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CCE	Climate Change Education
CDC	Curriculum Development Center
COE	Colleges of Education
CSO	Central Statistical Office
DEBS	District Education Board Secretary
DMMU	Disaster Management and Mitigation Unit
EA	Environmental Assessment
ECZ	Examination Council of Zambia
ECZ	Environmental Council of Zambia
EEE	Electrical and Electronic Equipment
EMA	Environmental Management Act
ESD	Education for Sustainable Development
ESIA	Environmental Social Impact Assessment
ESMP	Environmental Social Management Plan
GBV	Gender Based Violence
GDP	Gross Domestic Product
GMA	Game Management Area
GRZ	Government of the Republic of Zambia
HIV	Human Immunodeficiency Virus
ITCZ	Intertropical Convergence Zone
M&E	Monitoring and Evaluation
MoE	Ministry of Education
NGO	Non-Governmental Organization
NHCC	National Conservation Commission
OP/BP	Operational Bank Policy
PIU	Project Implementing Unit
PMC	Project Management Consultant
PPE	Personal Protective Equipment
PSC	Project Steering Committee
PSU	Procurement and Supply Unit
PTA	Parents Teachers Association
R-SNDP	Revised Sixth National Development Plan
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SME	Small and Medium Enterprises
SMF	Environmental and Social Management Framework
SOP	Standard Operating Procedures
STI's	Sexually Transmitted Infections
TA	Technical Assistance
TCZ	Teaching Council of Zambia
TVET	Technical and Vocational Education Training

UNZA	University of Zambia
ZDA	Zambia Development Agency
ZEMA	Zambia Environmental Management Agency
ZEPCU	Zambia Education Projects Coordinating Unit
ZEPIU	Zambia Education Project Implementation Unit
ZEEP	Zambia Education Enhancement Project
ZPPA	Zambia Public Procurement Authority

# **1 CHAPTER 1: INTRODUCTION**

## **1.1 Project Background**

The Government of Republic of Zambia (GRZ) is seeking additional financing from the World Bank for the Zambia Education Enhancement Project (ZEEP) Additional Financing (AF) to help us scale up the geographical as well as technical scope of interventions to achieve systemic impact.

Historically, the Zambian education system has been well endowed with public resources and enjoyed a strong commitment from the government. This enabled the education system to make good progress. The budgets for 2014 and 2015 indicate that expected public education expenditure exceeds 5% of GDP and 20% of total government expenditure. The education system in Zambia has steadily developed and has undergone several systemic restructurings. Enrollment continues to increase at all education levels for more than a decade, and general education is now transforming from basic (grades 1-9) to primary (grades 1-7) education and from high (grades 10-12) to secondary (grades 8-12) education. Curriculum reforms have made good progress over the past few years, introducing and accommodating new interventions, such as information and communication technology, soft skills, and technical vocational skills. The Technical and Vocational Education and Training (TVET) system is decentralized, to large extent, to TVET institutions with academic and financial autonomy. As the higher education system continues to expand (almost 50 increase in enrollment between 2009 and 2013), the Higher Education Authority was established in 2013 to regulate both public and private universities and provide quality assurance and sound governance systems.

Maintaining the high level of government commitment to the education sector, public education financing has gradually shifted toward post-primary education (grades 8-12). An increasing allocation to the capital budget for secondary education and higher education in 2014 and 2015 indicates that the country is steadily expanding secondary and higher education in the post-Education For All (EFA) era. Despite stable funding to the education sector and steady progress on access, the system continues to face several challenges, particularly in access to higher secondary education, quality at both primary and secondary schools, and chronic financing deficits at public universities. In terms of access to secondary education, the current number of secondary schools can accommodate only about 30 percent of the students in grades 1 – 5. If 50% of the current grade 1–5 students were to enter the secondary school in 2020, the number of classrooms in secondary education required to accommodate these students without changing the current classroom-pupil ratio (1:66) is 17,922, which translates into an additional 6,662 classrooms. Student learning outcomes in Zambia are the lowest level in the region according to the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ). National Assessment shows that learning outcomes have been stagnant for 15 years both at grades 5 and 9 in all tested subjects and even below the minimum scores.

## **1.2 Project Description -ZEEP Phase I**

The Zambia Education Enhancement Project (ZEEP) phase I is a national project by the Government of the Republic of Zambia (GRZ) under the Ministry of Education (MoE) that aims is to improve the quality of teaching and learning in mathematics and science in targeted primary and secondary schools and to increase equitable access to secondary education.

The Project comprised three components namely:

- Improving the Quality of Teaching and Learning,

- Increasing Equitable Access to Secondary Education,
- Enhancing M&E Capacity and Project Coordination

### **1.3 ZEEP-Additional Financing**

Proposed Additional Financing (AF) to ZEEP aims to build on the on-going reforms focusing on system wide approach with all actors aligned around learning and equitable access, so quality education reaches everyone. Performance of ZEEP so far has been satisfactory. ZEEP, which uses an Investment Project Financing (IPF) with Results-based Financing (RBF) modality, is designed to achieve systemic impact in terms of reforming teacher's professional development practices to improve teachers' competencies; transform teaching learning practice; and provide critical teaching learning material inputs to the schools to assist better teaching and learning. ZEEP is also increasing access to secondary education through expanding existing primary schools, where a significant number of students move out of the system after completing primary because of lack of secondary schools in the vicinity. The girls are the worst affected as they are forced to discontinue schooling because of long distance to the closest secondary school, which on an average is 15 to 20 kilometers away from the habitation without any transport facility.

Design of the ZEEP-AF has further been refined based upon feedback received from stake holders during the operations of the schools constructed under the parent ZEEP.

The objective of this component is to increase access to secondary education in underserved communities. Through the parent project, eighty-two (82) secondary schools are being built in Muchinga, Luapula, Southern, Eastern, Central, Northern, and Lusaka provinces. The first and second AF will support building 120 additional schools in target districts across the ten provinces, including Copperbelt, North-Western and Western, in alignment with the proposed new school package.

Currently, the project supports construction of safe schools using the minimum standards package, compliant with all relevant social and environmental safeguards. The package includes: (i) 1x2 and 1x3 classroom block, (ii) 1x2 science laboratory and home economics block, (iii) 2 ablution blocks for girls and boys respectively, (iv) 4 teacher houses, and (v) an administration block, (vi) for 10 schools weekly boarding facilities for girls. With the proposed changes, the package will be revised as follows:

- Number of laboratories: To meet the minimum number of laboratories required for a school to qualify as an examination center the construction package will increase the number of science laboratories from one (1) to three (3) at each school
- Addition of computer laboratory and computer room: To better prepare students for the future of work, facilitate for the implementation of ICT curriculum, and to promote a culture of reading and research the project will support the addition of a block for a computer and library rooms.;
- Additional teacher housing: To align to the minimum number of teachers' houses as required at each school in view of the lack of housing availability for rent in rural and remote areas where most of ZEEP supported schools are located, the project will support an increase in the number of teachers' houses from 4 (four) to 12 (twelve);

- Addition of a school hall. To provide a conducive environment for school assembly and necessary for national examinations, the project will support the construction of a school hall; and
- Addition of a sickbay/health room. To support treatment of the sick within a school and given lessons from the recent COVID-19 pandemic, the project will support the construction of a sickbay/health room.

Home-to-school distance is a major constraint to access secondary school, particularly for girls. To respond to this challenge, the project supports the construction of weekly boarding facilities in a select number of schools. Under the parent project, girls weekly boarding facilities are being constructed in 10 of the 82 schools. Through this second AF, construction of an additional 25 weekly boarding facilities in the 120 schools will be supported for both girls and boys. In order to create awareness on safety issues in other targeted schools, the project will support the dissemination of guidelines on enhancing security around weekly boarding facilities including in relation to SRGBV.

The proposed changes have created a cost overrun, which will be covered by the proposed second AF and restructuring. The associated cost for the revised package are as outlined in Table 1.1.

**Table 1.1: Supported New Standard School Construction Package and Related Cost in ZMW**

#	Structures	Quantity	Unit cost	Total	Furniture/equipment
1	1x3 classroom block	1	635,000.00	635,000.00	192,180.00
2	1x2 classroom block	1	423,333.33	423,333.33	128,120.00
3	Toilet blocks	2	218,613.20	437,226.40	
4	Administration block	1	564,939.31	564,939.31	56,310.00
5	1x3 laboratory block	1	1,488,013.00	1,488,013.00	516,555.00
/6	1x2 home economics/design technology	1	590,000.00	590,000.00	210,045.00
7	1x2 computer room/library	1	590,000.00	590,000.00	803,120.00
8	School hall	1	1,300,000.00	1,300,000.00	156,000.00
9	1x2 semi-detached houses	6	712,264.41	4,273,586.46	
10	Health room	1	320,350.00	320,350.00	22,370.00
	<b>External works</b>				
1	Water reticulation, tank and stand	2	310,000.00	620,000.00	
2	Sewer reticulation, and septic tanks	7	134,576.78	942,037.46	
3	Power supply (Sola/ZESCO)	1	2,400,000.00	2,400,000.00	
4	Borehole and accessories	2	70,000.00	140,000.00	
5	Transportation of building materials	1	600,000.00	600,000.00	
	<b>Total without boarding facilities</b>		10,357,090.03	15,324,485.96	2,084,700.00
	<b>Weekly boarding facilities</b>	4	1,032,863.53	4,131,454.12	893,200.00
	<b>Total with boarding facilities</b>			<b>19,455,940.08</b>	<b>2,977,900.00</b>
					(US\$1=ZMW16)
	Day school, including furniture/equipment (no boarding)	95	17,409,185.96	1,653,872,666.20	103,367,041.64

	Day school, including furniture/equipment, with boarding	25	22,433,840.08	560,846,002.00	35,052,875.13
				<b>2,214,718,668.20</b>	<b>138,419,916.76</b>
	Supervision (13 vehicles, 96 motorcycles, supervision, training)			<b>77,558,900.00</b>	4,847,431.25
				<b>2,292,277,568.20</b>	<b>143,267,348.01</b>

To support improved planning and long-term financing for school construction, the project will continue to support the development of a national costed school infrastructure plan. The plan will provide a comprehensive costed blueprint to guide the MOE's expenditure decisions and investment priorities over the short, medium, and long term, including ECD through secondary education based on current and future demographic trends.

The community mode of construction will continue to be used. An evaluation will be undertaken to assess its efficiency and effectiveness as a viable option for school construction given the access constraints faced by the education sector. Lessons learnt so far will be documented. Other activities that enhance monitoring and evaluation of implementation construction works will continue to be supported. These include: (a) support for monitoring visits by national, provincial, and district building officers and engineers; (b) contractual recruitment of technical supervisors for each site of construction; and (c) training of province and district-level building officers and engineers, technical supervisors, and community-level officers on procurement, financial management, and technical aspects of construction.

Additionally, third-party construction supervision and support consultant (CS&SC) will be hired for continuous monitoring of construction quality, safeguards compliance, and climate and disaster risk resilience. The CS&SC will provide dedicated independent monitoring and support to the ZEPIU. A mobile technology-based monitoring system developed and piloted in two districts will also be expanded to support monitoring and timely response to construction defects.

Although ZEEP is supporting transformative reforms, the geographical scope of coverage is relatively small because of relatively limited resources in view of the greater needs in the country. Additional financing to the tune of US\$120 million or more to the ZEEP would help us scale up the geographical as well as technical scope of interventions to achieve systemic impact. The Project could cover a large number of low-performing primary and secondary schools and teachers out of the existing 11,000 schools and more than 100,000 teachers respectively. Furthermore, equity issues, particularly related to gender, and rural-urban in terms of access to quality secondary education could be addressed more effectively through both supply and demand side interventions.

In order to address the objectives highlighted above the budget of the ZEEP –AF has been realigned as tabulated below in table 1.3.



**Table 1.2: Allocation of funds by Component**

<b>Component</b>	<b>Original allocation. mill (\$ ) USD</b>	<b>Revised allocation mill (\$ ) USD</b>	<b>Parent ZEEP mill (\$ ) USD</b>
Component 1:	72.00	43.00	24.00
Subcomponent 1.1:	37.00	22.00	14.00
Subcomponent 1.2:	25.00	18.00	10.00
Subcomponent 1.3:	10.00	3.00	0.00
Component 2:	81.00	172.00	27.00
Component 3:	18.00	15.00	9.00
Subcomponent 3.1:	10.00	8.40	5.00
Subcomponent 3.2:	8.00	6.60	4.00
Component 4:	9.00	3.00	0.00
Component 5:	0.00	0.00	0.00
<b>Subtotal</b>	180.00	233.00	60.00

#### **1.4 Bank Country Partnership Framework (FY2019-FY2023)**

**The proposed AF is closely aligned with the World Bank’s Country Partnership Framework (CPF) for Zambia, as well as the findings of the recent SCD.** The CPF’s objectives include “improving access to secondary education, health services, nutrition and social protection, with attention to girls and women in selected rural areas” (Objective 2.1 under Focus Area II). The SCD revealed large disparities in education quality and binding constraints on access to secondary education. The ZEEP AF is designed to directly address the challenges around education quality, equity, and access identified in the SCD and targeted by the CPF. The 2016 PER identified challenges facing the education sector, such as uneven teacher quality, limited availability of textbooks, and classroom shortages in secondary education. The new CPS is now under preparation, and this project will focus on supporting efforts to address these challenges. Through improving the quality of general education, especially in the areas of mathematics and science and in rural schools and increasing access to secondary education as well as the capacity of the education system, ZEEP will help equip younger generations with knowledge and skills to get out of poverty and share prosperity in Zambia.

The proposed ZEEP AF is aligned with and supports the objectives of the Government’s SNDP.<sup>2</sup> The SNDP highlights education as one of the priority areas for helping the country achieve its poverty reduction, economic diversification, and socioeconomic goals for 2017–2022. Given these objectives, the proposed project will focus on improving teaching and learning in mathematics and science and on expanding access to secondary education, particularly in rural areas.

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<sup>2</sup> The Government’s Sixth National Development Plan (2011–2015) and the NIF III (2011–2015) for the education sector ended in 2015.

## 1.5 PROJECT DEVELOPMENT OBJECTIVES

The Project Development Objective (PDO) is to improve the quality of teaching and learning conditions<sup>3</sup> in targeted primary and secondary schools and to increase access to secondary education focusing on girls.

### 1.5.1 Project Beneficiaries

**Under the ZEEP, the primary beneficiaries** of the project are students, including those (a) enrolled in Grades 8–12 in the 82 schools whose expansion the project will finance (estimated to be 22,960 students of whom 45 percent are girls), in particular adolescent girls who will benefit from the provision of sanitation and boarding facilities; (b) enrolled in Grades 1–5 in 200 primary schools and in Grades 8–9 in 100 secondary schools (estimated to be 110,210 students of whom 45 percent are girls) in the pilot of improving teacher competencies and skills in mathematics and science teaching; and (c) enrolled in Grades 8–12 in secondary schools other than the schools mentioned in (a) and (b) above who receive textbooks through the improved textbook management system (estimated to be approximately 1.2 million primary and secondary school students, 45 percent of whom will be girls). The proposed AF would scale up the ZEEP interventions. Approximately 1.5 million children in about 2000 primary schools and 600 to 700 secondary schools in 38 districts selected from all the 10 provinces based on a composite index comprising poverty level of the district, transition rate from primary to secondary school and national examination result for grade 7. Out of the total students' beneficiaries, approximately 45 percent are girls who will benefit directly

**The secondary beneficiaries** are teachers (approximately 764 teachers, of whom 50 percent are women). Most of them will participate in training-for-trainers in mathematics and science teaching. Mathematics and science teachers from the same zoning area as the new teacher training system pilot that is described below under Subcomponent 1.1 (approximately 2,310) will benefit from its trained teacher-trainers through the local teacher professional development networks. About 60 teachers will receive training on developing and writing learning materials under the capacity-building program for textbook writers. In addition, at least 1,600 teachers and administrators from the expansion schools (i.e., those schools selected for expansion under the ZEEP) are expected to benefit from the office space, accommodations, and other facilities provided as part of the expansion package. Under the ZEEP AF, more than 20,000 primary and secondary school teachers will be trained in language arts, life skills/science, and mathematics, out of which approximately 35 percent are women teachers.

**Additional beneficiaries** include: (a) students and teachers in schools where classrooms will be expanded and the teacher quality improvement pilot will be undertaken; (b) students and teachers in colleges of education who will be involved in the teacher quality improvement pilot; and (c) the Ministry of Education (MoE) who will benefit from capacity-building activities, as well as the support to an improved Education Management Information System (EMIS) and school mapping, in which at least 1,080 education officers from schools, local, and central education offices will benefit from training; and (d) communities that host schools that will be expanded (due to job creation and increased business opportunities).

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<sup>3</sup> 'Quality of teaching and learning' in the context of this project is defined as quality of teachers and teaching and learning materials.

## **1.6 ESMF Implementation Under ZEEP and AF1**

The ESMF for the ZEEP (including the first Additional Financing—AF1) provided for screening of all proposed construction activities prior to commencement of construction. The screening was important in determining the level of environmental analysis that the proposed projects that entailed construction should be subjected to in accordance with the requirements of the Zambia Environment Management Regulations and World Bank's OP. 4.01. All projects proposed at the district level, were screened by the District Planner jointly with the local communities (through existing committees) and then submitted to ZEPCU environmental and social specialist for review and clearances. Based on the screening, Environmental Project Briefs (EPBs) were prepared by consultants hired by the project and submitted to ZEMA for approval prior to construction. All the projects were classified under the first schedule in accordance with the Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 which provides for Environmental Impact Assessment regulations that classify projects into either the First Schedule or Second Schedule depending on the size, nature and anticipated environmental consequences of a project or sub-project. Projects under the first schedule do not require significant environmental analysis and EPB is considered sufficient and adequate.

In summary, all the sub-projects under ZEEP were found to have moderate environment and social risks and impacts and the EPBs prepared were used in undertaking monitoring during construction by ZEEP, 3<sup>rd</sup> party verification agent and ZEMA.

## **1.7 Justification for ESMF Update**

Under AF2, it is envisaged that there will be an increased scope of civil work. While construction works will continue to be confined to already existing school premises and works undertaken by community members, the increased volume of works, still poses potential risks on Occupational Health and Safety, community health and safety, and environmental pollution including air pollution, water pollution, solid waste management, noise and vibration. Nonetheless, environmental impacts arising from the construction activities in the beneficiary schools are expected to be typical, construction-related impacts and hence moderate in terms of impact significance, magnitude and scope (localized), and reversibility.

This Environmental and Social Management Framework (ESMF) updates the ESMF developed for the first Additional Financing for ZEEP to address: (i) details on the changes and additions in project activities, (ii) risk mitigation measures on labor including codes of conduct; (iii) e-waste management plan to address increase in the electronic goods to be supplied in the project; and (iv) safety measures such as safe storage, disposal, and handling practices to address occupational and community safety aspects regarding the increase in the procurement of chemical reagents for science laboratories. The updated ESMF will be disclosed by both ZEPCU and the Bank and will be disseminated through channels including (i) trainings to increase sensitization in the community and schools on Occupational Health and Safety, (ii) capacity building training on E&S screening to technical supervisors, and (iii) be shared in national level consultative meetings.

All subprojects funded under the AF such as construction of a building in a school compound will continue to carry out an Environmental and Social (E&S) screening to identify potential

E&S risks and impacts. Relevant E&S instruments such as site-specific ESMPs will be developed prior to bidding. The ESMPs will be prepared by community groups, joint committees or task forces who will be trained on the use of the screening tools. A dedicated Environmental Specialist will be hired by ZEPCU and take lead in ensuring clearance of, disclosure, and support and supervision of ESMP implementation.

Following the preparation and implementation of the ZEEP, there have been institutional changes in the bank causing social mitigations to evolve with great focus assigned to the management of social risks on infrastructure projects. With the scaling up of the project, the project has taken up changes in compliance requirements to include assessment of GBV risks that may be associated with project activities. To this effect a GBV assessment was conducted in line with GBV Risk Assessment infrastructure tool to mitigate appropriate risks.

### **1.8 Objective of ESMF**

The overall objective of this ESMF is to ensure that the implementing institutions of the ZEEP-AF use this document in order to ensure that the World Bank environmental safeguard policies, with emphasis on Operational Policy OP 4.01 (Environmental Assessment) are adequately addressed. An Environmental and Social Management Framework (ESMF) remains the key instrument to ensure initial project safeguards at this stage principally because the exact locations, scope, designs and nature of sub project investments remains unknown. This ESMF is aimed at ensuring that implementing institutions in this project use it in order to ensure that the Bank's environmental safeguard policies as outlined in Operational Policy OP 4.01 (Environmental Assessment) are adequately complied with.

This ESMF is expected to ensure that environmental and social management is integrated into the development and operation of investments to be financed under the ZEEP-AF to ensure effective mitigation of potentially adverse impacts while enhancing accruing benefits. The ESMF has been prepared in line with the relevant World Bank (WB) safeguard policies on social and environmental management and further taken into account the appropriate Government of Republic of Zambia (GRZ) policies, legal and institutional framework related to environmental and social assessment.

The ESMF seeks to establish a process of environmental and social screening which will permit the institutions in charge of the implementation of the projects to identify, assess and mitigate the environmental and social impacts of sub project investments. The ESMF also determines the institutional measures to be taken during the program implementation, including capacity building activities. The purpose of the ESMF is:

- (i) To provide as much information as possible about environmental and social impacts (including possible land acquisition and resettlement) at the project's current state of preparation;
- (ii) To inform project planning and design process by comparing potential impacts of alternative locations, configurations, and construction techniques that are under consideration; and
- (iii) To describe procedures for subsequent assessment of impacts and development of appropriate impact management instruments when the details of the sub project investments become available.

## **1.9 Project Description**

The proposed ZEEP AF2 will support the Government's efforts to improve the quality of education, particularly in relation to student learning outcomes and will address the three major challenges identified in the PER. The AF2 will introduce the following changes: (i) revision of the construction package to include the additional infrastructure requested by the GRZ; (ii) revision of activities under non construction component particularly those to be covered by the government sector wide programs; (iii) revision of the disbursement linked indicators (DLIs) and disbursement linked results (DLRs) in the results framework. In addition, the AF provides an opportunity to strengthen governance and transparency mechanisms including those around fiduciary and safeguards. There will be no change to the PDO, geographical coverage, targeted beneficiaries and closing date.

### **1.9.1 Component 1**

#### **Improving the Quality of Teaching and Learning Conditions in Language Arts, Science, and Mathematics, in Targeted Primary and Junior Secondary Schools**

Objective of this component is to improve the quality of learning by transforming teaching practices with special focus on gender-sensitive pedagogical approaches, enhancing learning conditions, and more effectively managing teachers with enhanced teacher code of conduct. Sub-components 1.1 and 1.2 of the parent project will be maintained under this component, but their geographical coverage will be expanded, number of beneficiaries increased, their implementation reoriented, and focus broadened to encompass language literacy and arts, gender-sensitive pedagogical approaches and greater attention to strengthening girls' learning and performance. An additional set of activities aiming at reforming teacher recruitment, deployment and management will be introduced under the new sub-component 1.3. The new and revised sub-components include: (i) sub-component 1.1: enhancing teaching competencies; (ii) sub-component 1.2: increasing the availability of teaching and learning materials in language arts, mathematics, and science in targeted primary and secondary schools; and (iii) sub-component 1.3: improving teacher recruitment, deployment, and management and reducing teacher shortages in targeted schools. This component includes interventions which help modulate risks from climate and geophysical hazards<sup>4</sup>.

##### **a) Subcomponent 1.1: Enhancing Teaching Competencies**

The objective of this sub-component is to improve the quality of teaching and learning by enhancing primary and junior secondary school teacher competences, both in subject and pedagogical content knowledge, in language arts, mathematics and science, and formative assessments. Special attention will be given to gender-sensitive pedagogical approaches and strengthening girls learning and educational attainment. This sub-component will expand the scope of ongoing activities and support: (i) the development of a competency-based Teacher Professional Development Index (TPDI), which will specify the competences required for serving teachers as they progress through their careers; (ii) the development and delivery of training modules in language literacy and arts, mathematics, and science to enhance pre-service teacher training in colleges of education and universities and in-service training in targeted schools. The TPDI will cover all levels of basic education, from ECE through secondary school. The TPDI will provide a framework for: (i) evaluating the skills and knowledge that enable a teacher to be successful (competences) and assessing the competency levels of both trainees and

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<sup>4</sup> Through teacher training and general teaching in schools, the project will encourage MoE to give the appropriate level of focus on climate change issues incorporated in the curriculum so that awareness is raised both among teachers, learners as well as shared with the communities around the schools especially during parent teacher meetings. Also, students will be able to learn more about climate change on their own from the books which the project will provide.

practicing teachers; (ii) designing and developing pre-service training, practicum, and continuous professional development (CPD) programs; (iii) selecting mentors and other teachers who demonstrate professional excellence; (iv) promoting teachers within the school system; and (v) promoting teachers up the career ladder; etc.

**b) Subcomponent 1.2: Increasing the availability of teaching and learning materials in language literacy and arts, mathematics, and science in targeted primary and secondary schools**

This sub-component builds on existing ZEEP component 1.2, which supports the MoE's efforts to address the severe shortage of textbooks. The AF will scale up the provision of textbooks from 382 schools to about 2700 primary and secondary schools. In addition to mathematics and life skills/science (which includes climate change), the AF will finance the supply of literacy and language arts textbooks, along with language arts related supplementary teaching and learning materials for the pupils in the targeted schools and teachers' guides. Improved language arts instruction is critical, especially in the early grades, where regional languages are used as the medium of instruction (per the revised curriculum introduced in 2014), while English is the medium of instruction for higher grades.

Furthermore, this sub-component will support adaptation of material into e-format. The adapted material will be uploaded to the teacher and learner portals for access by teachers and learners. Materials to support interventions on school related gender-based violence (SRGBV) including sexual exploitation and abuse (SEA) will also be financed under this sub-component. The AF will also finance adaptation of teaching learning materials for the children with special needs, procurement and distribution of the adapted materials and required assistive aids and equipment for the children enrolled in the project target schools.

This sub-component will finance: (a) procurement, distribution and tracking of textbooks in language literacy and arts, mathematics, and life skills/science from grade one to 12 pupil in the project target schools to reduce the pupil : textbook ratio from 5:1 to 3:1; (b) provision of story books in local languages for the early grades; (c) pilot of compilation and use of local stories and folklores in collaboration with the local community; (d) reading corners in grade one to four; (e) teachers guides; (f) adaptation of select materials into e-format; (g) adaptation of materials for children with special needs; and, (h) printing and distribution of curricula framework.

**c) Sub-component 1.3: Improving teacher recruitment, deployment and management, and reducing teacher shortages in targeted primary and secondary schools**

This is a new sub-component introduced under the AF. The AF will support the MoE and Teaching Service Commission (TSC) who are involved in teacher recruitment, deployment, and management to transform their current policies, regulations, and guidelines and embrace evidence-based practices. The sub-component will support: (i) the development and implementation of a TPDI-based teacher selection process (similar to merit-based teacher recruitment) to ensure that newly recruited teachers meet the relevant standards; (ii) the development and implementation of a Teacher Internship Program in which a select group of candidates who fall below the cutoff point of the TPDI-based assessment will have an opportunity to work as interns under specified mentors, with clearly defined performance indicators for intern teachers, a defined internship period, and monthly remuneration; (iii) the design and establishment of Teacher Database compiled through a comprehensive teacher census, including all necessary hardware and software, as well as instruction in the management

and use of the database; (iv) redeployment of teachers through correction of payroll mismatch; (v) research on failure of current incentive system for retention of teachers in rural and remote areas; and, (vi) an increase in the supply of teachers in targeted schools, both through annual recruitment and through the redeployment of teachers by addressing payroll mismatches in the targeted schools. Out of the total number of teachers newly recruited and deployed in the targeted schools at least 30 percent will be female teachers especially those with math and science training for secondary school recruitment.

This sub-component will finance: (a) development and piloting of TPDI-based assessment tools for recruitment of teachers; (b) administration of the assessment tool, finalization and publication of the assessment results; (c) design, implementation and evaluation of teacher internship pilot program; (d) design of a teacher database and conduct of teacher census; and, (e) targeted policy studies on teacher recruitment, deployment and retention, and management. International and national technical assistance will be provided for activities (a), (b) and (c).

### **1.9.2 Component 2**

#### **Increasing Access to Safe Secondary Environment for girls**

The objective of the original component is to increase access to secondary education in underserved communities by expanding existing primary schools into secondary schools. Given the acute shortage of secondary school space and the long home-to-school distance, which is a key barrier for girls' access to secondary education in Zambia, the AF will support construction of more secondary schools with all the facilities and features that provide safe environment and better learning conditions for girls.

The ZEEP is supporting the expansion of 82 primary schools by constructing additional classrooms and other facilities in accordance with the minimum package for a safe secondary school defined in the ZEEP PAD in seven of Zambia's ten provinces: Muchinga, Luapula, Southern, Eastern, Central, Northern, and Lusaka. These provinces were selected based on the incidence of poverty and the demand/supply gap for secondary school seats. The new secondary school facilities will operate independently of the primary schools. Based on girls' primary-to-secondary transition rates, ten of these 82 secondary schools would have all-girls weekly boarding facilities constructed to reduce the dropout rate.

With the AF, additional 120 (TBC) existing primary schools will be expanded into secondary schools, extending coverage to nation-wide. Further support will be provided to the MoE for: (i) the development of a fully costed nationwide school infrastructure development plan; (ii) construction of additional weekly boarding facilities for girls and boys based on need, and subject to development and implementation of guidelines for weekly boarding facilities management ensuring full safety of girls and boys; (iii) the needs-based construction of teachers residence, water and sanitation facilities, and electricity provision, as well as the rehabilitation of existing structures that pose safety risks to students and teachers. However, the ZEEP AF will not supplant public funding provided for school rehabilitation, refurbishment, and maintenance. The project design will contribute to minimizing the effects of extreme temperature, extreme flooding and drought on the physical infrastructure of the project<sup>5</sup>. Additionally, the AF will

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<sup>5</sup> These include: (i) the foundations for the buildings will be built in such a way that water can sip out easily including concrete apron which have been put around all buildings to discharge surface water away from the building to protect the foundation; (ii) positioning of all buildings is oriented to the north to ensure that the sides without windows are facing east and west to avoid accumulation of heat in the building which could cause cracking of the structures and reduce the likelihood of roofs being blown

support training of province and district level Building Officers and Engineers, Technical Supervisors and community level Project Implementation Committees (PIC) twice a year on procurement, E&S, financial management and technical aspects of construction; use of tablet-based monitoring system and related training for the same; hiring of a third-party construction quality review agency; and monitoring visits by national, provincial and district teams comprised of relevant officials.

Construction of 120 (TBD) new secondary schools will be carried out in all the 10 provinces using the same site selection methodology used in ZEEP and the national infrastructure plan. Construction of WASH facilities, teacher residence, rehabilitation of unsafe structures, provision of school furniture, electricity either solar or grid, will be carried out in the project target schools. In order to forge stronger synergy with the “Keeping Girls in School” component of the GEWEL project, need-based weekly boarding facilities will be constructed, and WASH facilities will be provided in the schools hosting a sizable number of KGS beneficiary girls. All construction financed under ZEEP and AF will adhere to defined quality standards and disability friendly norms.

**School construction package.** The MoE has produced a typical school layout plan with flexibility for future expansion (scaling up the school infrastructure). A typical school package under the project will comprise the following infrastructure:

- |    |      |                                      |
|----|------|--------------------------------------|
| 1  | 1xNo | 1x3 classroom block                  |
| 2  | 1xNo | 1x2classroom block                   |
| 3  | 2xNo | Toilet blocks                        |
| 4  | 1xNo | Administration block                 |
| 5  | 6xNo | 1x2 Semi-detached houses             |
| 6  | 2xNo | Weekly Boarding Units                |
| 7  | 1xNo | 1x3 Laboratory Block                 |
|    |      | 1x2 Home economics/ Design 1x2       |
| 8  | 1xNo | Home economics/ Design technology    |
| 9  | 1xNo | 1x2 Computer room / Library          |
| 10 | 1xNo | Healthy Room                         |
| 11 | 1xNo | School hall                          |
| 12 |      | Water reticulation, Tank & stand     |
| 13 |      | Sewer reticulation, and septic tanks |
| 14 |      | Power supply ( solar/ZESCO)          |
| 15 | 2xNo | Borehole & Accessories               |

In addition to this infrastructure package as noted above, selected schools will be provided with self-catering weekly boarding facilities for girls.

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away due high winds which comes with extreme rainfall; (ii) Steel, nuts and bolts are used to ensure the building withstand high and low temperatures (allowing expansion and contraction) which could cause cracking of the structure and insulation material is used under the roof to ensure comfortable temperatures are maintained in the classrooms for a conducive learning environment and (iii) boreholes have been drilled to a minimalize of 45 meters to counter the effects of drought. As part of gender mainstreaming, the project aims to reduce risks which could be caused by hazards such as drought (lack of water in schools could cause girls’ absenteeism from school due to menstrual hygiene issues).



The school structures will follow the same architectural program and design layout for all schools, although the layout can be modified to accommodate individual site conditions such as orientation, access to school, and so on, as may be determined. The design of the laboratory and home economics rooms will enable flexible usage for teaching and learning. This flexibility will allow enrollment of pupils at each school by equivalent two extra classes.

### **1.9.3 Component 3**

#### **Strengthening institutional capacity for education service delivery and project management**

This component includes two sub-components: (i) strengthening institutional capacity for education service delivery; and (ii) enhancing project management, coordination, and communication.

##### **a) Sub-component 3.1: Strengthening institutional capacity for education service delivery**

This sub-component will build on gains achieved through the ZEEP project by supporting several additional activities. These include: (i) building the planning, management, and M&E capacity of the MoE and relevant institutions; (ii) improving education data management, analysis, and use by upgrading the centrally managed EMIS; (iii) completing the school GPS map to enable real-time monitoring, decision-making, and resource allocation, including in response to climate and disaster risks; and (iv) conducting policy studies, surveys, and evaluations as well as qualitative reviews of teacher training, school construction, and the implementation of digital technologies.

##### **b) Sub-component 3.2: Project management, coordination, and communication**

The implementation arrangements for the ZEEP AF will utilize the MoE's existing institutional framework: the MoE will be the implementing agency, with full responsibility for all aspects of the project. Based on the lessons learned from the ZEEP, implementation arrangements will be mainstreamed to respective Directorates and agencies identified for each intervention for better ownership, sustainability, systemic impact and in-house capacity building. The Project Implementation Steering Committee (PISC), which is co-chaired by the MoE's Permanent Secretaries (PS - Finance and Administration and PS Technical Services), will continue to provide oversight and guidance and facilitate interdepartmental coordination on implementation activities.

Given the expanded geographical and technically transformative scope of the ZEEP AF, and in the light of the objectives stated above, implementation of each component and sub-component will be assigned to the relevant departments, directorates and agencies. The existing PIU will be replaced with a Zambia Education Project Coordinating Unit (ZEPCU) staffed with appropriate skills, expertise and experience. The details on ZEPCU staffing and implementation roles and responsibilities are provided in Annex 2 of the PAD. The ZEPCU will directly report to the Permanent Secretary in-charge of Administration and Finance. While MoE will be responsible and accountable for the implementation of the project, relevant Directorate/Department/Agency in accordance with their mandate will be directly responsible for planning, implementation, monitoring and delivering results for their respective component and sub-components.

### **1.9.4 Component 4**

Enhancing institutional capacity for implementation of safe school program

This is a new component aimed at enhancing institutional capacity to implement a safe school program that would ensure safe learning space for girls. The objective is to strengthen the institutional mechanisms within the school education sector to address the issue of school-related gender-based violence (SRGBV), protect the girls from sexual abuse and exploitation, equip the schools with knowledge and information on referral pathways, and to make the school safe, including the infrastructure that promotes girls' participation in education.

This component will support two related activities: (i) review and update School Related Gender Based Violence (SRGBV) Action Plan for achieving gender equality in education based on knowledge gleaned from both the international and local experience, and (ii) safe school interventions in selected ZEEP districts that have high levels of early pregnancy. The activities supported by the component will include: (a) sensitization of all stakeholders of the school community (including teachers, principals, administrative staff, counsellors, union leaders, parents and students) on the development of safe school plan which would include community-based safe passage to school and life skills programs for girls and boys which focus on non-violent conflict resolution, assertiveness, reproductive health, inclusion and diversity; (b) communications of the Code of Ethics (the teaching profession code of ethics regulation 2018) with clear guidance on how the code is enforced, particularly on corporal punishment, violence and SBGBV; (c) implementation of a child friendly Grievance Redress Mechanism (GRM) with related communication and sensitization efforts at the school and community level; (d) training to guidance and counselling teachers who will serve as Gender Focal Points for schools together with relevant Zonal representatives. The training will focus on the support to be provided for survivors of GBV and students at risk following national protocols. These activities will be informed by international best practices, as well as the experience of ongoing programs. They will be implemented by NGOs with community support and close collaboration with parents and community leaders. The sub-component will also support specific outreach to at-risk girls with referrals to health and GBV-related services, as well as programs to facilitate the reentry of girls who are out of school, possibly including accelerated programs. These activities will be implemented in coordination with KGS, particularly in relation to the case management system that is being developed for KGS beneficiaries. The development of GBV Referral Pathways will be supported by KGS.

AF2 proposes changes to the following activities below. Activities that were aimed at supporting interventions that have already been implemented or to be implemented within the Government wide program, including those supported by other partners, have been dropped.

1. **Component 1: Improving the quality of teaching and learning conditions in language arts, science, and mathematics in targeted primary and secondary schools** All the three subcomponents of 1.1, 1.2 and 1.3 are maintained. However, support for some activities will only focus on providing technical support while their full implementation will be undertaken by the Government through its own sector wide program.

**Subcomponent 1.1: Enhancing teaching competencies** (IDA contribution is US\$35.0 million, including ZEEP of US\$14 million, and first AF of US\$xx0 million equivalent)

This subcomponent focuses on improving teacher competencies through support for: (a) the development of a competency-based Teacher Professional Development Index (TPDI), which will specify the competences required for serving teachers as they progress through their careers;

and (b) the development and delivery of competency-based training packages/modules in language arts, mathematics, and science to enhance pre-service teacher training in colleges of education and universities and in-service training in targeted schools.

Subcomponent 1.1 has nine key discrete activities. These are: (a) the development of a multipurpose, competency-based TPDI based on the Standards of Practices for the Teaching Profession in Zambia and international best practices; (b) revisions to the current framework for in-service training and the upgrading of the CPD; (c) a baseline survey designed to assess subject and pedagogical content knowledge among primary and junior secondary teachers in targeted schools; (d) the development of corresponding in-service training packages/modules; (e) the training of primary and junior secondary school teachers in targeted schools; (f) the provision of assistance to targeted teacher-training colleges to enhance their capacity to deliver education programs by upgrading the framework for preservice teacher education, and developing a generic curriculum framework for diploma programs in collaboration with the Teacher Education and Specialized Services (TESS), Curriculum Development Center (CDC), and Teaching Council of Zambia (TCZ), and a practicum which includes course and mentorship assessments; (g) the development of a Teacher Portal that provides access to digital teaching and learning resources and the provision of appropriate hardware (that is, tablets for targeted schools) and software; (h) training of school leadership team to provide support to the teachers; and (i) improvement of relevant resource centers to support teachers training and school leadership. The preservice and in-service training will place significant emphasis on gender-sensitive pedagogical approaches and strengthening girls learning and educational attainment and on effective implementation of the Code of Ethics, particularly in relation to SRGBV.

Proposed changes include (i) project finance to support technical assistance for activities (b), (f), (g), (h) and (i). The GRZ will finance the review of the teacher training frameworks, including CPD and colleges of education curricula which directly link to the planned intervention under activities (b) and (f). The GRZ will finance the hardware required for activity (g), and I utilize the existing infrastructure in its colleges of teacher education. The GRZ has planned to revamp the teacher resource centers country wide. To align with this plan, activity (i) is reoriented to limit project support to assessment that will undertake a stock taking exercise on the requirements for revamping the resource centers, including computers and printers.

**Subcomponent 1.2: Increasing the availability of teaching and learning materials in language arts, mathematics, and science<sup>17</sup> in targeted primary and secondary schools** (IDA contribution is US\$xx million including ZEEP of US\$10 million and first AF of US\$xx million equivalent))

This subcomponent aims to increase the availability of teaching and learning materials in language arts, mathematics, home economics, and science in targeted schools to address the severe textbook shortage. A total of 2,700 primary and secondary schools are expected to benefit from the provision of the textbooks in the focus areas to be supported by the project. Ten discrete activities were defined for this subcomponent including: (a) the assessment, redesign and improvement of the Recipient's current textbook management system, including planning, procurement, delivery and tracking of textbooks; (b) the procurement, distribution, and tracking of textbooks, laboratory equipment, and reagents, as applicable, in language arts, mathematics, home economics, and science from Early Childhood Education (ECE) to 12 in targeted schools; (c) the provision of story books in local languages for ECE and early grades; (d) the compilation and use of local stories and folklores in collaboration with the local community; (e) the provision

of reading corners in grades 1 to 4; (f) the development of teacher guides; (g) the adaptation of select materials into e-format; (h) the adaptation of materials for children with special learning needs and the provision of assistive aid and equipment for those children; (i) the development, validation, printing and distribution of curricula framework and syllabi; and (j) the development of materials on school-related gender-based violence, including sexual exploitation and abuse and comprehensive sexuality education.

Proposed changes include (i) reduction of project finance for activity (b) to only include the procurement, distribution and tracking of textbooks for Grades 1-12. ECE titles will be supported through the Zambia Enhancing Early Learning (ZEEL project, P174012). The provision of laboratory equipment and reagents has been taken to Component 2. Furthermore, the project will support the printing and distribution of language art titles which have already been developed by MoE. (ii) drop activities (c), (d), (e) and (g) as Government is already implementing these activities through its own sector wide program, (iii) use project finance to only support adaptation for activity (h), development for activity (i) and costs associated with review of the already developed material. Printing and distribution costs for these activities to be covered through GRZ sector wide program.

**Subcomponent 1.3: Improving teacher recruitment, deployment, and management and reducing teacher shortages in targeted primary and secondary schools** (First AF of US\$10.0 million equivalent)

This subcomponent aims to support the MoE and Teaching Service Commission (TSC) to transform the current policies, regulations, and guidelines on teacher recruitment, deployment, and management based on international evidence. Seven activities are currently defined for this subcomponent including: (a) the development and implementation of a TPDI-based teacher selection and evaluation process (similar to merit-based teacher recruitment) to ensure that newly recruited teachers meet the relevant standards; (b) the design and pilot of a teacher internship program to create a pool of candidates, who are well prepared to join the teaching profession. Clearly defined guidelines which include mentorship will be developed. This would include: the performance indicators for intern teachers, period for the internship, and monthly stipend; (c) the design and establishment of a teacher database compiled through a comprehensive teacher census, including all necessary hardware and software, as well as instruction in the management and use of the database; (d) redeployment of teachers through correction of payroll mismatches; (e) research on failure of the current incentive system for retention of teachers in rural and remote areas; (f) strengthening the mechanisms and capacity for addressing teachers' grievances; and (g) an increase in the supply of teachers in targeted schools, both through annual recruitment and through the redeployment of teachers by addressing payroll mismatches in the targeted schools.

Proposed changes include: (i) drop activity (b) since the GRZ recently completed recruitment of 30,000 teachers and further annual recruitments are expected going forward; (ii) support for activity (c) to be restricted to technical assistance in designing the database; software; and development of instructions in the management and use of the database as well as support to undertake the survey. The project will benefit from the GRZ system wide information and communication technology (ICT) project being implemented by ZICTA, and Smart Zambia; (iii) since the teacher shortage will be addressed as part of the broader GRZ annual employment of teacher, activity (d) is reoriented to focus on supporting government address the issue of payroll mismatch and develop a teacher management strategy; (iv) reorient activity (e) to an

evaluation of the current system for recruitment and retention of teachers to inform further improvement to the decentralized recruitment process adopted by the GRZ; (v) limit support for activity (f) to monitoring of implementation. GRZ will review and implement the existing systems for addressing teacher grievances. Continuous engagement with key stakeholders such as teachers' unions will be an integral part of the implementation.

**Component 2: Increasing access to safe secondary schools** This component aims to address the acute shortage of secondary school spaces and the long home-to-school distance, which is a key barrier for girls' access to secondary education in Zambia. Eighty-two (82) secondary schools are currently under construction in the seven provinces of Central, Eastern, Luapula, Lusaka, Muchinga, Northern and Southern. An additional 120 schools were earmarked to be built in all the 10 provinces including Copperbelt, North-Western and Western. This investment will increase the current number of secondary schools by about 20 percent. Weekly boarding facilities for both boys and girls, through the costed national school infrastructure development plan is also planned to be built in 25 schools. Furthermore, the construction of teachers' residences was expected to be built on a needs-basis with water and sanitation facilities<sup>18</sup>, and electricity provision, as well as the rehabilitation of existing structures that pose safety risks to students and teachers. While construction of secondary schools will be nationwide, the critical rehabilitation, WASH, teacher residences, electricity provision, etc. will be focused on the project target schools. The ZEEP resources are not meant to supplant public or any other funding provided for school rehabilitation, refurbishment, and maintenance. The project school designs contributes to minimizing the effects of extreme temperature, extreme flooding, and drought on the physical infrastructure of the project.<sup>19</sup> Other planned activities include supporting training of province and district-level building officers and engineers, technical supervisors, and community-level Project Implementation Committees (PICs) on procurement, financial management (FM), and technical aspects of construction; use of a tablet-based monitoring system and related training; hiring of an independent construction supervision and support consultant; and monitoring by national, provincial, and district teams comprising relevant officials.

To forge stronger synergy with the KGS component of the GEWEL Project, need-based weekly boarding facilities will be constructed, and WASH facilities will be provided in the schools hosting a sizable number of KGS beneficiary girls. All construction financed under ZEEP will adhere to defined quality standards and disability friendly norms.

The current school package include: (i) 1x2 and 1x3 classroom block, (ii) 1x2 science laboratory and home economics block, (iii) 2 ablution blocks for girls and boys respectively, (iv) 4 teacher houses, (v) an administration block. Water reticulation, furniture, laboratory and home economics equipment are also part of the package.

**Proposed changes.** All activities will be retained with revision to the *school construction package*. The proposed revision only applies to the 120 additional schools (including 25 schools with boarding facilities) yet to be constructed include:

- **Increase the number of science laboratories** from one (1) to three (3), to meet the minimum number of laboratories required for a school to qualify as an examination center;

- **Introduce a computer and library rooms** to facilitate for the implementation of ICT curriculum to prepare students for the future of work, and to promote a culture of reading and research;
- **Increase the number of teachers' houses** from 4 (four) to 12 (twelve) in line with the minimum number of teachers' houses as required at each school in view of the lack of housing availability for rent in rural and remote areas where most of ZEEP supported schools are located;
- **Introduce a school hall** to provide conducive environment for school assembly and other events such as national examinations; and
- **Introduce a sickbay/health room** for the treatment of the sick within a school

**Component 3: Strengthening institutional capacity for education service delivery and project management** (IDA contribution is US\$*x* million, including ZEEP of US\$9 million and first AF of US\$*xx* million equivalent).

**Subcomponent 3.1: Strengthening institutional capacity for education service delivery.**

This subcomponent aims build capacity of the MoE and its affiliated institutions to deliver better results including use of data for decision making. Therefore, activities include (a) trainings to build the planning, management, and M&E capacity of the MoE and relevant institutions; (b) improving education data management, analysis, and use by upgrading the centrally managed EMIS; (c) completing the school Global Positioning System (GPS) map to enable real-time monitoring, decision making, and resource allocation, including in response to climate and disaster risks; (d) conducting policy studies, surveys, and evaluations as well as qualitative reviews of teacher training, school construction, and the implementation of digital technologies; and (e) improvement of MoE ICT infrastructure and capacity to support all ICT systems including Education Management Information System (EMIS), Project Information Management System (PMIS), Financial Management System (FMS).

Proposed changes include (i) reorient activity (a) to focus project support to key areas based on needs assessment. A needs assessment will be undertaken and the findings will inform the training packages to be supported by the project, (ii) hardware and software requirement under activity (b) to be supported through GRZ budget, including through the system wide ICT project being implemented by ZICTA, and Smart Zambia; and (iii) project finance to support technical assistance for activity (e) as necessary. The activity will benefit from the GRZ system wide ICT project being implemented by ZICTA, and Smart Zambia.

**Subcomponent 3.2: Project management, coordination, and communication:** This subcomponent aims to ensure that there is effective project management, coordination and communities. It covers support to ensure the project has sound governance structure, fiduciary arrangements and safeguards. The project's implementation arrangements rely on the MoE's existing institutional framework. The MoE is the implementing agency, with full responsibility for all aspects of the project. The implementation arrangements are mainstreamed with respective directorates and agencies identified for each intervention taking the lead in implementation for better ownership, sustainability, systemic impact, and in-house capacity building. The Project Implementation Steering Committee (PISC) expected to be chaired by the Minister of Education provides oversight and guidance and facilitate interdepartmental coordination on implementation activities. The Project Implementation Committee expected to

be chaired by the Permanent Secretary, Administration regularly monitor project management and implementation.

The defined PIU called the Zambia Education Program Coordination Unit (ZEPCU) will be staffed with project implementation staff and consultants with appropriate skills, expertise, and experience selected competitively is responsible for day-to-day coordination, monitoring and evaluation and providing technical assistance to the mainstream directorate/department/agency, who will be directly responsible for project implementation and achieving results. The ZEPCU will directly report to the Permanent Secretary Administration for administrative issues and Permanent Secretary Education Services for operational issues.

Proposed changes include (i) the chair of the Project Steering Committee to change from the Minister of Education to the Permanent Secretary Administration. The Minister is expected to provide last resort remediation for the Ministry if resolution fails at technical level; (ii) the chair of the project implementation committee to change from the Permanent Secretary Administration to Permanent Secretary Education Services who supervises most Directorates in charge of implementing project activities; and (iii) establishment of the Grievance Redress Mechanism dropped and moved to component 4.

#### **Component 4: Enhancing institutional capacity for implementation of safe school program (AF of US\$9 million equivalent)**

This component is aimed at strengthening the institutional mechanisms within the school and the community to prevent and address issues of violence including SRGBV, protecting girls from sexual abuse and exploitation, and equipping schools with knowledge and information on ensuring child safety and effectively responding to violence against children.

This component focuses on: (a) training and empowerment of guidance and counseling teachers as the school level gender focal point, the school management, specifically the school heads and relevant zonal representatives; (b) the development and implementation of safe school plans; and (c) supporting schools and communities by ensuring access to institutional mechanisms identified in the referral pathway, (v) provision of support to the school-related gender-based violence survivors. Gender focal points and zonal representatives will serve as the main point of contact on school violence and SRGBV and will also be critical in terms of student sensitization and participation along with outreach and engagement with the Parent-teacher Associations (PTAs), School Management Committee (SMC), community, families, and parents. Additionally, the training will help the schools develop safe school plans using a Whole of School approach which will ensure sensitization of all stakeholders, including teachers, school heads, administrative staff, including Provincial Education Officers (PEOs), and District Education Board Secretary (DEBS), counsellors, union leaders, parents, community leaders and students. These plans will address key issues related to school-related violence including SRGBV and the provision of community-based safe passage to school, life skills programs for girls and boys which focus on non-violent conflict resolution, assertiveness, reproductive health, inclusion, and diversity, and relevant outreach and sensitization.

The MoE works with nongovernmental organizations (NGOs) to promote girl's participation in education. Therefore, an NGO with experience in these areas recruited by the MoE was expected to be recruited to support implementation of this component. The component is also expected to support specific outreach to at-risk girls with referrals to health and GBV-related services, as well as programs to facilitate the reentry of girls who are out of school, possibly including

accelerated programs. These activities were expected to be implemented in coordination with KGS, particularly in relation to the case management system that is being developed for KGS beneficiaries and the GBV referral pathways work which is being done by the GEWEL AF and will begin in schools serving KGS girls.

Proposed changes include (i) introduction of the establishment and maintenance of a grievance redress mechanism for school-related gender-based violence, including sexual exploitation and abuse, an activity dropped under component 3.2.

**Component 5: Contingent Emergency Response Component (CERC) (US\$0).**

This component is included in accordance with World Bank IPF Policy, contingent emergency response through the provision of immediate response to an Eligible Crisis or Emergency, as needed. It will allow the Government to request from the World Bank rapid reallocation of project funds to respond promptly and effectively to an emergency or crisis (such events may include a disease outbreak). This would be the result of a natural disaster or crisis that has causes or has potential to cause major adverse impact on the education sector. An operation manual for this component will be developed by the MoE within six months after effectiveness.

**1.10 Safeguards Approach**

The project includes a number of activities for which screening may be required leading to preparation of Environmental and Social Management Plans (ESMP’s). The construction of additional classrooms, science laboratory, home economics rooms, teachers housing, provision of sanitation and the connection of power would require screening and where an activity specific generic ESMP is developed to be applied in all beneficiary areas. The ESMF provides the procedures to address the environment and social risks. However, the details under this sub-component such as the site details, including designs are expected to be available during the course of project implementation. Table 2 highlights the anticipated activities, subprojects and investments envisaged under the project.

**Table 2: Anticipated Sub Projects and Activities**

Project Category	Project Component	Anticipated Sub-Projects
Infrastructure/Construction related	<b>Component 2</b>	<ul style="list-style-type: none"> <li>• Construction of additional classrooms, administrative blocks, laboratories and home economics facility at beneficiary schools.</li> <li>• Construction of dormitories for learners.</li> <li>• Construction of staff houses.</li> </ul>
Water and Sanitation		<ul style="list-style-type: none"> <li>• Sinking of boreholes for portable water</li> <li>• Construction of septic tanks and soak away</li> <li>• Construction of ablution blocks</li> <li>• Construction of incinerators for disposal of sanitary pads</li> </ul>



Project Category	Project Component	Anticipated Sub-Projects
Provision of Power Supply		<ul style="list-style-type: none"> <li>• Connection of power supply to beneficiary schools located in close proximity to the power grid.</li> <li>• Installation of off grid solar power to beneficiary schools</li> </ul>
Provision of ICT Equipment		<ul style="list-style-type: none"> <li>• Supply of tablets and computers to schools</li> </ul>

In addition, the World bank requires that a Gender Based Violence (GBV) assessment is conducted in order to assess possible risks and impacts that the project may have on surrounding communities. The assessment takes note of existing legislation on prevention of GBV as advocated in the Anti-Gender Based Violence Act of 2010 which provides for the protection of victims of GBV. It is important to note that the project will be implemented in rural areas where communities have limited access to health services and existing economic inequalities in these areas mostly disadvantage women and children, putting them at risk to exposure of inappropriate behavior. To mitigate against this risk, preventive measures in line with the World Bank Good Note Practice on GBV have been proposed. Furthermore, a Grievance Redress Mechanism (GRM) will be provided through the communications strategy for reporting of GBV cases that may arise during the project cycle.

### 1.11 Potential Impact and Bank Policies Triggered

During the implementation of the project and associated subprojects, preparation, construction and operational activities are likely to result in the following environmental and social impacts; loss of vegetation, generation of general and construction waste, surface and ground water contamination, elevated dust and incinerator emission levels, increased safety and security risks for community and staff/learners, increased incidences of HIV/AIDS. The purpose of the ESMF is to anticipate and provide guidance to effectively mitigate such adverse impact during project implementation. Since most of the specific beneficiary schools and locations have not yet been agreed on, the ESMF will guide on the step by step screening process of subprojects, assessment of environmental and social risks, institutional arrangement for implementation and the monitoring regime. The ESMF also includes provisions related to compliance with the World Bank safeguard policies and national requirements.

### 1.12 Project Categorization

The project is categorized as Environmental **Category B** and triggers the safeguards policy on Environmental Assessment OP/BP 4.01 by Component 2. This component involves the construction of additional classrooms and support facilities at already existing schools across Zambia. The support facilities will include the provision of sanitation facilities such as toilets and the sinking of boreholes to provide potable water to pupils and staff. From the 120 selected beneficiary schools, 25 of them will host weekly boarding facilities (dormitories) for boys and girls. Because the exact locations of schools to benefit from the project have not yet been established, the MoE, with the guidance of the World Bank, has developed and disclosed an

ESMF that provides a detailed step-by-step process for identification for screening of critical environmental and social risks on the project. The instrument further provides mitigation and monitoring plans, including institutional arrangements for safeguards implementation and capacity building. A generic Environment and Social Management Plan (ESMP) has also been developed to guide the Ministry and contractors in monitoring and implementing mitigation measures. The ESMF was disclosed by MoE on June 6, 2017, subsequently revised in January 2023 on account of the project restructuring.

Because the project will not involve activities or subprojects that require an Environmental and Social Impact Assessment (ESIA), the ESMP will provide the best practices for waste management and any other safeguards concerns that will be identified during project implementation. Sub-projects posing substantial E&S risks and impacts will be considered ineligible to be processed under the project.

### **1.12.1 OP/BP 4.01 - Environmental Assessment**

The safeguards policy on Environmental Assessment is triggered as component 2 of the project will involve the construction of additional classrooms, teachers housing, connection of power from the national grid or onsite solar installations and support facilities at already existing schools across Zambia. The support facilities will include the provision of sanitation facilities such as toilets and sinking of boreholes in order to provide potable water and sanitation to Learners and staff. Since the beneficiary schools and the exact locations have not yet been established, the MoE with the guidance of the Bank has developed an ESMF to assess the potential environmental and social risks on the project. Furthermore, a generic ESMP has been developed to guide the ministry and contractors in monitoring and implementing mitigation measures. Since the project will not involve activities or subproject that require an Environmental and Social Impact Assessment (ESIA). The ESMP will provide the best practices for waste management and any other safeguards concerns that will be identified during project implementation.

The expansion of access to secondary education entails construction of classrooms and related facilities. The additional facilities will be built in rural areas only, within existing school perimeters, where land is already allocated for educational purposes and there is no encroachment. For this reason, a separate **Resettlement Policy Framework** is not required.

### **1.13 Institutional and Implementation Arrangements**

The proposed project will be implemented from 2017 to 2025. The MoE will be the implementing agency with the full responsibility for all aspects of project implementation. Each component will have a lead department/unit within MoE to be accountable for the successful implementation of the component.

#### **1.13.1 Directorate of Teacher Education and Specialized Services**

For teacher quality improvement (Sub-Component 1.1), the Directorate of Teacher Education and Specialized Services will coordinate the execution of piloting the new approach for improving teacher competencies and skills in mathematics and Science teaching through specific taskforces (e.g., for training material development and for monitoring and evaluation). Each taskforce will be managed by a staff from the Directorate who is appointed by the PS with a clearly defined mandate. The members of the taskforce will represent the institutions which will jointly implement the pilot, e.g., the Teaching Council of Zambia (TCZ), MoE's Curriculum

Development Center (CDC), the Examination Council of Zambia (ECZ), the National Science Center (NSC), University of Zambia (UNZA), and Colleges of Education (CoEs). Each taskforce will have a clearly defined terms of reference for the scope and responsibilities related to the pilot.

### **1.13.2 Procurement and Supply Unit and Directorate of Standards and Curriculum**

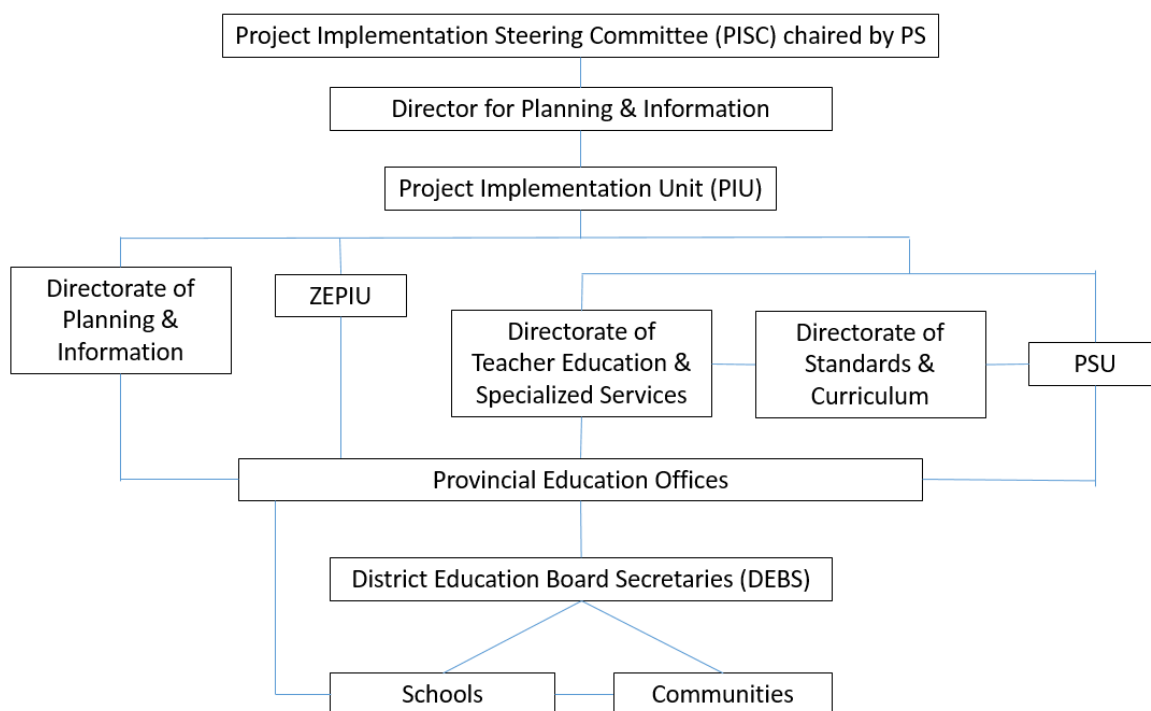
For textbook management system improvement and procuring actual textbooks (Sub-Component 1.2), its implementation will be jointly led by the Procurement and Supply Unit (PSU) and the Directorate of Standards and Curriculum within the MoE. Using the improved textbook management system, the actual procurement of textbooks for secondary education under the project will be carried out centrally by PSU. The delivery of the procured textbooks to secondary schools will be managed by PSU through Provincial Education and District Education Board Secretaries (DEBS) offices. The tracking of the delivery will be conducted by CDC.

### **1.13.3 Zambia Education Project Implementation Unit**

For new classroom constructions (Component 2), its implementation will take a community-based approach and be managed from the Zambia Education Project Implementation Unit (ZEPCU) at MoE. ZEPIU will oversee the technical quality control of Provincial Education Offices in construction and the coordination of DEBS for community mobilization and training. Each selected school for expansion will work with its community and form a joint committee or taskforce to manage day-to-day construction affairs such as material procurement and finance and maintenance. To ensure the phased construction work will be implemented on schedule and reach the construction targets for receiving the disbursement of the project funding, an independent verification agency will be hired by the Ministry to verify (1) the presence of ESMP and the implementation of mitigating measures during construction; and (2) the achievement of the agreed results. The verification of ESMP is included in the verification protocol of DLI 5 in the Project Appraisal Document.

### **1.13.4 Directorate of Planning and Information**

For capacity building activities and the overall project coordination and administration (Component 3), the Directorate of Planning and Information will manage and supervise their implementation. The diagram below outlines the implementation arrangement of the project among key players



**Figure 1: Outline of Implementation Arrangement**

### 1.13.5 Implementation at Various Levels

Project implementation will be in 4 levels namely at National, provincial, district and community level as detailed below (refer to figure 1);

**National level:** The implementation team will comprise the MoE staff in the Infrastructure section under the Directorate of Planning and Information. It will consist of architects, engineers and quantity surveyors. This team will be led by an architect and will be responsible for the oversight of the component implementation at national level. It will work with the procurement unit in the Ministry to procure all services, furniture and equipment that shall be procured centrally.

**District /Provincial level:** At provincial level the sub-projects will be coordinated by a team of two staff comprising the Resident Engineer and Senior Buildings Officer both under the MoE. The team leader will be the Resident Engineer. At district level the sub-projects will be coordinated by the DEBS office which shall include the District Buildings Officer under MoE and other officers as may be determined by the DEBS to facilitate community mobilization and training. In the event of complete decentralization, the link will be from the Resident Engineer at provincial level to the school/local community.

**School/Local Community level:** At this level a Project Implementation Committee (PIC) will be elected to coordinate project implementation activities. The PIC will report to the Parents and Teachers’ Association (PTA) and the DEBS or PEO and it will have sub-committees such as the Procurement sub-committee responsible for material procurement, The Store sub-committee will be responsible for material and tools storage and issuance, and the Finance committee will be responsible for ensuring that the project is funded and that all payments are timely.

In addition, ZEPCU will be accountable for the implementation of the ESMF. At the community mobilization stage, ZEPCU will review the construction action plan and the ESMP submitted by the Project Implementation Committee of the community of each selected expansion school. The EMSF implementation take place within the overall framework of the ZEEP program implementation arrangements. Should the current institutional arrangements change, then the proposed ESMF implementation arrangements should be adjusted accordingly.

### 1.13.6 Project Steering Committee

A Project Implementation Steering Committee (PISC) will be established and meet biannually to provide oversight and guidance to facilitate inter-departmental coordination on implementation activities. The Committee will be chaired by the Permanent Secretary (PS) for MoE and comprise decision-making representatives from involved provincial and district education offices; from involved departments/units inside the MoE including the Director for Planning and Information, the Director for Teacher Education and Specialized Services, the Director for Standards and Curriculum; from the Ministry of Finance, the Ministry of National Development Planning, and the Ministry of Housing and Infrastructure Development; as well as the chief coordinators responsible for each component and the Project Coordinator.

**Table 3: Composition of Steering Committee**

Organizations	Units	Representative on Steering Committee
Ministry of General Education	Chairman	Permanent Secretary
	Project Implementation Unit	Project Coordinator
	Directorate of Teacher Education and Specialized Services	Director
	Procurement and Supply Unit (PSU) and the Directorate of Standards and Curriculum	Director
	Zambia Education Project Implementation Unit (ZEPIU)	Director
	Directorate of Planning and Information	Director
Ministry of Finance		Permanent Secretary
Ministry of National Planning		Permanent Secretary
Ministry of Housing and Infrastructure Development		Permanent Secretary

## **2 CHAPTER 2. METHODOLOGY**

### **2.1 Review of Literature**

Secondary sources of information were obtained through a review of available documents, as well as consultations held with key stakeholders across the country. Existing literature was the primary source for describing institutional, policy and legal frameworks. From the literature, all possible envisaged environmental and social impacts were listed and evaluated based on policy and legal requirements using matrices and maps. The data on geology and soils, climate, water resources, biodiversity, human and ecosystems were obtained from existing literature.

World Bank related documents

- Aide Memoire for the ZEEP-AF
- Project Appraisal Document (PAD)
- ZEEP AF Project Paper
- World Bank Safeguards Policies
- ESMF for ZEEP-Phase 1

Legislative documents

- The Constitution of Zambia
- The Environmental Management Act
- The Environmental Impact Assessment Regulations
- The Water Resources Management Act
- The Forests Act
- The Wildlife Act
- The Lands Act
- The Lands Acquisition Act
- The Employment Act
- The Public Health Act
- The Occupational Health and Safety Act
- The National Heritage and Conservation Act

### **2.2 Analysis of Baseline Environmental Data**

The ESMF recognizes the existence of available environmental baseline information. This data was compiled with the purpose of describing and evaluating the current environmental status of targeted project across Zambia. The baseline information included environmental information relevant to all project components, drawing on existing information from projects in the targeted areas. The description of the baseline environment was based on the following data:

- Physical environment: the information collected included geology, topography, soils, climate and ecosystem and hydrology.
- Biological environment: data on flora, fauna, endemic and endangered species, critical/sensitive habitats, including protected areas and reserves was collected.

### **2.3 Site Visits and Workshop Discussions**

Site visits were conducted as part of the design process of the project to the intervention areas in beneficiary areas as well as in the surrounding districts. Additionally, a stakeholder workshop took place during the project preparation process (Annex 6).

### 3 CHAPTER 3: PROJECT BASELINE INFORMATION

#### 3.1 Baseline Information

Baseline information includes description of the current situation in terms of the socioeconomic environment, ecological and physical environment. Zambia is divided into ten provinces namely; Central, Copperbelt, Western, North-Western, Eastern, Northern, Muchinga, Luapula, Lusaka and Southern. The proposed ZEEP-AF will be implemented across the ten province of Zambia and will involve construction of additional classroom blocks and support facilities on plots of selected existing primary schools across the country to create a secondary school sections that will be managed independent of the parent primary school.

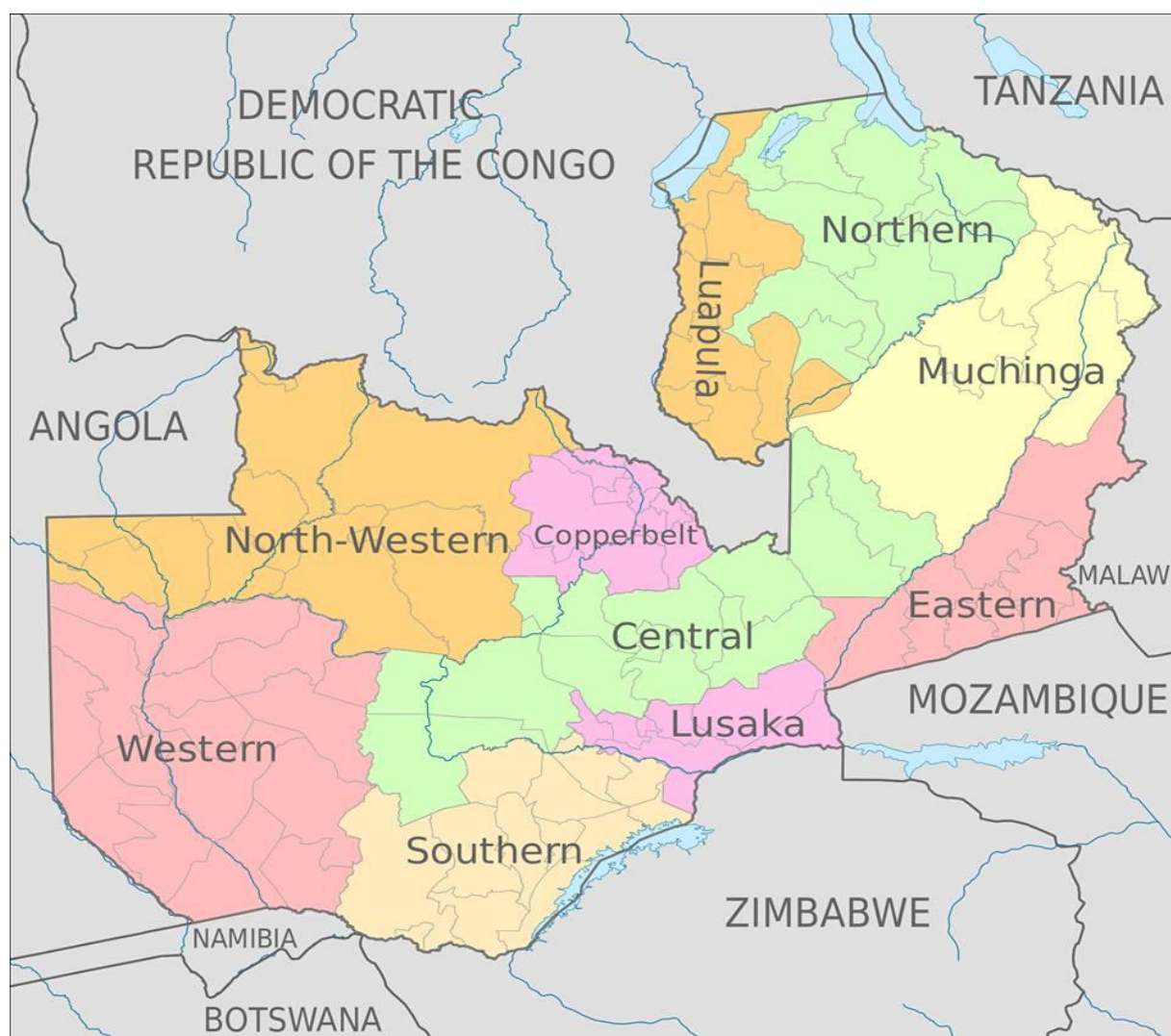


Figure 2: Map of Zambia and the 10 Provinces (Sourced from, <https://zambiareports.com/wp-content/uploads/2015/11/Zambian-Map.jpg> )

## **3.2 Physical environment**

### **3.2.1 Topography**

In terms of topography Zambia is on the great plateau of Central Africa, at an average altitude of 1200m. The lower parts of the plateau have a reliable supply of water during the dry season and they are flooded in the rainy season. Zambia is high plateau, deeply entrenched by the Zambezi River (and its tributaries, the Kafue and Luangwa) and the Luapula River. The Zambezi flows to the south, turning east towards the Zimbabwe border areas. The northern part of Zambia has three major lakes namely, Tanganyika, Mweru and Bangweulu while Kariba stretches along the southern borders with Zimbabwe. In the Eastern part, the Mafinga Mountains form part of a great escarpment running down the east side of the Luangwa river valley. The country rises to a higher plateau in the east. The country has three main topographical features:

- Mountains with an altitude of at least 1500m;
- A plateau with an altitude ranging from 900 to 1500 m; and
- Lowlands with an altitude of between 400 and 900m.

### **3.2.2 Soils**

Soils in Zambia have been formed from a great diversity of parent materials. However, the characteristics and distribution of the soils are largely influenced by climate particularly rainfall. Zambia lies roughly between latitudes 8° and 18° south of the equator. Zambia experiences strongly clear rainy and dry seasons, the rainy season starts late October in the north and November in the south and lasts up to April and March respectively. Mean annual rainfall exceeds 1100mm in the western part of Northern and the northern part of North-Western Provinces, decreasing southward to Southern Province, only 700mm in southeastern margin of the country. Mean annual temperatures range between 19–22°C except in the major river valleys of Zambezi, Luangwa and Luapula. Zambia ranges roughly between 600m and 2000m in the elevation, and it consists of level to gently undulating plateau except the escarpments zones which divide the middle Zambezi and Luangwa valleys.

Geomorphology of Zambia has shown the first four legends as Montane Zone, Central African Plateau, Escarpment Zone and Rift Trough, respectively. The latter two topographical features show the elevation from transitional to lower one. Zambia is underlain by a wide range of rock types. Except the Kalahari system that has been formed from the tertiary to recent period and has covered the west and north-west side of the country, such igneous rocks as granite, gabbro and others in various ages probably older than the Pre-Cambrian period, and the Basement complex which consisted of ancient crystalline rocks like schist, gneiss, quartzite and migmatite in the Pre-Cambrian period formed the Central African Plateau in the north, east and south-east side of the country. In the south-west, west and north-west side of the country, such sedimentary rocks as shale, sandstone, mudstone and limestone in the Katanga system, and in the east, south-east side of the country, lava (basalt), marl, sandstone and others in the Karroo system both from the Lower Paleozoic to the Mesozoic periods also formed the stable land blocks overlying the Basement Complex. These systems and the Complex accompanied by repeated folding and metamorphism through the geological ages have altered the original of the rocks, followed by their slow protrusion, erosion and weathering, various types of soils were formed.



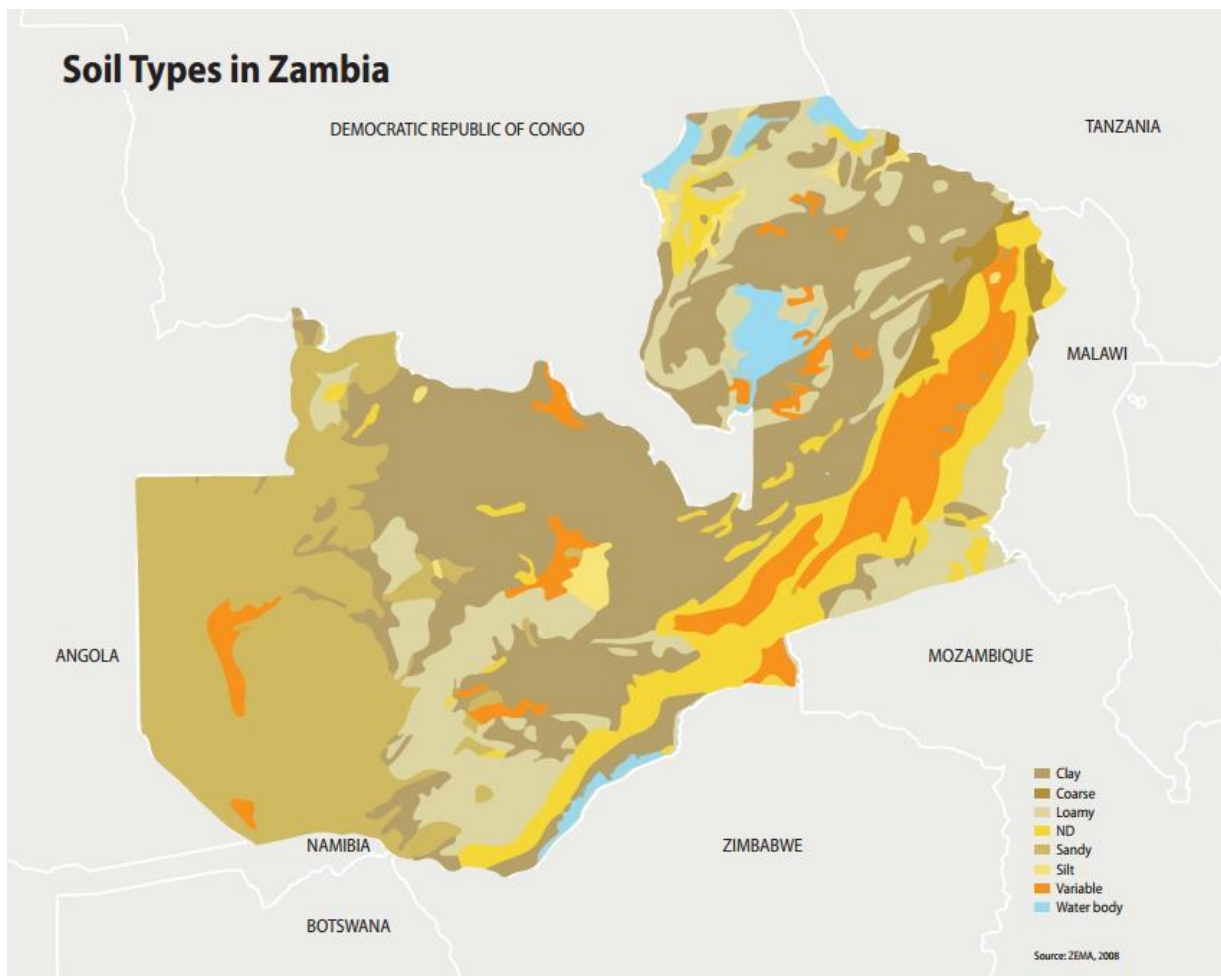


Figure 3: Soils of Zambia ( Sourced from [http://www.africaein.net/res/zm/about-3 Soil%20Types%20in%20Zambia%20.pdf](http://www.africaein.net/res/zm/about-3%20Soil%20Types%20in%20Zambia%20.pdf)).

### 3.2.3 Hydrology

Zambia is drained by the Congo in the north and Zambezi in the south. The main Zambezi drainage system occupies most of the western portion of the country and some discontinuous areas in the south. The Kafue system originates in the Copperbelt region and drains the central region of the country. The Luangwa system, with its tributary of Lunsemfwa, drains much of the eastern parts of the country. In the north the Chambeshi River originates in the north-east and drains much of the southern parts of Northern Province before discharging into the Bangweulu swamps. The drainage into Lake Tanganyika in the north consists of the Lufubu and some minor streams. Almost all the rainfall in the country falls during the period November to April, so that the dry season months of May to October do not contribute to stream flow. Consequently, most small streams dry up while in the many larger streams flow is reduced to a small fraction of the wet season discharge. Surplus water (i.e., the amount of precipitation that goes to stream flow and groundwater recharge) varies throughout the country but ranges from 150 – 550 mm in the Copperbelt and Northern Provinces and northern parts of eastern Province to 50 – 100 mm in Central, Lusaka, Southern and Western Provinces and the southern parts of eastern Province. Runoff in the Luangwa basin is approximately 13% of the mean yearly rainfall compared to 24% in the Kafue basin. The quality of water is generally good except in the Kafue River system where surface water may be contaminated in some places due to industrial, urban and agriculture activities.

Natural wetlands in the form of swamps and floodplains hold considerable amounts of runoff water but also lose a lot of water through evaporation especially in the dry season. Dambos are seasonal wetlands that are waterlogged during the wet season and occur in the upper reaches of drainage systems and constitute up to 10% or more of the landscape on the plateau.

### **3.2.4 Climate**

The climate in Zambia is characterized by alternating wet (rainy) and dry seasons. The rainy season lasts from November to March or April. Rainfall in Zambia is influenced by the southward movement of the equatorial low-pressure belt in the summer months that is linked to the migration of the overhead sun and the Inter-Tropical Convergence Zone (ITCZ) which is a zone in which the Congo air and southeast and northeast trade winds converge. The mean annual rainfall distribution in Zambia is characterized by a decrease from north to south (Figure 4.2) that may be attributed to the shorter time the south is influenced by the ITCZ. The coefficient of variation (CV) of annual precipitation currently ranges from 10 – 20% in Copperbelt and Northern Provinces and the northern districts of Kalabo and Lukulu in Western Province to 20 – 30% in Central, Eastern, Lusaka and Southern Provinces and the rest of Western Province.

In the north, rainfall is 1,250 mm or more a year decreasing southwards to Lusaka where it is about 750 mm. South of Lusaka climate is dictated more by the east and southeast trade winds which have lost much of their humidity so far inland. Rainfall in this area is between 500 and 750 mm. In some years the influence of the tropical zone is felt further to the south, resulting in excessive rain in the Southern Province and partial drought in the north. Except for very rare showers in August, rain is confined to the wet season, which sometimes starts as early as October and finishes as early as March. At the height of the rainy season, it rains on seven or eight days out of ten.

Average temperatures are moderated by the height of the plateau. Maxima vary from 15 - 27°C in the cool season with morning and evening temperatures as low as 6 - 10°C and occasional frost on calm nights in valleys and hollows which are sheltered from the wind. In the cool season, the prevailing winds, dry south easterlies, come from the southern hemisphere belt of high pressure. Invasions of cold air from the south-east bring cloudy to overcast conditions. During the hot season maximum temperatures may range from 27 - 35°C. However, the mean annual temperature ranges between 18 - 20°C. The highest annual average temperature is 32°C and the lowest temperature averages 4°C. Annual temperature variation is greatest at Livingstone, the most southerly town and least at Mbala, the town nearest the equator.

### **3.2.5 Climate Change**

Climate change has emerged as one of the world's greatest developmental challenges in the 21st century. Across the globe climate change has caused serious damage to the environment and to human life in general. According to expert assessments, global warming is expected to have worst impacts in Africa, South and West Asia; suggesting that developing countries are more vulnerable to climate change than developed countries. If left unabated, climate change threatens to reverse hard-earned developmental gains made over the decades, but timely national responses to mitigate and adapt to climate change impacts can abate the situation (Rosemary Fumpa -Makano, 2011).

## **Integrating Climate Change in Education at Primary and Secondary Level**

By raising awareness and promoting knowledge and skills-development, education is an essential component and a catalyst for responding to global climate change. Its importance has been increasingly highlighted at the international level. In particular, Article 6 of the UN Framework Convention on Climate Change (UNFCCC) to encourage Parties to promote, develop and implement educational, training and public awareness programmes on climate change and its effects. In addition, the United Nations General Assembly proclaimed the UN Decade of Education for Sustainable Development (DESD) 2005-2014, emphasizing that climate change is one of the key action themes of the Decade<sup>3</sup>(UNITAR, 2013).

Education for Sustainable Development (ESD) aims to promote the knowledge, skills, attitudes and values necessary to shape a sustainable future. It affects all components of the education system – which include, among others, legislation, policy, finance, curricula, teacher education, instruction, learning, assessment, school governance and infrastructure – and considers learning as a lifelong process taking place in various settings. In addition, it proposes learning methodologies for promoting critical thinking, problem-solving skills, as well as predicting events affecting both natural and human ecosystems and acting on these in collaborative ways. ESD provides an umbrella for many forms of education. In this framework, Climate Change Education (CCE) fosters understanding of the complexities and interconnection of the various challenges posed by climate change (UNITAR, 2013).

More specifically, CCE promotes learning about the causes and effects of climate change as well as possible responses, providing a cross-curricular and multidisciplinary perspective. It develops competences in the field of climate change mitigation and adaptation, with the aim to promote climate-resilient development and reduce the vulnerability of communities in the face of an uncertain future. Crucially, CCE helps individuals to make informed decisions. Additionally, by preparing learners, communities and education systems to face natural hazards, CCE contributes to disaster risk reduction (DRR) efforts. Finally, CCE highlights the links between consumption patterns and climate change in order to mobilize responsible actions contributing to reduced greenhouse gas emissions through more sustainable lifestyles (UNITAR, 2013).

### **Climate Change and Impacts on Education Sector**

In Southern Africa including Zambia, most of the schools' sources of water supply (boreholes) have dried as the result of climate change. As a result of poor rainfalls in the recent past years that have affected the food security which in turn contribute to school poor attendance. Due to climate change the power generation has been negatively affected resulting in power cuts and making it difficult for learners to study in the night. Increased load shedding has also reduced learning time and household income has been affected. as the result of unprecedented floods.

The link between climate and education is primarily indirect: climate change has the potential to impact education through worsening health, poverty and peace issues. Extreme events could cause higher mortality and morbidity rates among children, according to most literature. And this is especially severe in developing countries, where climate-sensitive health outcomes, such as malnutrition, diarrhea, and malaria, are already common and coping capacities are lowest. Schooling and access to education for children will be indirectly affected through health impacts such as these (CDKN, 2012). An increase in occurrence and intensity of drought and disasters will reduce children's available time (which may be diverted to household tasks), while displacement and migration can reduce access to education opportunities as well (AfDB, et al., 2003). General impacts on security, poverty and livelihoods can lead to education becoming less

affordable and inaccessible, and children may have to take paid work instead of finishing education (Stern, 2007). Of course, climate change has the potential to threaten and damage educational infrastructure directly, making it physically impossible for children to attend school. As an example, in 2008 flooding in Bangladesh damaged 700 schools causing severe disruption in access to education for 50,000 children (Das, 2010). Overall these impacts not only affect education but combine to make children and communities more vulnerable to climate change.

### **3.3 Ecological**

#### **3.3.1 Forests**

There are 480 forest reserves in Zambia covering a total land area of about 7.2 million hectares. Local forests are meant to conserve forest resources for sustainable use by local people, while National Forests protect major catchment areas. Several if not most of the National Forests Overlap Game Management Areas (GMAs). As a result of expanding settlements and agriculture activities some forest reserves have been encroached upon and depleted. Consequently, the Government has excised and de-gazetted some reserves, reducing the area and number of forests.

According to Zambia's Fourth National Report on Implementation of the Convention on Biological Diversity (CBD), about 249 Forest Reserves (51%) are either encroached or depleted due to over-exploitation of wood products, settlement, cultivation and inadequate natural resources governance. This has resulted in the loss of forest reserves - whose numbers have reduced and changed to other land uses. About 2% of the national forests are "depleted," while 46% are "encroached" and 52% are "intact." Seventeen Forest Reserves have been degazetted for other land use, representing about 3% of the total area of Forest Reserves. More local forests have been excised than National Forests. Local forests in the Copperbelt, and in Eastern and Lusaka Provinces have been more affected than those elsewhere. This may be attributed to high urbanization leading to high demand for forest products and land. It is expected that the opening of new mines in Northwestern Province will bring pressure on the undisturbed forest reserves.

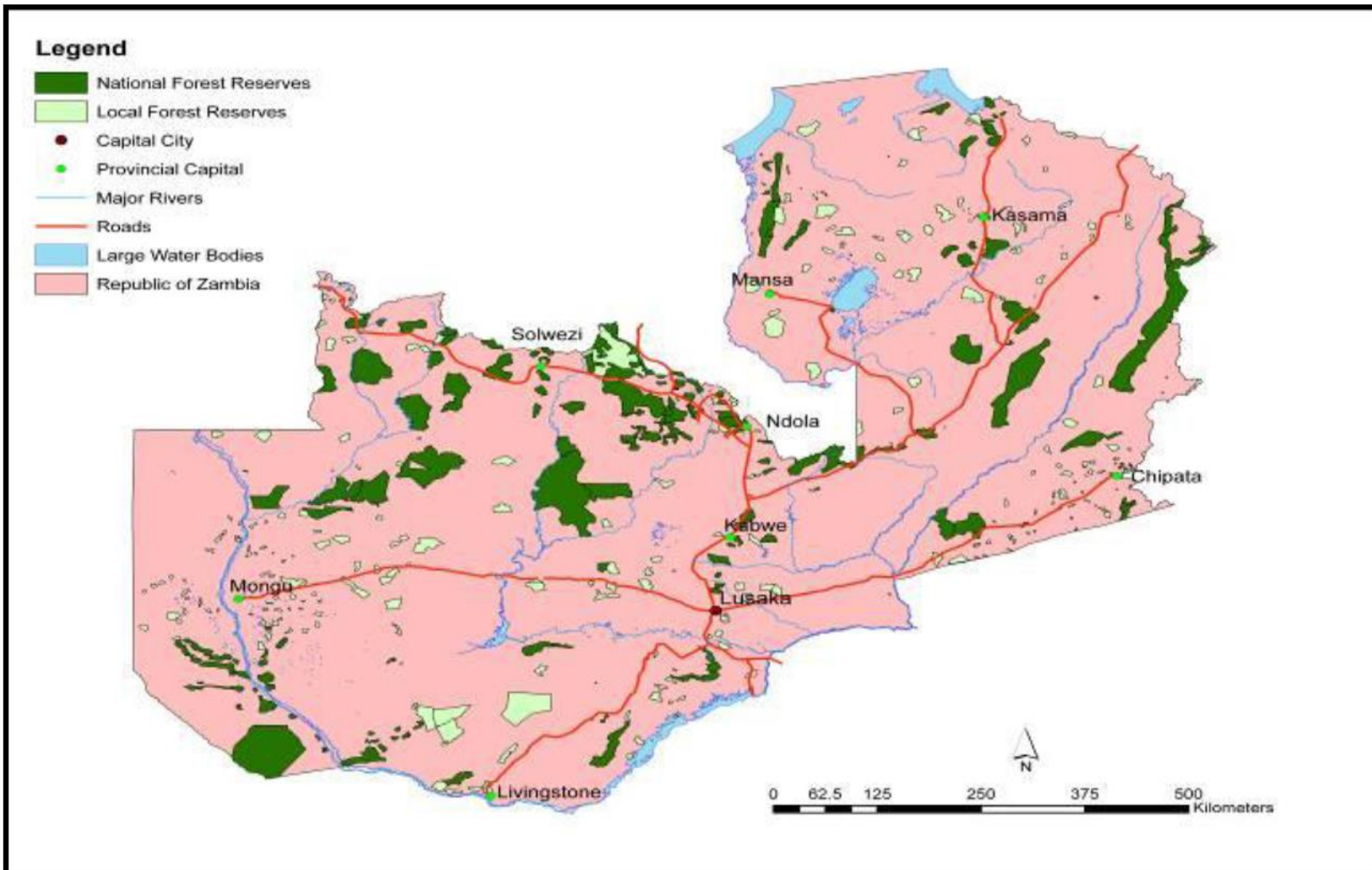


Figure 4:Gazetted Forests Across Zambia

### 3.3.2 Biodiversity

It is estimated that there are about 7,774 species of organisms that occur in Zambia with micro-organisms comprising 8%, plants 47%, and fauna 45% of this biodiversity. The diversity of fauna has been estimated at 3,407 species, of which 1,808 are invertebrates, 224 are mammals, 409 are fish, 67 are amphibians, 150 are reptiles, and 733 are birds. Floristic diversity is dominated by herbs and woody plants with an estimated 4,600 species of flora, of which 211 are endemic. There are 19 National Parks established to conserve faunal biodiversity, comprising about 8% of the total land area. Table 3 below shows the list of endangered and vulnerable species across Zambia.

**Table 4: List of Endangered and Vulnerable species in Zambia. Based on Chidumayo and Aongola (1998).**

Group/ Subgroup	Species (Common name)	Threat status
Fauna		
Mammalia	<i>Crocidura ansellorum</i>	Endangered
	<i>Crocidura pitmani</i>	Vulnerable
	<i>Rhynchocyon cimei</i> (Checkered Elephant shrew)	Vulnerable
	<i>Plerotes anchietae</i>	Vulnerable
	<i>Pipistrellus anchietae</i>	Vulnerable
	<i>Otomops martiensseni</i>	Vulnerable
	<i>Lycaon pictus</i> (African wild dog)	Endangered
	<i>Acinonyx jubatus</i> (Cheetah)	Vulnerable
	<i>Panthera leo</i> (Lion)	Vulnerable
	<i>Loxodonta africana</i> (Elephant)	Endangered
	<i>Diceros bicornis</i> (Black rhinoceros)	Endangered
	<i>Kobus leche kafuensis</i> (Kafue lechwe)	Vulnerable
	<i>Kobus leche smithemani</i> (Black lechwe)	Vulnerable
Aves	<i>Egretta vinaceigula</i> (Slaty Egret)	Vulnerable
	<i>Falco fasciinucha</i> (Taita Falcon)	Vulnerable
	<i>Falco naumanni</i> (Lesser Kestrel)	Vulnerable
	<i>Bugeranus carunculatus</i> (Wattled Crane)	Vulnerable
	<i>Crex</i> (Corncrake)	Vulnerable
	<i>Sarothrura ayresi</i> (White-winged Flufftail)	Endangered
	<i>Agapornis nigrigenis</i> (Black-cheeked Lovebird)	Endangered
	<i>Pogoniulus makawai</i> (White-chested Tinkerbird)	Vulnerable
	<i>Hirundo atrocaerulea</i> (Blue Swallow)	Vulnerable
Insecta	<i>Eriksonia acraeina</i>	Vulnerable
	<i>Monardithemis flava</i>	Vulnerable
	<i>Lanistes neavei</i>	Vulnerable
	<i>Bellamyia crawshayi</i>	Endangered
	<i>Bellamyia mweruensis</i>	Endangered
	<i>Bellamyia pagodiformis</i>	Endangered
Trees	<i>Pterocarpus angolensis</i>	Locally Vulnerable
	<i>Afzelia quanzensis</i>	Locally Vulnerable
	<i>Daniela ostiniana</i>	Locally Vulnerable
	<i>Khaya nyasica</i>	Locally Vulnerable
	<i>Mitragyna stipulosa</i>	Locally Vulnerable

Most of these parks were set aside during the Colonial Era and formally established after Zambia's independence in the early 1970s. Sustainable use of wildlife and its habitats in the parks is promoted through eco-tourism while settlements and hunting are prohibited. It is important to note that only the surface of land contained within parks is protected; subsurface



mineral deposits are not withdrawn from entry. The Ministry of Mines and Minerals Development controls the extraction of all minerals in Zambia (IRG, 2011).



Figure 5: National Parks and Game Management Areas Across Zambia

Game Management Areas are protected areas established by law to control the hunting of wild animals through a licensing system. There are 36 GMAs that were essentially set up as buffer zones to the National Parks, covering an additional 23% of the land area. The GMAs are communally owned areas where human habitation is permissible, along with economic activities that are not detrimental to wildlife management. Additionally, Zambia has eight designated Ramsar sites covering more than 4 million ha and 39 Important Bird Areas, 15 of which overlap with national parks. Within the National Forest system, 59 botanical reserves have been established to conserve floral biodiversity; 29 of these reserves are either encroached or depleted with a variety of reasons cited such as unmaintained reserve boundaries and inadequate capacity within the Forestry Department. The 4th National Report estimated that 31 species are endangered or vulnerable (i.e. *threatened*); however, a recent query of the International Union for the Conservation of Nature (IUCN) Red List found an increase in this number to 47. Of these *threatened* species, five are considered *critically endangered*, 12 are *endangered*, and another 30 are considered *vulnerable*. It is difficult to determine whether the increase in the number of

threatened species can be attributed to a decrease in populations or if better assessments have been undertaken, improving the baseline data. Many of these endangered and critically endangered listed species are aquatic organisms found in select lakes or river systems in Zambia and are primarily threatened by siltation, dams, direct or indirect poisoning, or competition from non-native species (IRG, 2011).

### **3.3.3 Ecosystems and Land Cover**

Based on the vegetation of Zambia, there are 16 main ecosystems in the country. These ecosystems are dynamic due to the influence of climate and geomorphological processes. Over the last million years, there have been drastic changes in the extent of these ecosystems which have been triggered by changes in climate. In recent times, biotic factors, such as cultivation, fire and herbivory, have played a significant role in altering the structure and functioning of these ecosystems. These are important considerations in biodiversity management. Ecosystems with the highest species biodiversity are Acacia savanna (munga) and *Brachystegia-Julbenardia* (miombo) woodlands followed by *Colosphospermum* (mopane) woodland and floodplain/swamp grassland. Termitary is a transition ecosystem between wetland grassland and upland woodland that is characterized by wooded termite mounds (termitary) surrounded by grassland and is important for grazing. Montane forest, although of limited extent in the country, has the highest number of endemic woody plants. The diversity of ferns and orchids is correlated to ecosystem diversity. The diversity of some invertebrates (Arachnids and butterflies) and ferns shows a south-north increase while that of other invertebrates (Hemiptera and Hymenoptera) shows the opposite trend. These diversity gradients are related to rainfall/moisture gradient (IRG, 2011).

### **3.3.4 Protected Areas**

The Convention on Biological Diversity (CBD) defines a protected area as a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives. Similarly, in-situ conservation refers to the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

The protected area system in Zambia consists of national parks (IUCN protected area category II), bird sanctuaries (IUCN protected area category IV), game management areas (GMAs, IUCN protected area category VIII), important bird areas (IBAs, IUCN protected area category IV), forest and botanical reserves (IUCN protected area categories IV and VIII) and national heritage sites (IUCN protected area categories III and X). National parks were established by government primarily for the conservation of biodiversity. There are 19 national parks in Zambia, and these cover a total area of 6.358 million hectares (ha). Sustainable use of wildlife and its habitats in national parks is promoted through eco-tourism while settlements and hunting are prohibited.

Bird sanctuaries have the same status as national parks but are usually smaller in size. There are two bird sanctuaries in the country. Important Bird Areas (IBAs) are identified based on internationally agreed criteria and are established for the long-term viability of naturally occurring bird populations across the range of those species for which a site-based conservation approach is appropriate. There are 42 IBAs in Zambia and some of these are in national parks and these also include the two Ramsar sites (Bangweulu Swamps and Kafue Flats) in the country. Game management areas (GMAs) were established by government to control the hunting of game and protected animals through a licensing and monitoring system. There are 34



GMAAs in Zambia which cover a total of 16.57 million ha. Because other forms of land use, such as settlements and agriculture are allowed, GMAAs are not strictly protected areas.

Forest reserves were established by government to conserve forest resources for sustainable use by local people in the case of local forests and to protect major catchment areas and biodiversity in the case of national forests. There are 432 forest reserves in Zambia which cover a total of 7.4 million ha. Settlements and cultivation are normally not permitted in forest reserves while removal of any plant is only permissible under license as is livestock grazing. Other forest reserves are managed as botanical reserves that serve three objectives:

- (i) preservation of relic vegetation types and/or plant species,
- (ii) genetic banks for multiplication and breeding programs,
- (iii) reference sites in determining human impacts on forest ecosystems outside reserves.

There are 59 botanical reserves in Zambia which cover a total area of 148,000 ha but form part of the country's forest reserve system.

### **3.4 The Socioeconomic Environment**

In the education sector the socioeconomic status (SES) is often measured as a combination of education, income and occupation. It is commonly conceptualized as the social standing or class of an individual or group. When viewed through a social class lens, privilege, power, and control are emphasized. SES is relevant to all realms of behavioral and social science, including research, practice, education and advocacy. The education sector like any other sector in Zambia has not been spared from the economic effects that contribute to poor performance of the sector. Research indicates that children from low-SES households and communities develop academic skills slowly compared to children from higher SES group. (Morgan, Hillemeier, & Maczuga, 2000).

Families from low-SES communities are less likely to have financial resources or time available to provide children with academic support. Since education is the integral part of the social system of the nation and responds to the demand and requirement of society. It is the duty of the government to support the less privilege and vulnerable members of the country to access education. In Order to achieve this objective, the Government has introduced the free education policy and the School Feeding program in collaboration with the cooperating partners. Due to this effort, the Government has achieved respectable enrollments rates at the primary level (Grades 1-7), whether measured as gross or net enrollment rates. Nonetheless, about 15 percent of those of primary school age (7-13 years old) are out of school; almost a quarter of children from the lowest income quintile are out of school (World Bank, 2016).

#### **3.4.1 Education Sector**

In the past, admission to high school was based on performance in the terminal examination, currently called the Junior Secondary School Leaving Examination, that Learners took at the end of Grade 9. This is a public examination, set and marked by the Examinations Council of Zambia (ECZ). On the basis of performance in this examination, about 30% of the school candidates proceed into Grade 10. On completion of high school, at the end of Grade 12, Learners sit for a further public examination, also set and marked by ECZ. This is the Zambia School Certificate Examination, which is roughly the equivalent of the Ordinary-Level ('O'-level) standard in the British system. Admission to post-school education and training and

prospects for wage-sector employment hinge critically on school certificate performance. This accounts in large measure for the intensity of the pressure to enter and stay in school until this point and for the urgency with which the work of virtually every member of the school community is addressed to performance in the school certificate examination.

### **3.4.2 Secondary School Education in Zambia**

The current structure of the education system currently, Zambia's formal education system has a 7—5—4 structure, with seven years of primary education (four years of lower and three years of upper primary), five years of secondary (two years of junior and three years of senior secondary), and four years of university to first degree level. Transition from lower to higher educational levels is determined by national competitive examinations at the end of Grades 7, 9 and 12. Historically, primary and secondary education were offered in separate institutions, but this changed with the development of basic schools which provide the first nine years of schooling, this has since been reversed. This means that currently there are two parallel but related paths for educational progression after Grade 7: some Learners proceed into Grade 8 in a basic school, while others proceed into conventional secondary schools that run from Grade 8 to Grade 12. All, however, must have performed well in the selection examination held at the end of Grade 7, since there is room in Grade 8 for only one-third of those who complete Grade 7.

The transition rates between Grade 7 and Grade 8 (primary to secondary) and between Grades 9 and Grade 10 (lower secondary to upper secondary) are lower (62 percent and 43 percent, respectively). These rates differ significantly across provinces from 32 to 78 percent for lower secondary and from 29 to 58 percent for upper secondary (Educational Statistical Bulletin, 2015). In 2010 about half of a specified cohort had completed lower secondary education; about a quarter of the cohort had completed upper secondary education. The transition rates at the secondary level reflect a supply constraint: Zambia has a serious shortage of secondary school seats. The number of schools offering Grades 8-9 (lower secondary) not only drops to 3,764 from 7,691 primary schools, but in many of these cases the schools have no dedicated physical space for Grades 8-9. These primary schools have been accommodating students in the lower secondary grades by double-shifting. The number of schools offering Grades 10-12 plummets to 512. The sector informally manages this bottleneck by using examinations to cap the number of Grade 9 students who can proceed to Grade 10. The secondary level also has demand problems that stem from poverty for both boys and girls and early marriage for girls.

### **3.4.3 Investment in the Education sector**

The education sector has an important role to play in the social and economic development of Zambia. The government's public education expenditure exceeds 20 percent of total government expenditures and 5 percent of GDP reflecting the firm commitment to the sector (2014/15). Financing towards public education is gradually shifting from a focus on basic education to post-primary (grades 8-12). To reduce poverty, the most important goal of development depends largely on economic growth which, in turn, depends heavily on the knowledge and skills available within the economy. The development of these is largely the responsibility of the education sector. Expanding and improving educational services, especially at the base and for girls, is crucial, therefore, for national and economic prosperity. Moreover, carefully targeted investment in education serves not merely as an input for high growth, but also as a means of ensuring widespread participation in the growth process, thereby strengthening the democratic nature of society. These considerations highlight the two-fold importance of basic education,

particularly lower and middle basic, to Zambia's economy. It is the only formal education that the majority of young people receive. Hence it forms the main source for the knowledge and skills required for the development of social and economic life. It is also the foundation on which all further education and training must build. Hence it underlies the development of all the human resources that Zambia requires for meeting economic and social needs. In addition to obligations arising from the acceptance of education as a human right, these factors underscore how important it is that every Zambian child should have access to school education of the highest quality, preferably for a minimum period of nine years.

#### **3.4.4 Land Tenure and Titling System**

Land tenure is the way in which rights in land are held and in Zambia tenure is categorized into two tenure systems namely, statutory tenure and customary. Statutory land tenure refers to state Land which is administered by the Lands Commissioner through local authorities on behalf of the President since all land in the country is vested in the Republican President on behalf of the people. The president of Zambia holds the country's land in perpetuity on behalf of the Zambian people. The president has delegated his powers to make and execute grants and disposition of land to the Commissioner of Lands. The Commissioner has agents who plan the land into plots and thereafter select and recommend suitable candidates to the Commissioner of Lands for issuance of certificate of title. The Commissioner's agents in this regard, are the District, Municipal, and City Councils. These agents use the Town and Country Planning Act to plan the land in their areas in their capacities as planning authorities under the Act. Customary land tenure system applies in areas under the jurisdiction of traditional authorities (chiefs/chieftainesses). The traditional system of tenure is the most prevalent among the majority Zambians who live in rural areas. Approximately 94% of the country is officially designated as customary area. It is occupied by 73 tribes, headed by 240 chiefs, 8 senior chiefs and 4 paramount chiefs. Usually, tenure under customary lands does not allow for exclusive rights in land. No single person can claim to own land as the whole land belongs to the community. Land is deemed as belonging to members of the community for their own use (Republic of Zambia, 1995). It is a valuable heritage for the whole community. Communal lands in most of the African countries including Zambia have sprung from a concept of ancestral trust committed to the living for their own interest and for the interest of the unborn.

The land on which additional facilities will be added belongs to the government of Zambia under the Ministry of General Education. Construction of additional classrooms and associated facilities will take place in rural areas only, within existing school perimeters, where land is already allocated to educational purposes and there is no encroachment, including for community livelihood.

## **4 CHAPTER 4: ZAMBIA REGULATORY FRAMEWORK AND WORLD BANK SAFEGUARD POLICIES**

### **4.1 Introduction**

The ZEEP is national project by the (GRZ) to be implemented by the MoE, that aims is to increase access to secondary education and improve learner performance in mathematics and science in selected schools. The MoE will provide overall policy guidance and has the responsibility for policy formulation. The MoE will act as the implementing agent on behalf of the GRZ and provide overall coordination of the implementation of the ZEEP and will monitor performance to ensure that the objectives of the project are achieved. The ZEPCU to be hosted by the MoE will actively involve other Ministries, local councils/municipalities and other stakeholders including cooperating partners and communities. Environmental and social issues cut across a wide variety of sectors and there are a number of government institutions and agencies outside of the Zambia Environmental Management Agency (ZEMA), which are involved in aspects of environmental management and these institutions and their legislative responsibilities are summarized in Table 4 and 5. Depending on the nature of the ZEEP subprojects and activities, representatives of these institutions may provide technical assistance to the school focal person in the preparation and implementation of school construction activities and ESMPs.

### **4.2 Overview of Relevant Zambian Policies and Plans**

Zambia has over the past two decades developed a number of policies, plans and legislation to guide private and public institutions to pursue environmentally and socially sustainable development agenda in various sectors of the economy. Environmental and social issues are crosscutting, and this is reflected in the various legislative frameworks, policies and legal structures that are in place. This subsequent section outlines some of the policies, plans and current legislation in place that are relevant to the proposed education project that will focus on enhancing access to secondary school education across the country.

#### **4.2.1 Vision 2030**

Zambia's Vision 2030, completed in 2005, is a long-term planning instrument which reflects the collective understanding, aspirations, and determination of Zambia to become a middle-income country. The Vision 2030 was developed in response to a 15-year focus on macroeconomic stability and market liberalization which was useful in stabilizing the economy but did little to address ingrained poverty and socio-economic development. The Vision 2030 signaled a return to development planning and a focus on poverty reduction in Zambia. In the vision 2030 the country envisages that Zambians, by 2030, aspire to live in a strong and dynamic middle-income industrial nation that provides opportunities for improving the well-being of all, embodying values of socio-economic justice, underpinned by the principles of:

- (i) gender responsive sustainable development;
- (ii) democracy;
- (iii) respect for human rights;
- (iv) good traditional and family values;
- (v) positive attitude towards work;
- (vi) peaceful coexistence and;
- (vii) private-public partnerships.

The vision 2030 principles are relevant to the education project as they show the country's commitment to:

- inclusion of women and vulnerable groups to access secondary school education,
- having an enlightened citizenry and creating an enabling environment that promote divergent views, peace and stability that are a hallmark of democracy to help foster and safeguard investments,
- promoting human rights by ensuring all citizens have an opportunity to access secondary school education,
- change the work culture of the country by incorporating the need for a productive society at an early stage in the education sector.
- encourage the private sector to participate in the provision of secondary school education to supplement the efforts of Government.

#### **4.2.2 Seventh National Development Plan (2017-2021)**

The Zambian government spearheaded the formulation of the Seventh National Development Plan which will cover the period from 2017 to 2021. It is aimed at attaining the long-term objectives as outlined in the Vision 2030 of becoming a “prosperous middle-income country by 2030.” It builds on the achievements and lessons learnt during the implementation of the previous NDPs. The Seventh National Development Plan departs from sectoral-based planning to an integrated (multi-sectorial) development approach under the theme “Accelerating development efforts towards the Vision 2030 without leaving anyone behind”

#### **4.2.3 Education Skills and Sector Plan**

The Ministry of Education has developed the Education Skills and Sector Plan (ESSP), which provides the roadmap for attaining the aspirations illustrated in the Seventh National Development Plan (7NDP) and the global agenda represented by SDG4. The 7NDP commits to ensuring that no citizen is left behind, predominantly when it comes to accessing education services. The 7NDP's integrated approach also provides a framework for coordinating the contributions of other sector ministries, such as health and community development and social welfare, in the implementation of the ESSP. Essentially, the ESSP is the principal mechanism for convening the contribution of all stakeholders including the education sector's in-cooperating partners (CPs), non-governmental organizations (NGOs), the private sector, local communities, parents and children themselves to helping Zambia meet its national and international.

#### **4.2.4 Education Policies**

##### **Early Childhood Education**

The Ministry of Education acknowledges the important role of early childhood education in the multi-dimensional development of young children. Within the constraints of available resources, the Ministry will encourage and facilitate the establishment of pre-school programmes that would reach out to all children, especially to those living in rural and poor urban areas. The provision and funding of early childhood and pre-school education will be the responsibility of Councils, local communities, non-governmental organizations, private individuals and families. Strategically, the Ministry provides professional services to pre-school education by

- Training teachers for pre-schools,
- Developing curriculum materials for use in pre-schools, and
- Monitoring standards at pre-schools.

The Ministry collaborates with providers, partner ministries and others to develop policy guidelines for pre-school and early childhood education.

### **Basic Education Policy**

The philosophy of the Ministry of Education is that the education process centres on the pupil who has an active role to play in developing his or her intellectual and other qualities. The overall goal of basic education is to provide each pupil with a solid intellectual, practical and moral foundation that will serve as a basis for a fulfilling life. Hence it will seek to provide a comprehensive programme of study and school activities that will:

- promote the full and harmonious development of every pupil;
- give some preparation for adult working life;
- serve as a basis for further training; and
- lead to the level of competence necessary for proceeding to high school.

### **High School Education Policy**

The goal of high school education is to enable every pupil to become a well educated person who is useful to society and who is adequately prepared for the furtherance of his or her education or for becoming a self-supporting worker. High schools will be required to intensify the preparation they give to Learners for the conclusion of life in school and the commencement of adult life. The education provided in high schools should respond to the needs of the country for individuals who are soundly grounded in communication, mathematics, science and problem-solving skills. It should also respond to the needs of individuals for a range of post-school vocational choices. The Ministry of Education will give priority to the improvement of mathematics and science in high schools of all types. To this end it will ensure that:

- all of the schools which offer general academic programmes will devote more of their resources and time to the teaching of mathematics and science; and some of the schools which offer general academic programmes will specialize more explicitly in the teaching of mathematics and science.

#### **4.2.5 The National Decentralization Policy, 2013**

The objectives of Decentralization in Zambia stems from the need for the citizenry to exercise control over its local affairs and foster meaningful development which requires that some degree of authority is decentralized to provincial, district and sub-district levels as well as Councils, in the background of centralization of power, authority, resources and functions, which has in turn subjected institutions at provincial, district and sub-district levels to absolute control by the center. In order to remove the absolute control by the center, it is necessary to transfer the authority, functions and responsibilities, with matching resources to lower levels. The vision of Government to achieve a decentralized system within a unitary State in Zambia. In order to achieve the Government's vision on decentralization and with particular reference to the ZEEP, one of the policy objectives is the delegation of running schools to municipalities and local councils in the area of jurisdiction.

#### **4.2.6 National Policy on Environmental (NPE), 2005**

Zambia's National Environmental Policy is aimed at promotion of sustainable social and economic development through sound management of the environment and natural resources. The policy seeks, among other things, to: secure for all persons now and in the future an environment suitable for their health and well-being; promote efficient utilization and management of the country's natural resources and encourage, where appropriate long - term

self-sufficiency in food, fuel wood and other energy requirements; facilitate the restoration, maintenance and enhancement of the ecosystems and ecological processes essential for the functioning of the biosphere and prudent use of renewable resources; integrate sustainable environment and natural resources management into the decentralized governance systems and ensure that the institutional framework for the management of the environment and natural resources supports environmental governance in local government authorities; enhance public education and awareness of various environmental issues and public participation in addressing them; and promote local community and private sector participation in environment and natural resource management.

The key principles applicable to the ZEEP-AF are that:

- (1) every person has a right to a clean and healthy environment;
- (2) every person has a duty to promote sustainable utilization and management of the environment and natural resources, including taking legal action against any person whose activities or omissions have or are likely to have adverse effects on the environment;
- (3) women should effectively participate in policy, program and project design and implementation to enhance their role in natural resource use and management activities;
- (4) there is need to use natural resources sustainably to support long-term food security and sustainable economic growth;
- (5) rational and secure tenure over land and resources is a fundamental requirement for sustainable natural resource management; and
- (6) trade-offs between economic development and environmental degradation can be minimized through use of EIA instruments and environmental monitoring.

For the proposed ZEEP it is important to recognize the linkage between the environment and a good functional education sector in national development. It is also important to realize that the two are not mutually exclusive, but rather complementary. More important for the component on the project whose key objective is to increase access to secondary school education, the project will increase enrollment of children from disadvantaged backgrounds to ensure sustainable social and economic development.

### 4.3 Relevant Zambian Legislation

The table below shows an overview of the relevant Zambia legislation, their interpretation and relevance to the ZEEP Project.

**Table 5: Relevant Zambia Legislation and Interpretation**

Legislation	Interpretation of Legislation	Relevance to the Project
Anti-Gender-Based Violence Act, 2010.	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	The ZEEP will enhance access to secondary school education to vulnerable grouping such as women giving them more opportunities access tertiary education and improve their earning power and economic independence. This will give the marginalized grouping a voice against Gender Based Violence (GBV). ZEEP will also put in place mitigation measures for GBV and will work with the GBV focal point person at the Ministry of Education. A communications strategy will be developed which will include GBV mitigation measures and the Grievance Redress Mechanism (GRM).
Disaster Management Act, 2010	An Act to establish and provide for the maintenance and operation of a system for the anticipation, preparedness, prevention, coordination, mitigation and management of disaster situations and the organization of relief and recovery from disasters; establish the National Disaster Management and Mitigation Unit and provide for its powers and functions; provide for the declaration of disasters; establish the National Disaster Relief Trust Fund; provide for the responsibilities and involvement of the members of the public in disaster management; and provide for matters connected with, or incidental to, the foregoing.	Under the ZEEP construction of extra classroom blocks in existing schools across Zambia will need to consider the various natural disaster and the climate change phenomenon that has seen most parts of the country experience droughts or excessive rains. In order to safeguard infrastructure and the safety of the Learners, school management will need to engage. the Disaster Management and Mitigation Unit (DMMU) an institution established and mandated to anticipate, prepare and manage disasters should they occur.
Education Act (2011)	An Act to regulate the provision of accessible, equitable and qualitative education; provide for the establishment, regulation, organization, governance, management and funding of educational institutions; provide for the establishment of education boards and for their functions; domesticate the Convention on the Rights of the Child in relation to education; repeal and replace the Education Act, 1966, and the African Education Act, 1951; and provide for matters connected with, or incidental to, the foregoing	
Employment Act, 1997	An Act to provide legislation relating to the employment of persons; to make provision for the engagement of persons on contracts of service and to provide for the form of and enforcement of contracts of service; to make provision for the appointment of officers of the Labour	During project implementation and associated sub projects, various individuals will be engaged to perform multiple tasks. This will require that all contractors on



Legislation	Interpretation of Legislation	Relevance to the Project
	Department and for the conferring of powers on such officers and upon medical officers; to make provision for the protection of wages of employees; to provide for the control of employment agencies; and to provide for matters incidental to and consequential upon the foregoing.	the project adhere to the provision of the employment act and the national labour laws. This will be achieved by creating a conducive work environment, treating workers in a humane manner and remuneration is favorable.
Environmental Impact Assessment Regulations, 1997	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.	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 (ESMP's).
Environmental Management Act, 2011.	An Act to continue the existence of the Environmental Council and re-name it as the Zambia Environmental Management Agency; provide for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources; provide for the preparation of the State of the Environment Report, environmental management strategies and other plans for environmental management and sustainable development; provide for the conduct of strategic environmental assessments of proposed policies, plans and programmes likely to have an impact on environmental management; provide for the prevention and control of pollution and environmental degradation; provide for public participation in environmental decision making and access to environmental information; establish the Environment Fund; provide for environmental audit and monitoring; facilitate the implementation of international environmental agreements and conventions to which Zambia is a party; repeal and replace the Environmental Protection and Pollution Control Act, 1990; and provide for matters connected with, or incidental to, the foregoing.	Implementation of the ZEEP will involve the construction of additional classrooms in already existing secondary schools and support facilities. This will require that a generic ESMP's be prepared in accordance with the provisions of the ZEMA EIA regulations.
Forests Act, 2015	An Act to provide for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; provide for the participation of local communities, local authorities, traditional institutions, non-governmental organizations and other stakeholders in sustainable forest management; provide for the conservation and use of forests and trees for the sustainable management of	The project is unlikely to involve activities that will involve loss of vegetation. The construction of additional classroom blocks at already existing secondary schools will have a small footprint and the loss of vegetation will be minimal.

Legislation	Interpretation of Legislation	Relevance to the Project
	forests ecosystems and biological diversity; establish the Forest Development Fund; provide for the implementation of the United Nations Framework Convention on Climate Change, Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa and any other relevant international agreement to which Zambia is a party; repeal and replace the Forests Act, 1999; and provide for matters connected with, or incidental to, the foregoing.	
Gender Equity and Equality Act, 2015	An Act to establish the Gender Equity and Equality Commission and provide for its functions and powers; provide for the taking of measures and making of strategic decisions in all spheres of life in order to ensure gender equity, equality and integration of both sexes in society; promote gender equity and equality as a cross cutting issue in all spheres of life and stimulate productive resources and development opportunities for both sexes; prohibit harassment, victimization and harmful social, cultural and religious practices; provide for public awareness and training on issues of gender equity and equality; provide for the elimination of all forms of discrimination against women, empower women and achieve gender equity and equality by giving effect to the Convention on the Elimination of all Forms of Discrimination against Women, the Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa and the SADC Protocol on Gender and Development; and provide for matters connected with, or incidental to, the foregoing.	To address the existing gender equity challenges in schools, the project will include two interventions: (i) building of ablution blocks with lockable toilets and showers as well as incinerators for better menstrual hygiene management for the female students at the expanded schools; and (ii) construction of girls' self-catering safe houses (weekly self-catering boarding facilities) at 10 of the selected schools. The two interventions will enhance retention and enrollment of female students in the expanded schools.
Human Rights Commission Act, 1996	An Act to provide for the functions and powers of the Human Rights Commission; to provide for its composition and to provide for matters connected with or incidental to the foregoing.	The proposed ZEEP will enhance access to secondary school education and increased opportunities for vulnerable groups in our society. The will give Learners increased career opportunities, contribute to economic growth and also help their household lead a dignified life.
Lands Act, 1964	An Act to provide for the continuation of leaseholds and leasehold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for the statutory recognition and continuation of customary tenure; to provide for the conversion of customary tenure into leasehold tenure; to establish a Land Development Fund and a Lands Tribunal; to repeal the Land (Conversion of Titles) Act; to repeal the Zambia (State Lands and Reserves) Orders, 1928 to 1964, the Zambia (Trust Land) Orders, 1947 to 1964, the Zambia (Gwembe District) Orders, 1959 to 1964, and the Western Province (Land and Miscellaneous Provisions) Act, 1970; and to provide for matters connected with or incidental to the foregoing.	The ZEEP will involve the construction of additional classrooms and this will require that the provisions on the lands act are taken into consideration with regard to titling and land tenure. The additional classrooms will be constructed in rural areas only, within existing school perimeters, where land is already allocated to educational purposes and there is no encroachment.

<b>Legislation</b>	<b>Interpretation of Legislation</b>	<b>Relevance to the Project</b>
Local Government Act, 1995	An Act to provide for an integrated three tier local administration system; to define the functions of local authorities; to repeal the Local Administration Act and certain related laws; and to provide for matters connected with or incidental to the foregoing.	Project implementation and supervision will require the support of local authorities' country wide as they have are stakeholders in the provision of education at district and municipality level. The functions of the local authorities are guided by the provision of the local government act
National Council for Construction Act, 2003	An Act to provide for the establishment of the National Council for Construction and to define its functions; to provide for the promotion and development of the construction industry in Zambia; to provide for the registration of contractors; to provide for the affiliation to the Council of professional bodies or organisations whose members are engaged in activities related to the construction industry; to provide for the regulation of the construction industry; to provide for the establishment of the Construction School; to provide for the training of persons engaged in construction or in activities related to construction; and to provide for matters connected with or incidental to the fore-going	The construction of additional classroom blocks at already existing beneficiary secondary schools across the country will require that all designs and building material are within acceptable standards of the National Construction Council. Furthermore, all the contractors that will be engaged on the project have to be registered with the council.
National Heritage Conservation Commission Act, 1989	An Act to repeal and replace the Natural and Historical Monuments and Relics Act; to establish the National Heritage Conservation Commission; to define the functions and powers of the Commission; to provide for the conservation of ancient, cultural and natural heritage, relics and other objects of aesthetic, historical, prehistorical, archaeological or scientific interest; to provide for the regulation of archaeological excavations and export of relics; and to provide for matters connected with or incidental to the foregoing.	The project will incorporate a chance finds procedure in the ESMF to guide contractors and stakeholders on reporting channels and processes should the site artefacts of heritage significance. The National Heritage and Conservation Commission (NHCC) will be notified should a chance find be cited and offer guidance on how such sensitive findings should be handled.
Non-Governmental Organisations Act, 2009	An Act to provide for the co-ordination and registration of non-governmental organisations; establish the Non-Governmental Organizations' Registration Board and the Zambia Congress of Non-Governmental Organizations; constitute the Council of Non-Governmental Organizations; enhance the transparency, accountability and performance of non-governmental organisations; and provide for matters connected with or incidental to the foregoing	Non-Governmental Organizations (NGO's) are some of the major stakeholders on the project, their involvement on the project will range from; information dissemination, educational activities and advocacy This will require that NGO's are registered, regulated and adhere to ethical practices set by the Non-Government Organizations Registration Board and The Zambia Congress of Non-Governmental Organizations.
Occupational Health and Safety Act, 2010	An Act to establish the Occupational Health and Safety Institute and provide for its functions; provide for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide for the protection of persons, other than persons at work, against risks to health or safety arising from, or in	During the implementation of project activities, personnel involved in construction of infrastructure and their operation will be required to adhere to best practices with regards to Occupational Health and Safety. Procedures and manuals and regular onsite training will be undertaken to ensure personnel working

Legislation	Interpretation of Legislation	Relevance to the Project
	connection with, the activities of persons at work; and provide for matters connected with, or incidental to, the foregoing.	on site are conversant with the information contained. The project will ensure that high risk areas are clearly marked with restricted access and the provision of the relevant Personal Protective Equipment (PPE) will be mandatory.
Public Health Act, 1995	An Act to provide for the prevention and suppression of diseases and generally to regulate all matters of public health in Zambia.	During project implementation, all activities will incorporate measures that prevent and minimize the spread of diseases in order to protect the health of the general public.
Public Procurement Act, 2008	An Act to continue the existence of the Zambia National Tender Board and re-name it as the Zambia Public Procurement Authority; revise the law relating to procurement So as to ensure transparency and accountability in public procurement; regulate and control practices relating to public procurement in order to promote the integrity of, fairness and public confidence in, the procurement process; repeal and replace the Zambia National Tender Board Act, 1982; and provide for matters connected with or incidental to the foregoing.	The project will involve the procurement of works, goods and services and this will require that the process follow the Zambia Public Procurement Authority (ZPPA) guidelines to ensure fairness, transparency, integrity, accountability and promote public and stakeholder confidence. The process will be further complimented by World Bank procurement policies.
Roads and Road Traffic Act, 1995	An Act to make provision for the care, maintenance and construction of roads in Zambia, for the control of motor traffic, for the licensing of drivers and motor vehicles, for the compulsory third party insurance of motor vehicles, for the licensing and control of public service vehicles and public services, and for other miscellaneous provisions relating to roads and motor traffic.	During implementation of project activities, there is likely to be disruption to roads and traffic in surrounding areas. This will be during construction activities requiring earthworks in close proximity to roads and delivery of materials. Constructors will be required to adhere to set speed limits, undertake works and bulk deliveries away from off pick time and work within the project footprint to minimize intrusion into surrounding areas.
Urban and Regional Planning Act, 2015	An Act to provide for development, planning and administration principles, standards and requirements for urban and regional planning processes and systems; provide for a framework for administering and managing urban and regional planning; provide for a planning framework, guidelines, systems and processes for urban and regional planning; establish a democratic, accountable, transparent, participatory and inclusive process for urban and regional planning that allows for involvement of communities, private sector, interest groups and other stakeholders in the planning, implementation and operation of human settlement development; ensure functional efficiency and socio-economic integration by providing for integration of activities, uses and facilities; establish procedures for integrated urban and regional planning in a devolved system of governance so as to ensure multi-sector cooperation, coordination and involvement of different levels of ministries, provincial administration, local	Project implementation is likely to involve construction activities. These activities are likely to alter the landscape of the current layout of target areas. The project in collaboration with the local authorities in which these areas fall will ensure the designs and plans adhere with the Urban and Regional Planning of the areas so as to be in harmony with the councils' expansion master plan.

Legislation	Interpretation of Legislation	Relevance to the Project
	<p>authorities, traditional leaders and other stakeholders in urban and regional planning; ensure sustainable urban and rural development by promoting environmental, social and economic sustainability in development initiatives and controls at all levels of urban and regional planning; ensure uniformity of law and policy with respect to urban and regional planning; repeal the Town and Country Planning Act, 1962, and the Housing (Statutory and Improvement Areas) Act, 1975; and provide for matters connected with, or incidental to, the foregoing.</p>	
Water Act, 1964	<p>An Act to consolidate and amend the law in respect of the ownership, control and use of water; and to provide for matters incidental thereto or connected therewith.</p>	<p>The abstraction or use of water during construction and operational activities will be required to be done in a sustainable manner. This will reduce or eliminate incidences of infringing on the rights of other water users to access the resource.</p>
Zambia Wildlife Act, 2015	<p>An Act to governing the affairs of the Zambia Wildlife Authority; establish the Department of National Parks and Wildlife in the Ministry responsible for tourism; provide for the establishment, control and management of National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archeological and scientific interest in National Parks; provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates; provide for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provide for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhance the benefits of Game Management Areas to local communities and wildlife; involve local communities in the management of Game Management Areas; provide for the development and implementation of management plans; provide for the regulation of game ranching; provide for the licensing of hunting and control of the processing, sale, import and export of wild animals and trophies; provide for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity, the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora and other international instruments to which Zambia is party; repeal the Zambia Wildlife Act, 1998; and provide for matters connected with, or incidental to, the foregoing.</p>	<p>The construction, activities on the project may affect flora and fauna in the area. The project will ensure that all personnel on site undergo orientation on how to handle the siting of wild species.</p>

#### **4.4 World Bank Safeguard Policies Overview**

As a key financing institution, the World Bank is committed to supporting developmental projects, while eliminating or minimizing any adverse impacts or risks on the environment, society and human health. These impacts can be severe or moderate, localized or regional, short or long term. In order to minimize and manage environmental and social impacts, the Bank's operational policies are triggered, and the environmental and social assessment is key process of the Bank due diligence. These safeguards provide a mechanism and tools for ensuring integration of environmental concerns and social issues into the planning and implementation of development projects financed by the Bank.

The Bank has a total of ten safeguard policies which can be triggered depending on the nature and complexity of the proposed projects or sub-projects. In the context of the proposed education sector enhancement project and the associated sub-projects, one (1) of the ten (10) safeguard policies has been triggered. The table below shows the World Bank safeguard policies that have been triggered to mitigate possible impacts during the project and in associated sub-projects. Details for triggering or not triggering are provided in table 5 below.

**Table 6: World Bank Safeguards Polices and their relevance to Zambia Education Enhancement Project**

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the mining remediation and improvement project and associated sub-projects
Environmental Assessment OP/BP 4.01 including Environmental Health and Safety Guidelines	Yes	The safeguards policy on Environmental Assessment is triggered as Component 2 of the project will involve the construction of additional classrooms, teachers housing and support facilities at already in schools across Zambia. The support facilities will include the provision of sanitation facilities such as toilets and sinking of boreholes in order to provide potable water and sanitation to Learners and staff. Since the beneficiary schools and the exact locations have not yet been established, the Ministry of General Education (MoE) with the guidance of the Bank has developed an ESMF to access the potential environmental and social risks on the project. Furthermore, a generic ESMP has been developed to guide the ministry and contractors in monitoring and implementing mitigation measures. Since the project will not involve activities or subproject that require an ESIA. The ESMP will provide the best practices for waste management and any other safeguards concerns that will be identified during project implementation.
Natural Habitats OP/BP 4.04	No	The Bank policy on natural habitats is not triggered as the construction of addition classrooms in already existing schools will have a small footprint within an already existing school premises. The likelihood of encroaching on ecologically sensitive areas is highly unlikely.
Forests OP/BP 4.36	No	The policy on Forests is not triggered considering the construction of additional classrooms and support facilities will be undertaken in already existing school premises and the loss of vegetation is minimal.
Pest Management OP 4.09	No	The policy on Pest Management is not triggered, as the project will not involve the use or support activities that require the use of pesticides.
Physical Cultural Resources OP/BP 4.11	No	The project activities will not be carried out in historical areas or areas with Physical Cultural Resources. However, the ESMF will include siting and construction procedures to ensure that no Physical Cultural Resources are impacted during construction
Indigenous Peoples OP/BP 4.10	No	The policy is not triggered as the geographical areas in consideration are not likely to have indigenous people as defined by the Bank policy.
Involuntary Resettlement OP/BP 4.12	No	The project will have no adverse social impacts due to land acquisition or economic/productive displacement, as all construction activities will take place within existing educational perimeters. The land, on which construction will take place, is already allocated for education purposes with no claims on them. The ESMF site screening will be used to eliminate any construction activities that would necessitate displacement of squatters, encroachers or require land acquisition.

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the mining remediation and improvement project and associated sub-projects
		In the event that the construction of schools will require additional land from chiefs and the community, the project will consider voluntary land donation. The project will also ensure that local chiefs and the community are engaged to provide extra land for construction. In accordance with customary practices, the chief may choose to voluntarily contribute land or assets without compensation for the construction of the secondary schools. In this regard, voluntary contribution will be made with the prior knowledge that land is obtained without coercion or duress and that voluntary contribution is an act of informed consent. The voluntary land donation due diligence will be documented at a minimum. This will be achieved through verification and documentation that land required for the project is given voluntarily and the land to be donated is free from any dispute on ownership or any other impediments and that meaningful consultation have been conducted.
Safety of Dams OP/BP 4.37	No	The policy is not triggered, as it will not involve the construction or maintenance of dams as defined by the Bank policy.
Projects on International Waterways OP/BP 7.50	No	The policy is not triggered, as it will not involve financing activities or subprojects lying within riparian areas of international waterways
Projects in Disputed Areas OP/BP 7.60	No	The policy is not triggered, as it will not finance any activities in disputed areas or territories.

#### 4.5 Overlaps and Gaps between the Zambian Legislation and Applicable World Bank Safeguards

Table 7. Similarities between Zambian legislation and World Bank safeguards

Issue	Zambian Law	World Bank Policy
Environmental assessment	<p>Section 29 of the Environmental Management Act of 2011 which states that “A person shall not undertake any project that may have an effect on the environment without the written approval of the Agency, and except in accordance with any conditions imposed in that approval”.</p> <p>The EIA regulations, SI 28 of 1997 also demands that before a developer commences implementing a project, an EIA report be prepared and submitted to the relevant regulatory authority for review and approval.</p>	<p>OP/BP 4.01 Environmental Assessment requires that EA be carried out for projects categorized as A or B.</p> <p>The EA for projects categorized as A involves scoping and preparation of TORs which includes stakeholder consultation, baseline assessment, impact identification and mitigation, as well as monitoring.</p>



	The EA for projects in the Second Schedule includes scoping and preparation of TORs involving stakeholder consultation, baseline assessment, impact identification and mitigation, as well as monitoring.	
Screening	<p>The EIA regulations, SI 28 of 1997, basically screens out projects into three categories:</p> <ol style="list-style-type: none"> <li>a. no EIA for projects with insignificant impacts;</li> <li>b. Environmental Project Brief for projects of minor or less significant impacts; and</li> <li>c. Environmental Impact Statement for projects with significant impacts</li> </ol>	<p>The WB safeguards generally screens out projects into three groups with an additional group F or FI:</p> <p><b>Category A</b> projects are likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented.</p> <p><b>Category B</b> projects may have potential adverse environmental impacts on human populations or environmentally important areas but are less significant than those of Category A projects.</p> <p><b>Category C</b> project is likely to have minimal or no adverse environmental impacts, and there are no further environmental requirements.</p> <p><b>Category F or FI</b> project involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.</p>

**Table 8. Gaps between Zambian legislation and World Bank safeguards**

Issue	Zambian Law	World Bank Policy	Comment
Screening for classification	The Zambian Environmental Impact Assessment regulations (1987) provide for screening into three general categories – (a) no EIA for projects with insignificant impacts; (b) Environmental Project Brief for projects of minor or less significant impacts; and (c) Environmental Impact Statement for projects with significant impacts	The WB safeguards screens out projects into three groups with an additional group of F or FI as indicated in section 2.3.1.	In the event that Category F or FI is triggered the WB standard will be applied.

<p>Screening for classification</p>	<p>The EIA regulations use the “Project list approach.</p> <p>Thresholds are provided for some projects while these are absent for some projects.</p> <p>The First and Second schedules of the EIA regulations are used by ZEMA for screening projects. However, in some cases, the decision is subjective as there are no thresholds provided such as 5(b) Forestry Related Activities of Schedule II – Reforestation and afforestation. The spatial extent and species that would trigger the use of the second schedule are not specified</p> <p>This approach has the benefit of being clear, objective, easy to implement even with limited expertise. However, the method is inflexible, insufficient consideration of site conditions and context.</p>	<p>The WB safeguard screening process uses the “Criteria Approach” in which projects are classified based on potential for negative impacts, taking into account project type and scale, sensitivity of location, the nature and magnitude of its potential environmental impacts.</p> <p>This approach has the benefit of being flexible, more likely to capture “outliers” with higher than usual risks.</p> <p>The downside, however, is being subjective, can be confusing, dependent on expertise &amp; experience.</p>	<p>Where thresholds are provided, the Zambian EIA regulations will be used. However, where there are no thresholds available, the criteria approach will be employed.</p>
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#### **4.6 World Bank Group EHS Guidelines and Gap Analysis**

The World Bank Group Environment, Health and Safety (EHS) guidelines<sup>6</sup> are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). They define acceptable pollution prevention and abatement measures and emission levels in World Bank financed projects.

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The application of the Guidelines to existing facilities may involve the establishment of site-specific targets with an appropriate timetable for achieving them. The environmental assessment process may recommend alternative (higher or lower) levels or measures, which, if acceptable to the World Bank, become project- or site-specific requirements.

If less stringent levels or measures than those provided in the EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent.

The Project will apply the General Guidelines, including (i) Environmental, (ii) Occupational Health and Safety, (iii) Community Health and Safety and (iv) Construction and Decommissioning,

##### **Box. 1. General EHS Guidelines**

#### **1. Environmental**

- 1.1 Air Emissions and Ambient Air Quality
- 1.2 Energy Conservation
- 1.3 Wastewater and Ambient Water Quality
- 1.4 Water Conservation
- 1.5 Hazardous Materials Management
- 1.6 Waste Management
- 1.7 Noise
- 1.8 Contaminated Land

#### **2. Occupational Health and Safety**

- 2.1 General Facility Design and Operation
- 2.2 Communication and Training
- 2.3 Physical Hazards
- 2.4 Chemical Hazards
- 2.5 Biological Hazards
- 2.6 Radiological Hazards
- 2.7 Personal Protective Equipment (PPE)

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<sup>6</sup> A complete list of industry-sector guidelines can be found at:  
[www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines](http://www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines).

2.8 Special Hazard Environments

2.9 Monitoring

**3. Community Health and Safety**

3.1 Water Quality and Availability

3.2 Structural Safety of Project Infrastructure

3.3 Life and Fire Safety (L&FS)

3.4 Traffic Safety

3.5 Transport of Hazardous Materials

3.6 Disease Prevention

3.7 Emergency Preparedness and Response

**4. Construction and Decommissioning**

4.1 Environment

4.2 Occupational Health and Safety

4.3 Community Health and Safety

**Table 9. Gap Analysis**

<b>EHS Guidelines</b>	<b>Zambian EHS Guidelines/Laws</b>	<b>Gap</b>	<b>Recommendation/Action</b>
<b>Environmental</b>			
Air Emissions and Ambient Air Quality	Zambia has in place the Air Pollution Control (Licensing and Emission Standards) Regulations (1997) that provide limits for air emission and ambient air pollutants.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Wastewater and Ambient Water Quality	Water Pollution Control (Effluent and Wastewater) Regulations (Cap. 204), formed under the Environmental Protection and Pollution Control Act 1990.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Water Conservation	Zambia has the Water Act and Water Resources Management Act 2011 which governs and requires water conservation by all projects	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Hazardous Materials Management	Zambia has formulated under the Environmental Protection and Pollution Control Act No 12 of 1990, The Hazardous Waste Management Regulations (Statutory Instrument No125 of 2001). These regulations govern the management and disposal of hazardous wastes.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Waste Management	Zambia has in place the solid waste management regulation and management Act, 2018 that governs the management and disposal of solid wastes.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.

Contaminated Land	Zambia has formulated under the Environmental Protection and Pollution Control Act No 12 of 1990, The Hazardous Waste Management Regulations (Statutory Instrument No125 of 2001). These regulations govern the management and disposal of hazardous wastes.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
<b>Occupational Health and Safety</b>			
General Facility Design and Operation	Zambia has the Occupational Health and Safety Act, 2010. The Act establishes the Occupational Health and Safety Institute and provide for its functions; provide for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Communication and Training	Zambia has the Occupational Health and Safety Act, 2010 provides for the protection of persons, other than	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS

	persons at work, against risks to health or safety arising from, or in connection with, the activities of persons at work; and provide for matters connected with, or incidental to, the foregoing.		Guidelines or Zambia regulations.
Physical Hazards	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Chemical Hazards	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Biological Hazards	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.



	matters connected with, or incidental to, the foregoing.		
Radiological Hazards	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Personal Protective Equipment (PPE)	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Special Hazard Environments	Zambia has the Occupational Health and Safety Act, 2010 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; and provide for matters connected with, or incidental to, the foregoing.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
<b>Community Health and Safety</b>			

Water Quality and Availability	Water Pollution Control (Effluent and Wastewater) Regulations (Cap. 204), formed under the Environmental Protection and Pollution Control Act 1990.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Structural Safety of Project Infrastructure	National Building Regulations and Building Standards Act 1977, provide for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities; for the prescribing of building standards; and for matters connected therewith. This includes structural safety.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Life and Fire Safety (L&FS)	The Factories Act of Zambia, Environmental Management Act of 2011, Constitution of Zambia among other all provide for protection of life against hazards including fire.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Traffic Safety	Zambia has the Road and Road Traffic Act which among other ensure that public safety is assured other than to make provision for the care, maintenance and construction of roads in Zambia, for the control of motor traffic, for the licensing of drivers and motor vehicles, for the compulsory third party insurance of motor vehicles, for the licensing and control of public service vehicles	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.

	and public services, and for other miscellaneous provisions relating to roads and motor traffic.		
Transport of Hazardous Materials	Zambia has formulated under the Environmental Protection and Pollution Control Act No 12 of 1990, The Hazardous Waste Management Regulations (Statutory Instrument No125 of 2001). These regulations govern the management and disposal of hazardous wastes.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Disease Prevention	Zambia has in place the Public Health Act, 1995 which is an Act to provide for the prevention and suppression of diseases and generally to regulate all matters connected with public health in Zambia.	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.
Emergency Preparedness and Response	Zambia has established the Disaster Management Act 2010. This is an Act to establish and provide for the maintenance and operation of a system for the anticipation, preparedness, prevention, coordination, mitigation and management of disaster situations and the organisation of relief and recovery from disasters; establish the National Disaster Management and Mitigation Unit and provide for its powers and functions; provide	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.

	for the declaration of disasters; establish the National Disaster Relief Trust Fund; provide for the responsibilities and involvement of the members of the public in disaster management; and provide for matters connected with, or incidental to, the foregoing.		
<b>Construction and Decommissioning</b>			
Environment	<p>The Environmental Management Act of 2011 was enacted by the Parliament of Zambia to i) establish the Zambia Environmental Management Agency (former Environmental Council); ii) provide for integrated environmental management and the sustainable use and management of natural resources; and iii) to address emerging environmental issues and challenges such as climate change and pollution from persistent organic pollutants and electronic waste.</p> <p>The Act addresses the need for implementing environmental safeguards in the environment and natural resource management sector, by setting out the requirements for carrying out</p>	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.

	<p>Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA). Part 2 outlines the role, rights and responsibilities of the Zambia Environmental Management Agency. Part 3 (articles 23, 29 and 30) outlines regulations relating to environmental assessments, including the terms and conditions for SEAs and EIAs. Part 4 Division 8 deals specifically with natural resources management; part 9 outlines enforcement provisions.</p>		
Occupational Health and Safety	<p>Zambia has the Occupational Health and Safety Act, 2010. The Act establishes the Occupational Health and Safety Institute and provide for its functions; provide for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide 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; and</p>	<p>No significant difference between World Bank EHS guidelines and Zambia regulations.</p>	<p>Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.</p>

	provide for matters connected with, or incidental to, the foregoing.		
Community Health and Safety	<p>The Environmental Management Act of 2011 was enacted by the Parliament of Zambia to i) establish the Zambia Environmental Management Agency (former Environmental Council); ii) provide for integrated environmental management and the sustainable use and management of natural resources; and iii) to address emerging environmental issues and challenges such as climate change and pollution from persistent organic pollutants and electronic waste.</p> <p>The Act addresses the need for implementing environmental safeguards in the environment and natural resource management sector, by setting out the requirements for carrying out Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA).</p> <p>Part 2 outlines the role, rights and responsibilities of the Zambia Environmental Management Agency. Part 3 (articles 23, 29 and</p>	No significant difference between World Bank EHS guidelines and Zambia regulations.	Project implementation will apply either World Bank EHS Guidelines or Zambia regulations.

	<p>30) outlines regulations relating to environmental assessments, including the terms and conditions for SEAs and EIAs. Part 4 Division 8 deals specifically with natural resources management; part 9 outlines enforcement provisions.</p> <p>Protection of the environment includes ensuring community health and safety. Several other Acts mentioned above also capture the need for instituting community health and safety measures when implementing projects.</p>		
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## **5 CHAPTER 5: DETERMINATION OF POTENTIAL IMPACT AND MITIGATION MEASURES**

### **5.1 Beneficial Impacts**

#### **5.1.1 Improved quality of teaching and learning**

The project will improve the quality of teaching and learning<sup>7</sup> in mathematics and science in targeted primary and secondary schools and to increase equitable access to secondary education.

#### **5.1.2 Reduced Spread of Public Health Diseases**

The construction of ablution blocks in schools will lead to reduction in Open Defecation and achieve Community Total Led Sanitation (CLTS) which will in effect lead to reduction in public health diseases spread by poor sanitation including open defecation.

#### **5.1.3 Improved Hygiene For Girl Child**

The construction of sanitation facilities in schools will lead to generally improved hygiene. There is lack of adequate sanitation facilities in schools equipped for menstruation management. The onset of menstruation coincides with higher dropout rates among female students. Lack of information about menstruation, and the absence of adequate sanitation facilities exacerbates the challenges faced by girls and young women. Poor menstrual hygiene, caused by inadequate sanitary conditions, places adolescent girls at risk of urinary tract infections. The project will promote design standards that take into account menstrual hygiene management needs and good practice (separate cabins for boys and girls, safe locks, lighting, presence of disposal bins, and handwashing stations). These activities will be supplemented with a hygiene promotion campaign in schools, with information on menstruation (designed for students and teachers).

#### **5.1.4 Employment Creation**

The construction of the proposed infrastructure will lead to the creation of employment (skilled and un-skilled) due to the fact that workers will be required for construction purposes.

#### **5.1.5 Reduced Contamination of Water Resources**

Better and properly sited sanitation facilities will reduce the risk of contamination of surface and groundwater resources.

#### **5.1.6 ICT Improvement and Literacy**

Provision of ICT equipment (tablets and computers) to schools will improve the digital literacy of the learners.

### **5.2 Impacts during Construction Phase'**

The proposed subproject falls into three broad categories namely, Infrastructure/Construction related, Water and Sanitation and Provision of Power Supply. These are likely to result into environmental and social impacts/risks and the table below (Table 10) highlights the identification of risk/impacts and associated mitigation measures. It further gives the various institutions/organizations and individuals who are responsible and accountable for all activities on the project.

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<sup>7</sup> 'Quality of teaching and learning' in the context of this project is defined as quality of teachers and teaching and learning materials.



### **5.2.1 Site Spills**

During construction specifically where motorized equipment (trucks etc.) may be used, oil spills may result from construction site equipment and storage, which may affect the flora, fauna, soils, and water ways in the area.

### **5.2.2 Solid and Liquid Waste**

Solid waste issue is a potential adverse impact that will be as a result of abandonment of litter/construction materials on site.

### **5.2.3 Air Quality**

Airborne dust will be caused by excavation, vehicle movement hence engine combustion and materials handling, particularly downwind from the construction sites during the construction phase of the identified investments. Uncovered stockpiles of gravel are another source of dust. Air pollution will be further caused by emissions from vehicles and construction machinery. There will be decreased air quality due to dust, suspended particles, hydrocarbon vapours, oxides of nitrogen and sulphur (NO<sub>x</sub> and SO<sub>x</sub>) and Volatile Organic Compounds (VOC) among other emissions.

### **5.2.4 Noise Pollution**

Noise and vibration generated during construction from mechanized equipment. There will be limited use of construction machinery which will not be heavy in nature. In order to create employment, the project will use manual forms of labour and equipment.

### **5.2.5 Impacts on Flora and Fauna**

Removal of vegetation will lead to loss of plants and animal habitats. The biodiversity that may be affected includes insects, small mammals, reptiles and birds. This impact is expected to be insignificant in view of the fact that the land requirements for pit latrines and septic tanks is very minimal to lead to degradation of flora and fauna.

### **5.2.6 Public Health and Safety**

General public will be exposed to safety hazards arising from construction activities with respect to construction. The project works may expose communities to environmental and social risks with respect to noise, air pollution etc. Construction sites may be a source of both liquid and solid wastes. If these wastes are not well disposed these sites may become a breeding ground for disease causing pests such as mosquitoes and rodents.

### **5.2.7 Workers Health and Safety**

Construction workers will be exposed to safety hazards arising from construction activities with respect to construction. The project works will expose workers to occupational risks due to handling of machinery, construction noise, etc. Construction activities of vegetation clearing, excavation, materials delivery may generate dust that will pollute the air, and this may affect the respiratory system. Construction sites may be a source of both liquid and solid wastes. If these wastes are not well disposed, These sites may become a breeding ground for disease causing pests such as mosquitoes and rodents. If sites are not managed with safety in mind for workers, open pits, exposed trenches and the like can expose workers to hazards.

### **5.2.8 Contamination of Water Sources (surface and underground)**

Increase in suspended particles due to clearing activities and construction works for check and earth dams; risk of human contamination from construction camps; and competition for water will affect the water quality especially where investment projects are close to natural water bodies.

### **5.2.9 Soil Erosion and Degradation**

Construction activities will involve clearing of vegetation and excavation works which expose the soil to erosion agents (wind, water) etc.

### **5.2.10 Labour Influx**

The project is expected likely to stimulate minimal in-migration. Several features of the Project could prompt in-migration. Construction works are also likely to act as a magnet for people and are likely to attract some in-migrants looking for employment opportunities.

### **5.2.11 HIV & AIDS Impacts**

In migration of people may lead to behavioral influences which may increase the spread of diseases such as Human Immuno-Deficiency Virus (HIV), Acquired Immune Deficiency Syndrome (AIDS) and other Sexually Transmitted Infections (STIs).

### **5.2.12 Traffic Risks**

Traffic congestion from construction activities could potentially cause disruption, health and safety impacts, as well as economic impacts. The use of moving construction vehicles and machinery in project sites could cause traffic reducing movement and flow of vehicles.

### **5.2.13 Gender Based Violence, Sexual Harassment and Exploitation**

The construction activities in schools and the risk of sexual harassment/exploitation by workers on the school going children are likely to be high. As a result of the employment generated, workers may engage in inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community. Influx of male labor may also lead to an increase in exploitative sexual relationships and human trafficking whereby women and girls are forced into sex work.

The project will be implemented across the country, with the majority of schools being in rural areas. These areas are characterized by high levels of poverty and limited access to essential services. Furthermore, socio-economic and gender inequalities exist in these areas, due to cultural practices which mostly disadvantage women and children, thereby putting them at risk to incidences of Gender Based Violence (GBV). Whilst construction works will be confined to existing school premises and works undertaken by community members, there is still potential for this risk to arise due to the interaction between community workers and school going children.

### **5.2.14 Land Acquisition**

The project intends to utilize land that is already owned by the educational institutions for constructing the new facilities and no new land acquisition outside of what is owned by the schools is envisaged. In the event that the schools require additional land, social safeguards will monitor that the local chiefs and the community have been engaged to provide extra land for the construction of classrooms through voluntary land donations. However, any exceptional situations should be referred to the Bank at the appropriate level for a final

determination, including any additional measures or instruments that may be needed at the site-specific level in the future. Therefore, the ZEPCU should keep all relevant documentation on VLD.

### **5.3 Impacts during Operation and Maintenance**

The establishment of sanitation system and infrastructure in schools will be mostly beneficial. However, the following impacts associated with such facilities may be experienced including:

#### **5.3.1 Odour**

The sanitation facilities (toilets and septic tanks if not well sited and maintained will be a source of foul smell.

#### **5.3.2 Water Contamination**

Faecal matter may lead to underground water contamination in case the septic tanks and soak away pits malfunction. Contamination of water may lead to outbreak of diseases e.g. cholera, dysentery, typhoid, diarrhoea etc.

#### **5.3.3 Disease Spread**

The area above the slab (i.e., pedestal for sitting or squatting slab) may contain substantial amounts of pathogens, which vary based on the toilet use, geographical location, and incidence of infectivity. Within the pit, the highest number of pathogens are often found in the top section of the accumulated sludge because it has the most recently delivered excrement; however, pathogens may migrate downwards in the pit or percolate with urine and thus lower parts should not be considered risk-free. Sanitation facilities (toilets) can also be breeding grounds for flies and mosquitoes which are disease vectors.

#### **5.3.4 Electronic Waste Hazards**

Obsolete batteries from the solar units, tablets and computers distributed under various project activities, are a source of electronic waste which could degrade the environment if disposed in an unsound manner. Electronic waste (e-waste) is a term used to cover items of all types of electrical and electronic equipment (EEE) and its parts that have been discarded, irreparable or at the end of life. Although e-waste is a general term, it is considered to cover laptops, desktops, tablets, TV's, mobile phones, etc. E-waste contains materials that, if mishandled, can be hazardous to human health and the environment, but, most importantly, also materials that are valuable and scarce. Electrical and electronic equipment contain different hazardous materials, which are harmful to human health and the environment if not disposed of carefully. While some naturally occurring substances are harmless in nature, their use in the manufacture of electronic equipment often results in compounds, which are hazardous (e.g. chromium becomes chromium VI). Lead, mercury, cadmium, and polybrominated flame retardants are found in electronic equipment and are all persistent, bio-accumulative toxins (PBTs).

Negative impacts of poor waste management on Zambia's environment and human health have steadily increased in recent years due to numerous factors, including relatively high rates of economic growth, population growth and urbanisation. A large volume of both solid and e-waste generated in most cities in Zambia is inappropriately disposed resulting in uncontrolled environmental pollution. E-waste impacts the entire country, endangering human well-being

and Zambia's environmental and natural assets. The status of e-waste management in the country is currently unknown.<sup>8</sup>

### **5.3.5 Atmospheric Emission Hazards**

The project will install incinerators in each of the selected schools for disposal of sanitary pads through incineration. The incinerators are a likely source of air emission especially Particulate Matter (PM), Carbon Dioxide, Sulphur Oxide and Nitrous Oxide which are harmful to human health and the environment in general.

### **5.3.6 Student Health and Safety**

The use of chemicals in the laboratories in the secondary schools could lead to health and safety risks for students, teachers, surrounding community members and other school staff.

One of the project activities is to procure reagents for laboratories. Some reagents are considered hazardous or toxic because of their catalytic and reactive nature. They may be flammable, corrosive, irritating, and thus damaging or dangerous to human health and the environment if not carefully stored and disposed of. Therefore, proper storage, management and final disposal of these potentially dangerous chemicals is necessary.

Further, the installation of electricity and operation could also lead to safety hazards if the electricity lines and cabling are poorly installed.

### **5.3.7 Gender Based Violence**

There is a likelihood of gender-based violence in terms of sexual harassment and exploitation specifically for the all-girls weekly boarding schools. The absence of proper and adequate safety and security systems in the girl schools could expose the girls to gender based related violence.

## **5.4 Mitigation Measures**

During the implementation of the ZEEP project it's envisaged that additional classrooms, teacher housing, boreholes and sanitation and power connection to either the national grid in areas near to a connection or off the grid solar installations. These various activities will be implemented across the country in selected existing schools. These sub-projects will have different types of negative environmental and social impacts associated with them as highlighted above. In this section the ESMF identifies possible mitigation measures that will be incorporated into a generic ESMP during project implementation and a subsequent simplified ESMP for contractors during construction works. This ESMF will form part of the agreement with community-based contractors. The ESMP will incorporate national ZEMA requirements, MoE guidelines for school construction and the relevant aspects of the WBG Environmental, Health and Safety Guidelines.

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<sup>8</sup> Civil Society for Poverty Reduction, Environmental and Social Management Plan for the Zambia Voice and Accountability: Community Empowerment for Improved Local Service Delivery Project, July 2022.

**Table 10: Identification of Risks/Impacts and Mitigation measures of planned subprojects**

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
Infrastructure/Construction related	<ul style="list-style-type: none"> <li>• Construction of additional classrooms, administrative blocks, laboratories and home economics facility at beneficiary schools.</li> <li>• Construction of dormitories for learners.</li> <li>• Construction of staff houses.</li> </ul>	<ul style="list-style-type: none"> <li>• Land acquisition</li> <li>• Loss of vegetation and soil cover</li> </ul>	<ul style="list-style-type: none"> <li>• Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.</li> <li>• The construction footprint will be restricted to the site designs and school boundaries. The loss of vegetation will be kept to a minimum within the design footprint. Furthermore, construction workers will be sensitized on the need to conserve vegetation around the sites.</li> <li>• Stock piling of soil for reuse</li> <li>• Restoration of the ground by sowing adequate grass cover and planting of trees</li> <li>• Use of manual equipment</li> </ul>	MoE, Community Leaders, Contractors Site Foreman and Head Teacher at beneficiary school	Community Leaders, Contractor and Head Teacher
		<ul style="list-style-type: none"> <li>• Generation and poor disposal of construction waste during works</li> </ul>	<ul style="list-style-type: none"> <li>• Waste and debris, including sediments and vegetation shall be managed and kept in temporary controlled area and transported in a secure manner for disposal in appropriate disposal facility.</li> <li>• During the operation of the schools, the schools will incorporate waste management in daily school activities to ensure learners and the surrounding communities dispose of waste in line with best disposal practices.</li> <li>• E-waste to be managed and disposed of in accordance with</li> </ul>	Contractors Site Foreman and Head Teacher at beneficiary school	Head Teacher at beneficiary school

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			Annex 9 E-waste Management Plan.		
		<ul style="list-style-type: none"> <li>• Safety and security of learners, community and contractors or community workers during construction works</li> </ul>	<ul style="list-style-type: none"> <li>• The construction areas will be properly secured with signposting, warning signs, barriers and traffic diversions. Signage should inform the public of potential hazards. Provision of safe passages and crossings for pedestrians, along with active traffic management. Adjustment of working hours to prevent disruption of pedestrian access and local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement. Community to be informed about possible temporary restrictions to access.</li> <li>• On the job training of workers and provision of appropriate PPE by contractors.</li> <li>• Additionally, the project will abide by General EHS guidance for management of OHS risks as well as risks to community health and safety.</li> </ul>	Contractors Site Foreman and Head Teacher at beneficiary school	Contractor and Head Teacher at beneficiary school
		<ul style="list-style-type: none"> <li>• Noise and Vibration Impacts during construction from various equipment (mechanized)</li> <li>• Dust and air related impacts during</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of PPE for workers for noise pollution</li> <li>• Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> <li>• Switch off equipment when not in use</li> <li>• Suppress dust generation at project sites</li> </ul>	Contractors Site Foreman	Contractors

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		<p>construction from various equipment (mechanized)</p> <ul style="list-style-type: none"> <li>Workers Health and Safety Impacts during construction from various equipment (mechanized) (exposure to noise and vibration, dust or work-related injuries)</li> </ul>			
		<ul style="list-style-type: none"> <li>Visual intrusion and changes to the landscape</li> </ul>	Site Selection will take into consideration current land use to ensure proposed activities do not alter the aesthetics and general landscape.	Contractors Site Foreman and MoE	Contractor
		<ul style="list-style-type: none"> <li>Increase incidences of HIV/AIDS and sexually Transmitted infections</li> <li>Increased Incidences of sexual relationships between contractors and teenage learners</li> <li>Child labour</li> </ul>	<ul style="list-style-type: none"> <li>Workers to be sensitized on the dangers posed by HIV/AIDS and the means of prevention.</li> <li>Construction workers will be community members and parents from within the school catchment area. However, the school staff and construction supervisors will continuously engage in sensitization and information dissemination aimed at safeguarding the girl child.</li> <li>Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance;</li> <li>Response to SEA: including survivor-centered multi-sectoral</li> </ul>	MoE, Community Leaders, Contractors Site Foreman, Ministry of Health, and Head Teacher at beneficiary school	Community Leaders, and Head Teacher at beneficiary school

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			referral and assistance to complainants; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level		
		<ul style="list-style-type: none"> <li>Poor living conditions and sanitation workers</li> </ul>	<ul style="list-style-type: none"> <li>It is envisaged that no labour camps will be setup as all construction workers will be from the surrounding communities.</li> </ul>	Contractors Site Foreman,	Contractor
	<ul style="list-style-type: none"> <li>Use/operation of laboratories</li> </ul>	<ul style="list-style-type: none"> <li>Exposure of students and teachers to chemicals and wastes while undertaking activities in the laboratories</li> </ul>	<ul style="list-style-type: none"> <li>Provide training to students and ensure they have proper knowledge of the toxic effects of these chemicals, the routes of exposure and the hazards that may be associated with handling and storage of hazardous reagents.</li> <li>Ensure that laboratories are equipped with a safety or operations manual that includes material safety data sheets or other chemical hazard information from chemical manufacturers and/or suppliers. Ensure the compliance and implementation of the safety measures in the safety manuals for laboratories.</li> <li>Ensure that there are cabinets designed to protect the students, the laboratory environment and work materials from exposure to infectious aerosols and splashes</li> </ul>	School Administration	School Administration



Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			<p>that may be generated when manipulating materials containing. Similarly, laboratories should have standard safety equipment such as eyewashes and observe standard safety protocols.</p> <ul style="list-style-type: none"> <li>• Provide PPE for students when handling chemicals in the laboratory (goggles, gloves, dust masks), etc</li> <li>• Ensure that at all times, students while in the laboratory are accompanied by a competent science/subject teacher.</li> <li>• Ensure that the students are provided with training for responding to emergency situations like exposure (dermal, ingestion) etc.</li> <li>• Ensure there is a disposal plan for disposal of the wastes (solvents and general wastes) generated by the laboratory activities. In accordance with the EHS, reagents should be autoclaved if possible and then incinerated.</li> </ul>		
	<ul style="list-style-type: none"> <li>• Use of other facilities (dormitories; classrooms; ablution blocks) etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Exposure of students and school community to structural related hazards lack of incorporation of universal access designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that the designs (structural and mechanical) of all the facilities take into consideration and incorporate structural safety measures and universal access requirements.</li> <li>• Ensure that the design of the all-girls boarding schools include</li> </ul>	MOE and Design Consultants	MOE and Design Consultants

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		<ul style="list-style-type: none"> <li>Exposure to Gender Based Violence and Abuse in the all-girls boarding schools</li> </ul>	<p>safety and security measures including perimeter walls.</p> <ul style="list-style-type: none"> <li>Ensure that the all-girls facilities have a security officer manning the access points and documenting all visitors.</li> <li>Sensitization of all stakeholders of the school community (including teachers, principals, administrative staff, counsellors, union leaders, parents and students) on the development of safe school plan which would include community-based safe passage to school and life skills programs for girls and boys which focus on non-violent conflict resolution, assertiveness, reproductive health, inclusion and diversity;</li> <li>Communications of the Code of Ethics (the teaching profession code of ethics regulation 2018) with clear guidance on how the code is enforced, particularly on corporal punishment, violence and SBGBV;</li> <li>Implementation of a child friendly Grievance Redress Mechanism (GRM) with related communication and sensitization efforts at the school and community level;</li> <li>Training to guidance and counselling teachers who will serve as Gender Focal Points for</li> </ul>		

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			<p>schools together with relevant Zonal representatives. The training will focus on the support to be provided for survivors of GBV and students at risk following national protocols. These activities will be informed by international best practices, as well as the experience of ongoing programs. They will be implemented by NGOs with community support and close collaboration with parents and community leaders. The sub-component will also support specific outreach to at-risk girls with referrals to health and GBV-related services, as well as programs to facilitate the reentry of girls who are out of school, possibly including accelerated programs.</p>		
<b>Water and Sanitation</b>	<ul style="list-style-type: none"> <li>• Sinking of boreholes for portable water</li> </ul>	<ul style="list-style-type: none"> <li>• Land acquisition</li> <li>• Noise and Vibration Impacts during drilling</li> <li>• Dust and air related impacts during drilling</li> <li>• Drilling waste including oil from drilling truck, drilling materials etc.</li> <li>• Workers Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>• Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.</li> <li>• Provision of PPE for workers for noise pollution</li> <li>• Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> <li>• Switch off generator and truck when not in use</li> </ul>	Borehole Drilling Company	Borehole Drilling Company

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		<p>Impacts during drilling (exposure to noise and vibration, dust or work-related injuries)</p> <ul style="list-style-type: none"> <li>• Ground and surface water contamination</li> <li>• Increased strain on the water table from abstraction activities</li> <li>• Health related impacts (diseases) due to poor water quality</li> </ul>	<ul style="list-style-type: none"> <li>• Suppress dust generation at project sites</li> <li>• Use of good quality fuel and lubricants</li> <li>• All boreholes will be drilled at recommended distances away from pit latrines and septic tanks</li> <li>• Drilling Companies and contractors will be required to access the yields of boreholes and recommend an abstraction rate that will retain the water table to sustainable levels.</li> <li>• Undertake water quality testing for all boreholes during commissioning to determine quality as per WHO Standards</li> </ul>		
	<ul style="list-style-type: none"> <li>• Construction and operation of septic tanks and soak away</li> </ul>	<ul style="list-style-type: none"> <li>• Land acquisition</li> <li>• Ground water contamination from septic tanks and soak away</li> <li>• Odour/foul smell</li> <li>• Disease spread</li> <li>• Pest menace</li> </ul>	<ul style="list-style-type: none"> <li>• Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.</li> <li>• Ensure proper siting of the pit latrine</li> <li>• All septic tank construction will conform to the MoE guidelines for schools to ensure leaks and slippage's into ground water are kept to a minimum or eliminated.</li> </ul>	MoE and Contractors Site Foreman,	MoE and Contractor
	<ul style="list-style-type: none"> <li>• Construction and operation of ablution blocks</li> </ul>	<ul style="list-style-type: none"> <li>• Land acquisition</li> <li>• Odour/foul smell</li> <li>• Exposure of users (students) to pathogens</li> </ul>	<ul style="list-style-type: none"> <li>• Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.</li> </ul>		

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		<ul style="list-style-type: none"> <li>• Water contamination</li> <li>• Disease Spread</li> <li>• Pest Menace</li> </ul>	<ul style="list-style-type: none"> <li>• Ablution blocks for learners will follow the MoE acceptable school design standards to ensure the health of the learners is protected at all times.</li> <li>• Ensure proper siting of the pit latrine</li> <li>• Provide training to communities on proper use of latrines and hygiene</li> <li>• Provide hand washing facilities</li> <li>• Ensure proper cleaning of pit latrines</li> <li>• Use biopesticides</li> <li>• Provide training on proper latrine</li> </ul>		
	<ul style="list-style-type: none"> <li>• Construction and incinerators for disposal of sanitary pads</li> </ul>	<ul style="list-style-type: none"> <li>• Land Acquisition</li> <li>• Noise and Vibration Impacts during construction from various equipment (mechanized)</li> <li>• Dust and air related impacts during construction from various equipment (mechanized)</li> <li>• Workers Health and Safety Impacts during construction from various equipment (mechanized) (exposure to noise and vibration, dust</li> </ul>	<ul style="list-style-type: none"> <li>• Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.</li> <li>• Provision of PPE for workers for noise pollution</li> <li>• Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> <li>• Switch off equipment when not in use</li> <li>• Suppress dust generation at project sites</li> <li>• The setting of incinerators will conform to ZEMA requirements and the placement of the facility will take into consideration, wind direction and surrounding facilities.</li> </ul>		

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		or work-related injuries).	<ul style="list-style-type: none"> <li>Furthermore, school authorities will be required to ensure only the recommended materials (i.e. sanitary pads) are incinerated.</li> </ul>		
	<ul style="list-style-type: none"> <li>Operation of incinerators for disposal of sanitary pads</li> </ul>	<ul style="list-style-type: none"> <li>Increased air emissions from incineration activities</li> </ul>	<ul style="list-style-type: none"> <li>The setting of incinerators will conform to ZEMA requirements and the placement of the facility will take into consideration, wind direction and surrounding facilities.</li> <li>Furthermore, school authorities will be required to ensure only the recommended materials (i.e. sanitary pads) are incinerated.</li> </ul>	MoE and school administration	MoE and school administration
<b>Provision of Power Supply</b>	<ul style="list-style-type: none"> <li>Connection of power supply to beneficiary schools located in close proximity to the power grid.</li> </ul>	<ul style="list-style-type: none"> <li>Noise and Vibration Impacts during construction from various equipment (mechanized)</li> <li>Dust and air related impacts during construction from various equipment (mechanized)</li> <li>Workers Health and Safety Impacts during construction</li> <li>Electrical risks associated with power installations and</li> </ul>	<ul style="list-style-type: none"> <li>Provision of PPE for workers for noise pollution</li> <li>Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> <li>Switch off equipment when not in use</li> <li>Suppress dust generation at project sites</li> <li>All power connection to the national grid will be undertaken with the help of ZESCO or the Rural Electrification Authority (REA) to ensure safety and environmental concerns have been taken into consideration. The environmental and social clearance will remain the responsibility of ZESCO and REA were applicable and not the MoE.</li> </ul>	ZESCO and REA	ZESCO and REA

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
	<ul style="list-style-type: none"> <li>Installation off the grid solar power to beneficiary schools</li> </ul>	<p>solar panels (workers' health and safety risks)</p> <p>Impacts from used (obsolete) batteries from the solar panels.</p>	<ul style="list-style-type: none"> <li>Off the Grid power connection will be undertaken by certified installers to ensure safety of the learner and school communities are taken into consideration. Installation will be either roof or ground mounted. In areas that fall in the jurisdiction of the REA project areas, the MoE will be required to coordinated with the authority on the best practices for installing, operation and maintaining solar installation including decommissioning and disposal.</li> </ul>	Solar Installation Contractor	Solar Installation Contractor
	<ul style="list-style-type: none"> <li>Operation of electrical systems by students</li> </ul>	<p>Electric hazards likely to be encountered by students and teachers operating the electrical systems (electrocution) is a potential risk if the electrical system is installed by unqualified personnel or if student or teachers tamper with the electrical systems.</p>	<ul style="list-style-type: none"> <li>All electrical engineering works in the facilities will be undertaken by a qualified electrical engineer certified ZESCO or the Rural Electrification Authority (REA) to ensure safety and environmental concerns have been taken into consideration.</li> <li>It is essential that all electrical installations and equipment are inspected and tested regularly, including earthing/grounding systems.</li> <li>Circuit-breakers and earth-fault-interrupters should be installed in appropriate electrical circuits.</li> <li>Students and teachers will receive training, awareness and sensitization on the use of electrical systems and warnings</li> </ul>	Electrical Engineer/Installer and Contractor	Electrical Engineer/Installer and Contractor

Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			<p>not to tamper with the electrical systems.</p> <ul style="list-style-type: none"> <li>Each facility will have training on emergency response in case of electrical faults including installation of firefighting equipment in case of fires caused by electrical faults.</li> <li>Fire-fighting equipment should be placed near room doors and at strategic points in corridors and hallways. This equipment may include hoses, buckets (of water or sand) and a fire extinguisher. Fire extinguishers should be regularly inspected and maintained, and their shelf-life kept up to date.</li> </ul>		
<b>Provision of ICT Equipment</b>	<ul style="list-style-type: none"> <li>Tablets for learners</li> </ul>	<p>Generation of electronic wastes (tablets) which when poorly disposed are a hazard to the environment.</p>	<ul style="list-style-type: none"> <li>E-waste will be handled through the project E-waste management plan (Annex 9) to prevent inappropriate disposal to the environment and harm the local community.</li> <li>Project will secure official EEE with protective covers and insurance where applicable with suppliers that take back, recycle or otherwise dispose of obsolete equipment where possible.</li> <li>Teachers, schools and other entities receiving ICT from the project will be informed</li> </ul>	<ul style="list-style-type: none"> <li>MoE and school administration</li> </ul>	<ul style="list-style-type: none"> <li>MoE and school administration</li> </ul>



Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
			<p>of and sensitized about proper disposal of EEE. The sensitization or training should include the usefulness and significance of e-waste recycling and the need for returning all electronic items procured by the project to a collection centre that should be established at an appropriate location.</p> <ul style="list-style-type: none"> <li>• When there is no supplier take back scheme, this waste will be disposed of through licensed hazardous / solid waste management service providers as stipulated in Solid Waste Regulation and Management Act, 2018, and Environmental Management (Licensing) Regulations (SI. No 112 of 2013) fifth schedule, regulation 18 (1).</li> </ul>		

## **6 CHAPTER 6: CLASSIFICATION OF SUB-PROJECTS, SCREENING, APPROVAL AND IMPLEMENTATION**

Given the expanded geographical and technically transformative scope of the ZEEP AF, and in the light of the objectives stated above, implementation of each component and sub-component will be assigned to the relevant departments, directorates and agencies. The existing PIU will be replaced with a Zambia Education Project Coordinating Unit (ZEPCU) staffed with appropriate skills, expertise and experience. The details on ZERCU staffing and implementation roles and responsibilities are provided in Annex 2 of the PAD. The ZEPCU will directly report to the Permanent Secretary in-charge of Administration and Finance. While MoE will be responsible and accountable for the implementation of the project, relevant Directorate/Department/Agency in accordance with their mandate will be directly responsible for planning, implementation, monitoring and delivering results for their respective component and sub-components.

The core functions of the ZEPCU would include: (a) coordinating the preparation and finalization of the Annual Work Plan and Budget (AWP&B); (b) undertaking project M&E activities, including the preparation of progress reports; (c) conducting baseline, mid-term, and final assessments, as well as mid-term project management reviews and other process and impact evaluations as necessary; (d) ensuring that DLI achievements are verified by the contracted third-party agency; (e) organizing PISC meeting in a timely manner; (f) supporting the implementing agencies in hiring national and international technical experts; (g) preparing and submitting Interim Financial Reports and withdrawal applications to the World Bank in a timely manner; (h) facilitating external and internal audits in a timely manner; (i) providing procurement and contract-management support to the implementing agencies; (j) facilitating and coordinating semi-annual implementation support missions and other technical mission and prepare all documents required for these missions; (k) performing all functions required to ensure compliance with relevant legal covenants; (l) developing and implementing a communication strategy for communication strategy for communicating with internal and external stakeholders regarding the project; and, (m) establishing and operationalizing a grievance redress mechanism. In addition, the PCU will develop, implement, and monitor the grievance redress mechanism described below and ensure that grievances are redressed in a timely manner by the respective departments, directorates, or agencies. This sub-component will also support the provision of training to the MoE and participating institutions on financial management, procurement, safeguards, and M&E related to World Bank project implementation.

The objective of this component is to increase access to secondary education in underserved communities. Through the parent project, eighty-two (82) secondary schools are being built in Muchinga, Luapula, Southern, Eastern, Central, Northern, and Lusaka provinces. The first and second AF will support building 120 additional schools in target districts across the ten provinces, including Copperbelt, North-Western and Western, in alignment with the proposed new school package.

It will use a community-based approach for school construction and a 2-phase implementation schedule in order to provide earlier access for students. The criteria for selecting schools eligible for expansion is broadly targeting the neediest communities in rural areas, as defined by poverty, pupil-classroom ration, primary to secondary school's transition rate, number of secondary school age children out of school, and recent Government interventions (newly constructed and upgraded basic school) and other conditions.

The following is an outline of the process that will be undertaken to oversee the subproject identification, preparation, screening, approval and implementation process for classroom construction including and support facilities. The process will be guided by the Environmental

Management Act, EIA regulations and World Bank safeguard policies including World Bank Group General Environment Health and Safety (EHS) Guidelines in order to address environmental and social management considerations under the project.

## **6.1 Screening, Review, Clearance and Implementation of Sub-project Safeguard Instruments**

### **Step 1: Community screening of each proposal vis-à-vis potential environmental and social impacts.**

When the sub-project details such as scope and location are established, screening of investments will be carried out at the stage of identification and selection of subprojects. Screening will identify whether the subproject has the potential to cause significant adverse impacts on the environment and society, and thus ensure that environmental sound design of the sub projects occurs right at the project design phase.

The screening shall take into account the potential impact of the subprojects on performance of environmental and social management regarding but not restricted to following aspects: emission, wastewater discharge, waste management and disposal, occupational health and safety, periodical environmental quality monitoring, land acquisition, compensation, physical relocation, livelihood restoration and vulnerability of the people in accordance to the national requirements.

The first step will be for community groups or its joint committee or task force to screen each proposed construction to identify potential environmental and social impacts. Annex 1 of the ESMF will guide the community groups in the screening process, with the assistance from ZEPCU. Screening by community groups will commence right at the project inception phase as soon as the specific sub project details are known including nature and scope, proposed location and area among other parameters.

The ZEEP already has a screening and review form that it uses to ensure that adequate safeguards are incorporated in all the projects targeted for funding. The screening form requires that all concept proposals for potential funding indicate the location, the scope, size, and extent among others, which make it possible to conduct screening.

At district level, the Environmental Planner will carry out screening in collaboration with the community group or its joint committee or task force using the checklist provided in Annex 1. The screening checklist will then be submitted to the E&S Safeguard Specialist at ZEPCU. Based on the submitted screening checklist, the ZEEP-AF E&S safeguard specialist will then determine whether:

- Full environmental and social assessment is required;
- A stand-alone environmental and social management plan (ESMP) is what is required; or
- No further environmental assessment required.

If the subprojects only bring about positive impacts and/or causing minimal or no adverse impact, it is appraised as environmental eligible and beyond screening; no environmental assessment action is needed. In the event that the screening shows that there are minimal or no impacts (as determined using the checklist), the District Environmental Planner must consult with the ZEEP-AF Environmental and Social Safeguard specialist for confirmation. When there may be doubt concerning subproject risks and impacts, the environmental planner, in consultation with the district will consult with the project E&S Specialist for guidance.

Under the ZEEP, presently, when projects are screened and determined as likely to lead to adverse environmental and social impacts, an ESMP is prepared by ZEMA registered ESIA consultants (social and environment).

Procurement of electronic equipment does not require screening, but ZEPCU procurement officers and other project implementers at appropriate levels will be engaged to ensure that all electronic devices are procured from retailers and sources that are credible, that all devices will have a clear date of manufacture and warranty and the item is of a high quality to avoid high turnover of EEE which would result in increased waste generation. All items should be purchased with protective covers and insurance where applicable. If possible, retailers or sources of electronic items should be engaged where a repair, renewal, recycling or take back scheme option is offered. If the retailer or source does not offer some or all of these options, then the project is to locate legally licensed facilities that repair or recycle electronic items. If such options do not exist, then disposal should follow the Environmental Management (Licensing) Regulations (SI. No 112 of 2013) as detailed in the preceding paragraphs.

**Step 2: Preparation of Environmental Impact Assessment or Environmental Project Brief/ESMP based on ESMP template attached to the ESMF. ESMP to be included in the contractor’s contract and program of work.**

**Determination of level of Environmental Assessment required**

ZEMA is the institution designated to make a decision on whether a full scale ESIA is necessary for proposed investments or otherwise. To make this determination, an environmental project brief (EPB) must be submitted to ZEMA in order to make a determination and this is part of the screening. The project/screening report will be prepared by ZEEP/PMU on behalf of the schools and then submitted to the ZEMA for further determination. The Bank also requires that sub project investments are screened in order to make a determination as to whether a full scale ESIA, a standalone ESMP or no further environmental studies are needed for investments. Activities requiring a full cycle ESIA will not be considered eligible under this project.

***Project investment is approved.*** Where ZEMA ascertain that an environmental project brief has disclosed adequate mitigation for identified impacts, the project is approved by ZEMA upon which, conditions attached to grant of an Environmental License are issued. Once these are fulfilled, an Environmental License is also issued subject to conditions which will be specific to the sub project in question. Among these is the requirement that the scheme design should not be altered without approval by ZEMA. As well, an audit report is required of each project after the first year of completion.

***Project Report discloses potential for major irreversible adverse impacts.*** In this case, ZEMA may not approve the project. It is not expected that the ZEEP-AF projects will trigger the need for ESIA. Activities requiring a full cycle ESIA will not be considered eligible under this project.

**Table 11: Possible Outcomes of ZEMA Review of Environmental Project Briefs and Reports**

<b>Outcome</b>	<b>Recommendation</b>	<b>Important precautions</b>
Project found to have no significant social and environmental Impacts or Project report discloses sufficient mitigation measures	An Environmental License will be issued by ZEMA	Environmental Project Briefs must disclose adequate mitigation measures and show proof of comprehensive consultations within the area of influence.

Significant adverse social and environmental impacts found, or environmental project brief fails to disclose adequate mitigation measures.	A full cycle EIA will be required by ZEMA. Activities requiring a full cycle ESIA will not be considered eligible under this project.	As above
A proponent is dissatisfied with the outcome of the ZEMA review.	An Appeal is provided.	

In the eventuality that a Project cannot be approved by ZEMA on the basis of an environmental project brief, the proponent will be advised to undertake full cycle ESIA leading to development of a fully-fledged Environmental and Social Impact Assessment Study Report. If significant impacts are anticipated, then the ZEEP-AF E&S safeguard specialist will consult with the ZEMA and determination of Environmental Assessment (EA) procedures duly followed.

If its determined that an EA is required, the ZEEP-AF PMU will, use the EIA regulations, SI 28 of 1997, which differentiates projects into two groups as indicated in schedules I and II of the regulations to prepare the required document based on the screening results. The classification is based on project type and the associated thresholds. According to regulation 3 and 7, the requirement for an EPB or an EIS applies to:

- A developer of any project set out in the First (EPB) or Second (EIS) Schedules, whether or not the developer is part of a previously approved project;
- Any alterations or extensions of any existing project which is set out in the First (EPB) or Second (EIS) Schedules, or;
- Any project which is not specified in the First (EPB) or Second (EIS) schedules, but for which ZEMA determines an EPB or an EIS should be prepared.

### ***Environmental Project Brief***

Projects with less significant impacts will require that an Environmental Project Brief (EPB) be prepared and submitted to ZEMA for consideration. ZEPKU will contract an environmental consultant to prepare an EPB. According to regulation 4 of the EIA Regulations, SI 28 of 1997, if the decision is to prepare an EPB, the developer shall prepare an EPB taking into account the following:

- a) the site description of the environment;
- b) the objectives and nature of the project and reasonable alternatives;
- c) the main activities that will be undertaken during site preparation, and construction and after the development is operational;
- d) the raw and other materials that the project shall use;
- e) the products and by-products, including solid, liquid and gaseous waste generation;
- f) the noise level, heat and radioactive emissions, from normal and emergency operations;
- g) the expected socio-economic impacts of the project and the number of people that the project will resettle or employ, directly, during construction and operation etc;
- h) the expected environmental impact of the project;
- i) the expected effects on biodiversity, natural lands and geographical resources and the area of land and water that may be affected through time and space; and
- j) A description of adverse mitigation measures and any monitoring programs to be implemented.

The Project E&S Safeguard specialist will then submit six copies of the EPB to ZEMA after payment of an appropriate review fee. The fee is calculated based on the cost of the project as provided in the Fifth Schedule.

***Full Environmental Impact Assessment***

Projects with significant impacts, will require that a detailed Environmental Impact Assessment be carried out and an ESIA report prepared and submitted to ZEMA for approval. An environmental consultant will be contracted by ZEEP-PMU. If an investment project will be subjected to a detailed assessment, the following sections will apply:

For investment projects, where a full EA is required, the EA process is carried out in the following steps, also as shown in figure below, and includes:

- a. impact screening,
- b. scoping and Terms of Reference preparation
- c. baseline studies,
- d. impact evaluation,
- e. identification of mitigation measures,
- f. assessment of alternatives
- g. environmental and social management and monitoring plan
- h. report compilation, and
- i. disclosure.

The prepared ESIA report will be disclosed on the WB, ZEEP and ZEMA websites as part of stakeholder consultation. This project does not expect to have activities that could have significant impacts. Activities requiring a full cycle ESIA will not be considered eligible under this project.

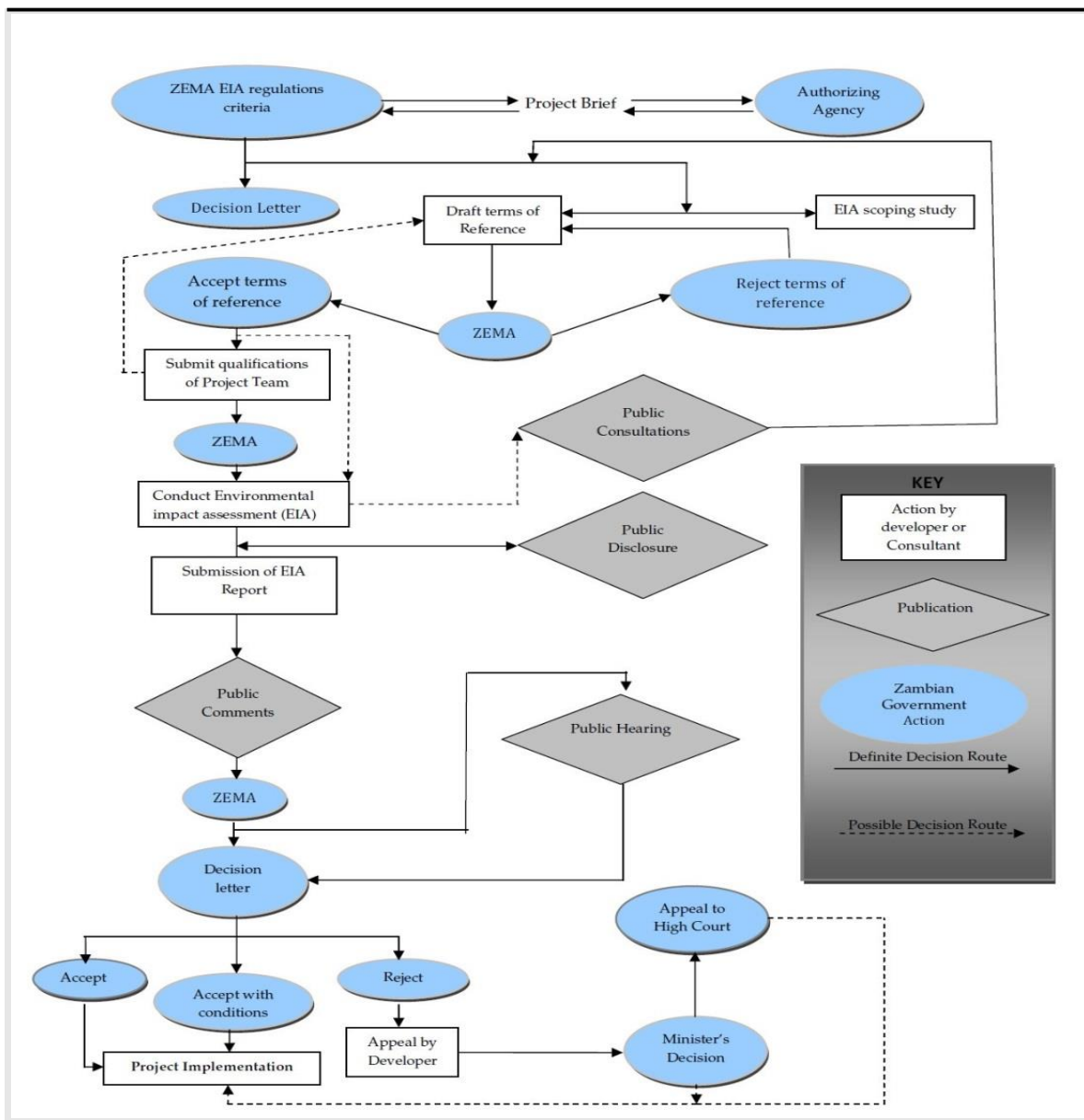


Figure 6. The process guiding the ESIA

**Step 3: Independent Third-Party Verification, to verify presence of ESIA/EPB/ESMP and implementation of measures set forth as part of verification process prior to disbursing funds.**

During the verification process, the Independent Third-Party verifier will verify the presence of ESMP, and the implementation of measures set forth in the ESMP. This will be part of verifying DLI 5 (construction of classrooms and associated facilities). Non-compliance with ESMP could delay disbursement of funds until compliance is effected or cause non-disbursement of funds.

**Step 4: ESIA/EPB monitoring during implementation.**

ZEPCU will also monitor construction works and the implementation of ESMP. ZEPCU will work with the Third-Party Verifier during the verification process to make sure that safeguards are included.

The World Bank will also monitor implementation of the ESMF during its regular supervision missions.

Monitoring will also be carried out by the District Environmental Planner using monitoring checklist derived from the environmental management and monitoring plans of the EPB reports.

ZEMA inspectors carry out periodic inspections of approved and licensed projects. Environmental audits will also be carried out as ZEMA deems necessary.

### EEE

**Training:** Teachers, schools and other entities receiving ICT from the project will be informed of and sensitized about proper disposal of EEE once they become damaged, irreparable or at their end of life. The sensitization or training should include the usefulness and significance of e-waste recycling, and the need for returning all electronic items procured by the project to a collection centre that should be established at an appropriate location.

**Disposal:** The last option in the management of e-waste is disposal. All e-waste should be segregated from other waste, collected at a designated point, inventoried and stored in a labelled container. When preparing for shipment the following steps and information should be implemented and identified:

- Name and identification number of the material(s) composing the e-waste
- Physical state (i.e., solid, liquid, gaseous or a combination of one, or more, of these)
- Quantity (e.g., kilograms or liters, number of containers)
- Waste shipment tracking documentation to include, quantity and type, date dispatched, date transported and date received, record of the originator, the receiver and the transporter
- Method and date of storing, repacking, treating, or disposing at the facility, cross-referenced to specific manifest document numbers applicable to the e-waste
- Location of each e-waste within the facility, and the quantity at each location

Any entity that is contracted to treat, handle, transport, store, dispose of, transit or trade e-waste is required to hold a ZEMA hazardous waste license. Project related e-waste could end up in a landfill site. However, any landfill receiving project EEE waste must be managed in accordance with the guidelines prescribed in Zambian regulation’s ninth schedule and in accordance with section 24 (2) the Requirements of an Operator at a Hazardous Waste Disposal Site. Transboundary movement of project-related hazardous waste is not expected.

## 6.2 Overall Project Compliance and Reporting

The ESMF will be implemented by the ZEEP-AF implementing agency who will collaborate with the safeguard’s specialist to ensure effective execution. Table 12 below provides a summary of the stages and institutional responsibilities for the screening, preparation, assessment, approval and implementation of the sub-project activities.

**Table 12. Coordination Responsibilities**

Stage	Institutional Responsibility	Implementation Responsibility
Screening using checklist	Contracting institution	District Environmental Planner Safeguard specialists
Determination of appropriate environmental assessment level	ZEPCU if thresholds are known	-



	ZEMA if thresholds are not known	
Selection of Consultant	Contracting Authority/ Procurement Office	Procurement Officer/ Project Safeguard Specialist
Preparation of Terms of Reference	ZEPCU	Safeguard specialists Consultant
Realization of the ESMP	ZEPCU	Consultant/ Project Safeguard Specialist
Review and Approval	ZEMA/ ZEPCU	
Evaluation and monitoring	ZEMA/ZEEP-AF/World Bank	Environmental Safeguard Specialist

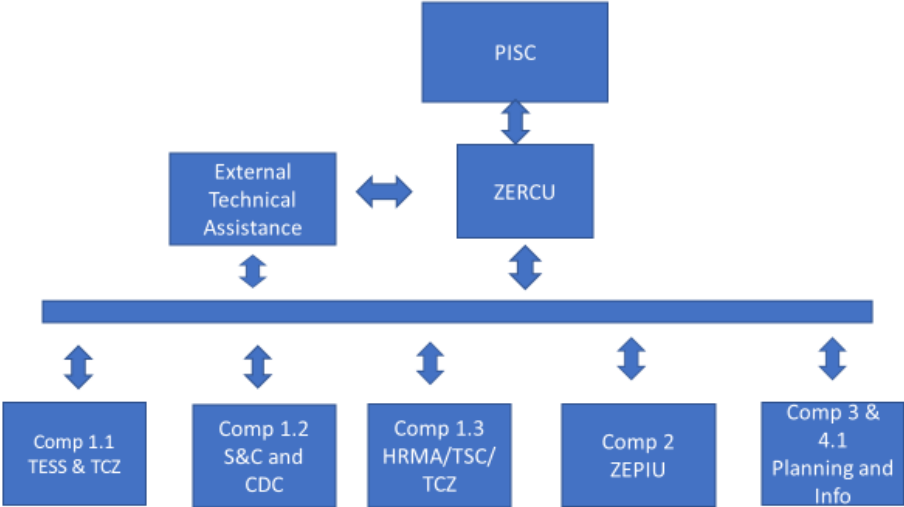
### **Implementation Framework for Component 2**

**National level.** The implementation team will comprise the MoE staff in the infrastructure section (ZEPCU) under the Directorate of Planning and Information. It will consist of architects, engineers, and quantity surveyors. This team will be led by an architect and will be responsible for the oversight of the implementation of this component at the national level. It will work with the MoE's PSU to procure all services, furniture, and equipment that will need to be procured at the central level. As the implementation takes a community-based approach, the Ministry of Local Government will be consulted, and its support will be solicited to provide support to ensure the overall quality of infrastructure at the community level.

**Provincial/District level.** At the provincial level, all construction under this project will be coordinated by a team of two staff (Resident Engineer and Senior Buildings Officer), both under the MoE. The team leader will be the Resident Engineer. At the district level, all of the construction under this project will be coordinated by the DEBS, which shall include the District Buildings Officer under the MoE and other officers who may be appointed by DEBS to facilitate community mobilization and training. If the local system is already decentralized, the Resident Engineer at the provincial level will coordinate and supervise construction activities at the school/local community level.

**School/local community level.** At this level, a Project Implementation Committee will be elected by members of the community where a selected expansion school resides to coordinate project implementation activities. The PIC will report to the PTA, the DEBS, or the PEOs. It will form subcommittees, such as the procurement subcommittee responsible for procurement of materials, the stores subcommittee responsible for storing and issuing material and tools, and the finance committee responsible for ensuring that construction is properly funded and that all payments are made on time.

Implementation Arrangements



- **Note:** ZERCU has been amended to ZEPCU (Zambia Education Project Coordinating Unit)

## **7 CHAPTER 7: SUPERVISION AND MONITORING PLAN**

Lack of adherence to World Bank and Zambian environmental and social policies and legislation could raise challenges during the implementation phase of most projects. Therefore, the importance of monitoring is critical to the successful implementation of projects and sub-projects under the ZEEP-AF.

The objectives of the environmental and social monitoring plan (ESMP) for the ZEEP-AF are to:

- (a) Generate and provide policy makers, decision makers (at national and provincial level), implementers (at district and sub-district and community levels), financiers and controlling authorities with timely information on the progress being achieved. This monitoring information will enable implementers to make informed decisions regarding appropriate adjustments in the implementation of the sub-projects;
- (b) Determine whether the goals and objectives of the mitigation measures on ZEEP-AF have been achieved. This assessment of performance compares the baseline environmental and social conditions with the actual conditions at the time of monitoring of the projects and sub-projects in order to assess the extent to which the original environmental and social conditions have been restored, improved or made worse;
- (c) Ensure that all activities relating to the operation and maintenance are being carried out in a manner that protects the environmental and social conditions without compromising the health and social well-being of the beneficiaries and target communities; and
- (d) Ensure, where required, that any changes to the ESMPs are made with necessary suggestions for additional training and institutional capacity building in order to improve the performance of the ESMP implementation.

Supervision and monitoring is a key component of the ESMP during project implementation. Monitoring should be undertaken during the ZEEP-AF implementation phase to authenticate the effectiveness of impact management, including the extent to which mitigation measures are being successfully implemented. Prior to the start of the construction, ZEPCU will review the ESMP submitted by the Project Implementation Committee of the community of each selected expansion school. During the implementation, the hired independent verification agency will verify the presence and compliance of ESMP and the implementation of mitigating measures during construction, in addition to verifying the achievement of the agreed results. The aim of monitoring will be to:

1. Improve environmental and social management practices;
2. Check the efficiency and quality of the EA processes;
3. Establish the scientific reliability and credibility of the EA for the project; and
4. Provide the opportunity to report the results on safeguards and impacts and proposed implementation of mitigation measures.

### **7.1 Compliance Monitoring**

This is to authenticate that the required mitigation measures, which are the environmental and social commitments agreed on by the implementing agency, local implementing agencies and contractors are being adhered to. A monitoring framework will be developed based on agreed prototype sub-projects as they are specified in the positive list of projects. ZEPCU will be responsible for undertaking compliance monitoring.

## **7.2 Impact Monitoring**

Monitoring of sub-projects impacts mitigation measures should be the duty of ZEPCU. The Environmental and Social Safeguards agreed in the contract specifications should be monitored to ensure that works are proceeding in accordance with the laid down mitigation measures. ZEPCU and implementing agencies should ensure that the project implementers submit reports on work progress and any challenges in observing the Environmental and Social Safeguards. The monitoring results should form a major part of the reports to be submitted to the MoE ZEPCU and shared with ZEMA where applicable.

## **7.3 Cumulative Impacts Monitoring**

The impacts of the ZEEP on the environmental and social resources within the project areas should be monitored with consideration to other developments which might be established or already existing. There should be collaboration between ZEPCU and proponents of other development projects to compare Environmental and Social Safeguards guiding the individual projects implementation to ensure coordinated and comprehensive management of cumulative impacts. There are two aspects of monitoring in ZEPCU include; the first aspect takes into account the monitoring at ward and community level (project site) where the project is being implemented and; secondly, at the larger scale for all sub-projects at district and provincial level.

## **7.4 Annual Monitoring and Reviews**

Environmental and social monitoring needs to be carried out during the implementation of the sub-projects. Monitoring of the compliance of sub-project implementation with the mitigation measures set out in the sub-project's ESMP will be carried out by ZEPCU, where relevant, jointly with the support from community leaders and local authorities. Compliance monitoring comprises on-site inspection of activities to verify that measures identified in the ESMP are being implemented. One of the monitoring tasks is to ensure that the contractor is achieving the required standards and quality of work. ZEPCU will oversee the inspections. An annual inspection report must be submitted (together with the monitoring report) to the World Bank for review and approval. Annual reviews may be carried out by an independent consultant or other service provider that is not otherwise involved with ZEEP-AF. The purpose of the reviews is:

- To assess compliance with ESMF procedures, learn lessons, and improve future ESMF performance;
- To assess the occurrence of, and potential for, cumulative impacts due to project-funded and other development activities.

The annual reviews will be a principal source of information to ZEPCU for improving performance. Action plan or mitigation actions will be developed to address areas for change. Thus, they should be undertaken after the annual report on monitoring has been prepared and before World Bank supervision of the project.

## **7.5 Supervision requirement and Environmental and Social Monitoring Plan**

Environmental and social supervision needs to be carried out during all phases including construction, operation and maintenance of sub-projects in order to measure the success of the mitigation measures implemented. Sub-project designs must include a monitoring framework, together with safeguard indicators. The monitoring requirements of the ESMF that take into consideration the environmental and social mitigations measures are:

- i. Mitigations measures outlined in the ESMP are fully implemented in consultation with all stakeholders involved at national, provincial, district, and ward and community levels;

- ii. Adherence to the policies and legal requirements as outlined in the World Bank, and national legal frameworks;
- iii. The local people’s expectations and regulations are taken into account;
- iv. All the stakeholders and institutions involved in implementations of the sub-projects ought to be familiarized with the challenges of identification of impacts and mitigation measures prescribed for each sub-project.

An Environmental and Social Management Plan (ESMP) is required for sub-projects that have distinct mitigation measures such as physical works or management activities. Where required, the ESMP must be included in the sub-project application.

## 7.6 Monitoring Indicators

The monitoring of sub projects runs according to the following plan: the beneficiaries themselves will include mitigation mechanisms in the application for a sub project. The mitigation mechanisms are part of the appraisal, and the satisfactory fulfilment of the mitigation mechanisms is routinely monitored by ZEPCU or ZEPCU designated agent. The communities are trained by the PIU in environmental and social management in accordance with the ESMP. Where relevant, the district officers of relevant line ministries from local government and infrastructure. Thirdly ZEPCU performs quarterly monitoring and a final audit at the end of the project cycle.

Monitoring indicators that show the environmental and social performance of the project, and in particular demonstrating that mitigation measures are working effectively are an important component of the ESMF. The ESMP will be required to contain information on:

1. Nature of project being implemented;
2. Environmental and social impacts associated with the project;
3. Mitigation or enhancement measures for addressing the identified impacts;
4. Indicators for assessing progressing and effectiveness of mitigation or enhancement measures;
5. Monitoring schedule outlining the timing and frequency of monitoring the indicators;
6. Responsible office or organization to undertake the monitoring.

Selected indicators should be measured in units of, for example, time (i.e. duration), frequency (i.e. how often), area or volume (e.g. size of area land used for a specific project), length (e.g. length of canal affected), quantity (e.g. number of persons engaged in environmental health community generated projects).

### 7.6.1 Monitoring of Environmental and Social Indicators

The goal of monitoring is to measure the success rate of the project, determine whether interventions have resulted in effective mitigation of negative impacts, or whether further interventions are needed, or monitoring is to be extended in some areas. Monitoring indicators (as in table 13 below) dependent on specific project contexts. In most subprojects they are expected to be simple, mostly visual confirmation of environmental mitigation and good housekeeping measures.

**Table 13: Monitoring Indicators**

Monitoring level	Monitoring Issue	Verifiable Indicators	Responsibility
ESMF LEVEL	Adequate dissemination of ESMF and stakeholder capacity building and Training Programs	Record of meetings and workshops	MoE, Local Authorities, Provincial and District Education office.

Monitoring level	Monitoring Issue	Verifiable Indicators	Responsibility
PROJECT INVESTMENT LEVEL	Prepare and roll out generic Environmental Social Management Plan (ESMP) to beneficiary schools	Drafting and roll out of generic ESMP by the MoE	ZEPCU, School administration and members of the community
	Environmental Clearance	Documentation to prove evidence of clearance from ZEMA and other relevant authorities. This will mainly be applicable to facilities such as ablution blocks and incinerators.	
	Monitoring & Evaluation	ESMPs Brief progress report prior to construction and upon completion of construction activities	

The ESMPs will identify the following:

- Monitoring indicators to be measured for evaluating the performance of each mitigation measure;
- Monitoring mechanisms and methodologies;
- Monitoring frequency;
- Monitoring locations;
- Monitoring budget.

The specific indicators for each sub-project will be developed depending on the design of the sub-project. It is important to measure the overall success of sub-project in terms of the planned mitigation measures and determining whether the desired environmental and social performance is being achieved.

## 7.7 Environmental and Social Safeguards Monitoring Responsibility

ZEPCU will have the overall responsibility for coordinating and monitoring implementation of the ESMF. In addition, this will include conducting sensitization programmes to inform stakeholders about the framework and how it is to be implemented in the context of stakeholder participation.

### 7.7.1 National Level

The monitoring team will comprise the MoE staff in the Infrastructure section under the Directorate of Planning and Information. It will consist of architects, engineers and quantity surveyors. This team will be led by an architect and will be responsible for the oversight of the component implementation at national level. It will work with the procurement unit in the Ministry to procure all services, furniture and equipment that shall be procured centrally.

### 7.7.2 Provincial and District Level

At provincial level the monitoring of sub-projects will be coordinated by a team of two staff comprising the Resident Engineer and Senior Buildings Officer both under the MoE. The team leader will be the Resident Engineer. At district level the sub-projects will be coordinated by the DEBS office which shall include the Assistant District Buildings Officer under MoE and other

officers as may be determined by the DEBS to facilitate community mobilization and training. In the event of complete decentralization, the link will be from the Resident Engineer at provincial level to the school/local community.

## **8 CHAPTER 8: INSTITUTIONAL CAPACITY FOR THE ESMF IMPLEMENTATION**

### **8.1 National stakeholders**

During the implementation of the ZEEP-AF project the following institutions will play an active role in supporting the successful implementation of the various project components of the implementation of the ESMF on the ZEEP-AF.

#### **8.1.1 The Ministry of General Education**

The role of the MoE is to guide the provision of education for all Zambians so that they are able to pursue knowledge and skills, manifest excellence in performance and moral uprightness, defend democratic ideals, and accept and value other persons on the basis of their personal worth and dignity, irrespective of gender, religion, ethnic origin, or any other discriminatory characteristic. The MoE will implement the ZEEP-AF2 as it already does for the parent project (now including AF1).

#### **8.1.2 Examination Council of Zambia**

The main functions of the Council as stipulated in the Examinations Council of Zambia Act, No. 15 of 1983 are to:

- Conduct examinations;
- Award certificates or diplomas to candidates who pass examinations conducted by the Council;
- Carry out relevant research in examinations;
- Advise any public institution on development and use of any system of testing or examining when requested to do so;
- Formulate syllabuses for examinations;
- Promote international recognition of qualifications conferred by the Council;
- Approve or reject appointment of examiners;
- Organise training courses for, or arrange for training of examiners, markers, supervisors, invigilators and other persons connected with examinations; and
- Invite any person or body either in or outside Zambia to assist the Council in the conduct of examinations.

Since its inception, the Council has been able to successfully perform its functions as outlined in the Act. However, there has been no comprehensive strategic plan to guide the operations of the Council. This meant that planning tended to force the Council to concentrate on short-term needs representing narrow sectional interests thus denying the Council the opportunity to run an effective and efficient system for conducting assessments and certification.

During project implementation, the ECZ will work with the MoE on the improvement of teacher quality (Component 1), under the Directorate of Teacher Education and Specialized Services that will coordinate the execution of piloting the new approach for improving teacher competencies and skills in mathematics and Science teaching through specific taskforces.

#### **8.1.3 The Ministry of Finance**

The Ministry is charged with economic, national development planning and budgeting, and financial management responsibilities. The Ministry is headed by a Minister, while the



administrative and technical team is headed by the Secretary to the Treasury who is assisted by two Permanent Secretaries responsible for Economic Management and Finance respectively. As the Ministry is responsible for coordinating national economic management, mobilizing and managing public resources in a transparent and accountable manner for sustainable national development, it will be a channel through which funds from the WB will be transmitted to the MoE and ZEEP. The Ministry is a major stakeholder on the various Bank funded project that have on many occasions experienced delays when it comes to approvals. To enhance successful project implementation, there is need to enhance capacity of the Ministry in financial management of World Bank funded projects.

#### **8.1.4 Ministry of National Development Planning**

The Ministry is charged with national planning and monitoring and evaluation as well as the coordination of economic and technical assistance from cooperating partners. In view of its mandate, the Ministry will be part of the project steering committee and in so doing ensure that project implementation is complementary to national development objectives.

#### **8.1.5 Zambia Environmental Management Agency**

The mandate of Zambia Environmental Management Agency (ZEMA) formerly called Environmental Council of Zambia (ECZ), is drawn from the Environmental Management Act (EMA) No. 12 of 2011. ZEMA plays a regulatory, advisory, consultative, monitoring, co-ordination and information dissemination role on all environmental issues in Zambia. ZEPFU will be guided by the ZEMA Inspectorate in the applicable instruments and licensing regime in the provision during screening of subproject activities.

#### **8.1.6 Ministry of Gender**

The Ministry of Gender is committed to protecting and promoting women's rights, curbing gender-based violence and reducing gender inequalities by making progressive changes to legislation to strengthen the protective environment. It aims to prioritize the advancement of women and strengthen their capacity to influence decision-making at the highest level on matters pertaining to gender equity and equality.

#### **8.1.7 Ministry of Community Development**

The Ministry of Community Development and Social Services was created with the view to provide basic social protection services and programs that seek to provide social assistance and promotional services (livelihood and empowerment) to the poor and vulnerable of our society. The programs being implemented are aimed at reducing poverty and vulnerability to contribute to the enhancement of human development so as to accelerate sustainable national development.

### **8.2 Capacity Building Requirements**

The main stakeholders for implementation of the ESMF are the line ministries and district representatives, implementing agencies of the relevant sub-components and the local authorities in the location of sub-projects as required. Capacity building will be provided based on the needs of the specific actors. Planning, designing and implementing of the ZEEP sub-projects in the target districts require an understanding of the environmental, social impacts and mitigation measures at community ward and district levels. Training events focusing on these thematic areas will take the form of courses, workshops and specific seminars at national, provincial and district level. Where necessary awareness campaigns may be used to complement or reinforce the trainings. Specific workshops on the ESMF and relevant World Bank safeguard policies triggered by this project will be organized for all key stakeholders. The technical staff in District Planning

Sub Committee will be trained in World Bank safeguards requirements and the agreed requirements and procedures in this ESMF, in order to routinely support and monitor sub-projects.

The following additional training topics are proposed:

1. Environmental and social Screening Process and Checklists;
2. Zambian EIA Procedural Frameworks;
3. Preparation of simplified ESMP for sub-projects;
4. Environmental and Social Clauses in Contractors' contract and bidding documents;

Relevant staff in ZEPCU and the MoE will be required to undergo some capacity building to have knowledge and understanding of the implementation of relevant World Bank policies triggered by the project. The capacity on safeguards of the independent verification agency (IVA) will be evaluated and included in the selection criteria of IVA.

The awareness creation, capacity building and training workshops will focus on (a) strengthened institutional coordination; (b) improved information for decision makers; and (c) targeted awareness creation. The target group will consist of selected officers directly involved in the implementation of the ZEEP-AF.

**Table 14: Capacity Building Requirements**

Entity	Responsibilities under ESMF	Capacity building requirements
Ministry of General Education	<ul style="list-style-type: none"> <li>• Screening of sub-projects</li> <li>• Monitoring of compliance and implementation of mitigation mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• For new ZEPCU: workshops on the ESMF and relevant World Bank safeguard policies</li> <li>• Environmental and social Screening Process and Checklists</li> <li>• Zambian EIA Procedural Frameworks</li> <li>• Preparation of simplified ESMP for sub-projects</li> <li>• Environmental and Social Clauses in Contractors' contract and bidding documents</li> </ul>
Provincial and District Education officers	<ul style="list-style-type: none"> <li>• Facilitate subproject implementation process</li> </ul>	<ul style="list-style-type: none"> <li>• Participatory Rapid Appraisal methodology and training of trainers</li> <li>• Workshop on the ESMF and relevant World Bank safeguard policies, including GBV and SEA, Health and Safety Training.</li> </ul>
Beneficially schools and communities	<ul style="list-style-type: none"> <li>• Oversight of implementation of Subprojects, including environmental and social mitigation mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Basic environmental and social safeguards, training, including monitoring.</li> <li>• Basic Health and Safety Training</li> </ul>

### **8.3 Safeguard Compliance in Participatory Project Planning, Implementation and Community Engagement**

Community driven projects and community ownership are essential in ensuring compliance to environmental and social safeguards. Based on various levels of interactions and consultations with communities in the target districts and lessons from on-going similar projects, it is notable

that public sector institutions service delivery does not adequately meet communities' expectations.

These support and capacity services are critical in empowering communities to take responsibility for their own development through planning and managing their own projects – in this case, projects and sub-projects that promote local integration of affected and targeted communities. When communities get empowered in this way, it follows that they will take greater responsibility for ensuring compliance with environmental and social safeguards. Specific courses and participation meetings will be arranged between communities and District Officers, NGOs and the private sector representatives. The following training topics are proposed:

- Avoiding and Mitigating Environmental and Social Impacts in Community Planning;
- Establishing and enforcing Community Rules for Safeguarding;
- Community Development Planning and Responsibilities;
- Defining Sustainable Development Projects;
- Inclusion of Vulnerable Groups ( people living with disabilities, women, youth and the elderly) in Community Planning and Projects;
- Conflict Resolution in Community Decision Making;
- Roles and Responsibilities of District Councils and Community in Safeguarding and Conflicts.

At the local ward levels, it will be important to provide capacity building support in ESMF implementation to the local structures that will be involved in sub-project activities. Local government structures have a role in monitoring implementation of sub-projects and will need capacity building in ESMF implementation.

#### 8.4 Monitoring Indicators

Monitoring indicators are a very important part of the monitoring plan. The indicators should be:

- (i) Specific to avoid ambiguity of items being measured;
- (ii) Measurable to facilitate quantification; and
- (iii) Quantifiable to be easily translated into units of measurement and to facilitate verification.

The table below (table 15) highlights the various monitoring indicators for the proposed subprojects on the ZEEP-AF project.

**Table 15: Monitoring Indicators and Anticipated Sub Projects**

Project Category	Anticipated Sub-Projects	Monitoring Indicators
Infrastructure/Construction related	<ul style="list-style-type: none"> <li>• Construction of additional classrooms, administrative blocks, laboratories and home economics facility at beneficiary schools.</li> <li>• Construction of dormitories for Learners.</li> <li>• Construction of staff houses.</li> <li>• Conduct training of Building Officers and Technical Supervisors in construction</li> <li>• Conduct training of Officers and Construction gangs in ESMF</li> </ul>	<ul style="list-style-type: none"> <li>• Increased enrollment of learners</li> <li>• Construction of dormitories will result in improved attendance by learners as they will not have to travel daily long distances to attend classes</li> <li>• Increased access to teachers' accommodation</li> <li>• Number of trainings conducted</li> <li>• Number of Officers Trained</li> <li>• Number of Technical Supervisors and workers Trained</li> </ul>

Project Category	Anticipated Sub-Projects	Monitoring Indicators
Water and Sanitation	<ul style="list-style-type: none"> <li>• Sinking of boreholes for portable water</li> <li>• Construction of Septic tanks and Soak away</li> <li>• Construction of ablution blocks</li> <li>• Construction of incinerators for disposal of sanitary pads</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of safe portable water for beneficiary schools</li> <li>• Construction of septic tanks, soak away and ablution blocks will result in a reduction in ground and surface water contamination and improved public health for learners and members of staff</li> <li>• Construction of incinerators will result in improved disposal of sanitary pads.</li> </ul>
Community Engagement	<ul style="list-style-type: none"> <li>• Conduct Community Sensitization meetings</li> <li>• Conduct awareness campaigns in ESMF</li> </ul>	<ul style="list-style-type: none"> <li>• Use of GRM tools including boxes</li> <li>• Formation of Committees</li> <li>• Number of cases received</li> </ul>
Provision of Power Supply	<ul style="list-style-type: none"> <li>• Connection of power supply to beneficiary schools located in close proximity to the power grid.</li> <li>• Installation off the grid solar power to beneficiary schools</li> </ul>	<ul style="list-style-type: none"> <li>• Increased number of learning hours</li> <li>• Increased access to ICT technologies and electrically powered equipment</li> <li>• Improved quality of life for staff, learners and surrounding communities.</li> </ul>

## 8.5 Budget

The project has earmarked US\$180,000 for implementation of Environmental and Social Safeguard due diligence actions, mitigation measures, capacity building and monitoring activities defined in the ESMF.

## **9 STAKEHOLDER CONSULTATION**

The ACCESS component of the ZEEP convened a consultative forum on the Environment Social Management Framework for stakeholders in the education sector targeting participants from the provinces that were not benefitting from the ACCESS component of the ZEEP. Copperbelt, Western and Northwestern Provinces were therefore targeted. Participants invited, were Provincial Education Officers, Two Representatives of the DEBS, Senior Building Officers, Building Officers, Resident Engineers, Two Representatives of Non-Governmental Organizations working in the Education Sector, Two Head teachers from secondary schools and primary school. Three Provincial Education Officers were invited from provinces that were already implementing the ZEEP, i.e. from Central, Luapula and Lusaka Provinces. The forum was held at the National Science Center on 7<sup>th</sup> November 2019, in Lusaka. Attendance was as planned very good.

### **Opening remarks**

The forum was opened by Mr. Nthele, Director of Projects at ZEPIU. He noted that the day was special on grounds that ESMF to expand the ZEEP was going to be discussed. He stated that the statistics at present were that the country has 9000 primaries and 1000 secondary schools. He elaborated that data pointed to the fact that pupils in Zambia were performing poorly in mathematics and science. In comparative terms, Zambian pupils perform poorly in regional tests in the SADC region. The results were an indicator that the methods of teaching and learning needed intervention.

He further noted that the Teachers had the qualifications, but the qualifications were not translating into quality results.

On the other front, pupil textbook ratio was very high in our schools. The problem was even compounded further because Teachers in Zambia were not writing books. The ZEEP was encouraging teachers to write books in order to improve textbook availability in schools whilst deepening their understanding of the material.

Further, he stated that Zambia has been building 115 boarding secondary schools around the country. The boarding schools were however expensive to run on the part of parents. The ZEEP was providing a solution by constructing day secondary schools in areas where secondary schools were not available. In winding up he noted that projects have ups and downs which was normal, but the purpose of that meeting was look into problems that might affect the project delivery.

### **Remarks by Coordinator ZEEP**

Mr. Zimba once again welcomed the participants to the forum and thanked them for responding positively at short notice. He noted that the forum was important in order to review what ZEEP as a project had learnt through the implementation cycle and to listen to stakeholder experiences and fears in their communities and chart a positive course ahead. He informed the participants that the ZEEP was a five-year project worth \$60.USD. Project delivery was through three components;

- I. Teacher quality, which aims to improve teaching, learning and learner performance
- II. Textbook availability and distribution Improvements that aims to improve pupil textbook ratio.
- III. The component of ACCESS that aims to improve equitable availability of secondary school places.
- IV. Enhancing Planning, Management and Monitoring and Evaluation Capacity, and Project Coordination that aims to improve management across all departments and units in the Ministry

## **Presentations**

- Mr. Kanyika led the participants through the meeting objectives and an overview of ESMF.

Plenary session followed.

- Mr. Musonda led the participants through the possible project impacts and their mitigation followed by a plenary session.
- Mr. Musonda led the participants through the screening form

## **Summary of key issues that arose during plenary.**

- 1) There will be need to translate key messages of the ESMF into local languages
- 2) Tree cutting be limited to minimal standards to prevent the need to replant in future
- 3) The project would have to support tree planting, some areas do not have trees
- 4) Western Province has no stone for construction. Special designs be developed that will need little stone, sometimes stone is procured from outside the province.
- 5) Underground water in Northwestern and Western provinces sometimes contain high content of iron, which was very difficult to purify
- 6) Land in Western Province is vested in the Barotse Royal Establishment. Headmen do not have rights to offer land
- 7) Zambesi District has two chiefdoms. Any national investment must be replicated in the two Chiefdoms.
- 8) If Copperbelt had a way, dormitories would be built for boy children, they have fewer facilities

## **Some questions that arose during the plenary (To be inclusive in final report)**

1. District Building Officer for Nkeyema inquired on the number of schools that were going to be built. In response Mr. Kanyika said that the question of numbers of schools will be addressed later in 2020.
2. The PEO Western Province inquired whether a) specialized teams would be sent to Western Province to help sensitize the communities, b) whether the presentations would be translated into local languages, c) at which point was the Provincial Permanent Secretary going to be involved in the project.
  - a) Mr. Kanyika in response said that the ESMF was going to be provided to the participants, and that the materials were going to be translated into local languages. Further, he stated that the offices of the Provincial PS were going to be involved for the purpose of understanding the project and for the project to gain support at local leadership level.
  - b) Mr. Nthele added that when the framework was received at implementation level, it should be lowered to the standards of the local people so that they understand it. Further discussions on concepts like soil erosion, how it is induced and how to prevent it must be included. Further, he stated that discussions must include importance of wind brakes, and if necessary, tree planting must be implemented. In conclusion he stated that stakeholders present in the forum must ensure project documents were understood by the local community so that they own the project.
1. **DEBS Lufwanyama District** inquired when sensitization would commence. Mr. Kanyika pointed out that sensitization would commence after school allocation sometime in 2020.
2. **PEO Central Province** in addition, contributed that school allocation was at present delicate, to the extent that Chiefs now demanded schools for their chiefdoms.

3. **ADBO Zambezi** in agreement with PEO central province's contribution added that for Zambezi District, the ZEEP should consider allocating two schools otherwise, a physical fight will ensue as it happened during the constituency delimitation exercise.
4. On the same matter, Mr. Musonda said school allocation will be done sometime in 2020. The allocation would be scientific i.e. dependent on statistics that include; district poverty index, grade seven & grade nine transition rates, number of existing secondary schools and class pupil ratio. He urged all not to promise any office or individual any school construction projects.
5. The ADBO for Chingola inquired whether consideration can be made to for all schools to be on solar Power, considering that Hydro power was now unreliable.
6. In reply Mr. Musonda said the problems with hydro power were temporal and that the problem was going to be resolved soon. Therefore, that decision could not be made at that moment. Moreover, ZESCO was next year 2020, expected to commission another power station on the Kafue river, which would increase power production.
7. World Vision Western Province. Inquired whether there were any benefits accruing to primary and secondary schools. Were there any targets for the project?
8. In response the Mr. Zimba said the project was constructing 82-day secondary schools in green sites and implementing teacher quality interventions in 382 schools and that further, the project targeted to improve the pupil/ book ratio to 1:1.
9. PESO Copperbelt Province added that there was training conducted in Ndola, where participants included teachers from both primary and secondary schools.
10. Mr. Soneka Kahalu Building Officer Solwezi, in his view asserted that a single Technical Supervisor was inadequate to supervise a site considering the activities that take place on site.
11. The PEO Western Province, responded that the matter would be considered at the right time.

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# 11 ANNEXES

## 11.1 ANNEX 1: ENVIRONMENTAL AND SOCIAL SCREENING FORM

Filled and prepared by District Environmental Planner and submitted to ZEEP-AF Environmental and Social Safeguards Expert)

### ZEEP AF-Project:

Project Investment name [type here]

Location [type here]

Estimated cost (USD) [type here]

### TYPE OF PROJECT

#### Sub Project Type (Tick all if and Where Applicable)

- Construction of 1 x 3 classroom block
- Construction of 1 x 2 classroom block
- Construction of 1 x 2 classroom block (one room used as design technology and other for home economics)
- Construction of 1 x 3 laboratory block
- Construction of 1 x 2 library / computer room
- Construction of 1 x school hall
- Construction of boys and girls dormitory block
- Construction of Administration block
- Rehabilitation of unsafe structures
- Provision of school furniture and mobile lab equipment
- Construction of 2 ablution blocks for boy and girls, respectively
- Construction of water supply system
- Construction of sewage disposal system (water and sanitation facilities)
- Construction of Incinerator
- Construction of staff houses
- Provision of electricity supply (solar or grid)

Please give more details: [type here]

For all projects, an Environmental and Social Management Plan (ESMP) will be required.		
Will the Project:	Yes	No
Will the project require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries or forests, even, whether on a permanent or temporary basis? If yes, a Resettlement Action Plan will be required	Y	Y
Adversely affect natural habitats nearby, including forests, rivers or wetlands?	Y	Y
Require large volumes of construction materials (e.g. gravel, stone, water, timber, firewood)?	Y	Y
Use water during or after construction, which will reduce the local availability of groundwater and surface water?	Y	Y
Affect the quantity or quality of surface waters (e.g. rivers, streams, wetlands), or groundwater (e.g. wells, reservoirs)?	Y	Y
Be located within or nearby environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?	Y	Y
Lead to soil degradation, soil erosion in the area?	Y	Y
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater.	Y	Y
Create pools of water that provide breeding grounds for disease vectors (for example malaria or bilharzia)?	Y	Y
Involve significant excavations, demolition, and movement of earth, flooding, or other environmental changes?	Y	Y

Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?	Y	Y
Require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries, forests or cultural resources, whether on a permanent or temporary basis?	Y	Y
Will the Project release pollutants or any hazardous, toxic or noxious substances to air?	Y	Y
Result in human health or safety risks during construction or later?	Y	Y
Involve inward migration of people from outside the area for employment or other purposes?	Y	Y
Will the Project produce solid wastes during construction or operation or decommissioning?	Y	Y
<b>Will the Project:</b>	<b>Yes</b>	<b>No</b>
Result in conflict or disputes among communities?	Y	Y
	Y	Y
Be located in or near an area where there is an important historical, archaeological or cultural heritage site?	Y	Y
Result in a significant change/loss in livelihood of individuals?	Y	Y
Adversely affect the livelihoods and /or the rights of women?	Y	Y
If you have answered Yes to any of the above, please describe the measures that the project will take to avoid or mitigate environmental and social impacts	[type here]	
What measures will the project take to ensure that it is technically and financially sustainable?	[type here]	

If you have answered Yes to any of the above and the effect is likely to be significant, please describe the measures that the project will take to avoid or mitigate environmental and social impacts

What measures will the project take to ensure that it is technically and financially sustainable?

*If the answer to any of questions "Yes", please use the indicated Annexes or sections(s) of the ESMF for guidance on how to avoid or minimize typical impacts and risks.*

**REVIEWER'S CONCLUSION (ZEPUCU, Safeguards Officer)**

Which course of action do you recommend?

Y **FULL ESIA** Y **EPB/ESMP**

Y There are no environmental or social risks

[Type here]

**Completed by:** [type here]  
**Name:** [type here]  
**Position:** [type here]  
**Date:** [type here]

**Format 2.0: SCREENING CHECKLIST REVIEW FORM (Prepared by Environment and Social Specialists from ZEEP)**

	Yes	No
Based on the location and the type of investment, please explain whether the Proponent's responses are satisfactory.	Y	Y
Their description of the compliance of the investment with relevant planning documents	Y	Y
If 'No', please explain: <b>[type here]</b>		
Their responses to the questions on environmental and social impacts	Y	Y
If 'No', please explain: <b>[type here]</b>		
Their proposed mitigation measures	Y	Y
If 'No', please explain: <b>[type here]</b>		
Their proposed measures to ensure sustainability	Y	Y
If 'No', please explain: <b>[type here]</b>		

**REVIEWER'S CONCLUSION**

Which course of action do you recommend?

FULL ESIA  EPB/ESMP;

There are no environmental or social risks

**[Type here]**

Preparation of a project Report, based on field appraisal by ZEMA District Officer, is required to investigate further, specifically to investigate:

**Review form completed by:** [type here]

**Name:** [type here]

**Position / Community:** [type here]

Completion of this screening form will facilitate the identification of potential environmental and social impacts, determination of their significance, assignment of the appropriate environmental category, proposal of appropriate environmental mitigation measures, or recommend the execution of an Environmental and Social Impact Assessment (ESIA), if necessary.

## 11.2 ANNEX 2: GENERIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The completed ESMP form will be attached to the action plan submitted by the Project Implementation Committee (PIC) of the community of each selected expansion school. The ESMP will need to be discussed with and approved by the Resident Engineer and the Building Officer at the district office (DEBS) and the provincial office (PEO).

•					
Project Category	Project Component	Risk/Impact	Mitigation Measures	Responsibility	Accountable
<b>Infrastructure/Construction related</b>	· Construction of additional classrooms, administrative blocks, laboratories and home economics facility at beneficiary schools.	· Land acquisition	· Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.	MoE, Community Leaders, Contractors Site Foreman and Head Teacher at beneficiary school	Community Leaders, Contractor and Head Teacher
	· Construction of dormitories for learners.	· Loss of vegetation and soil cover	· The construction footprint will be restricted to the site designs and school boundaries. The loss of vegetation will be kept to a minimum		

			within the design footprint. Furthermore, construction workers will be sensitized on the need to conserve vegetation around the sites.		
	· Construction of staff houses.		· Stock piling of soil for reuse		
			· Restoration of the ground by sowing adequate grass cover and planting of trees		
			· Use of manual equipment		
		· Generation and poor disposal of construction waste during works	· Waste and debris, including sediments and vegetation shall be managed and kept in temporary controlled area and transported in a secure manner for disposal in appropriate disposal facility.	Contractors Site Foreman and Head Teacher at beneficiary school	Head Teacher at beneficiary school

			<ul style="list-style-type: none"> <li>· During the operation of the schools, the schools will incorporate waste management in daily school activities to ensure learners and the surrounding communities dispose of waste in line with best disposal practices.</li> </ul>		
			<ul style="list-style-type: none"> <li>· E-waste to be managed and disposed of in accordance with Annex 9 E-waste Management Plan.</li> </ul>		
		<ul style="list-style-type: none"> <li>· Safety and security of learners, community and contractors or community workers during construction works</li> </ul>	<ul style="list-style-type: none"> <li>· The construction areas will be properly secured with signposting, warning signs, barriers and traffic diversions. Signage should inform the public of potential hazards. Provision of safe passages</li> </ul>	Contractors Site Foreman and Head Teacher at beneficiary school	Contractor and Head Teacher at beneficiary school

			<p>and crossings for pedestrians, along with active traffic management. Adjustment of working hours to prevent disruption of pedestrian access and local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement Community to be informed about possible temporary restrictions to access.</p>		
			<ul style="list-style-type: none"> <li>· On the job training of workers and provision of appropriate PPE by contractors.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Additionally, the project will abide by General EHS guidance for management of OHS risks as well as risks to</li> </ul>		

			community health and safety.		
		<ul style="list-style-type: none"> <li>· Noise and Vibration Impacts during construction from various equipment (mechanized)</li> </ul>	<ul style="list-style-type: none"> <li>· Provision of PPE for workers for noise pollution</li> </ul>	Contractors Site Foreman	Contractors
	<ul style="list-style-type: none"> <li>· Dust and air related impacts during construction from various equipment (mechanized)</li> </ul>	<ul style="list-style-type: none"> <li>· Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> </ul>			
	<ul style="list-style-type: none"> <li>· Workers Health and Safety Impacts during construction from various equipment (mechanized) (exposure to noise and vibration, dust or work-</li> </ul>	<ul style="list-style-type: none"> <li>· Switch off equipment when not in use</li> </ul>			



		related injuries)			
			· Suppress dust generation at project sites		
		· Visual intrusion and changes to the landscape	Site Selection will take into consideration current land use to ensure proposed activities do not alter the aesthetics and general landscape.	Contractors Site Foreman and MoE	Contractor
		· Increase incidences of HIV/AIDS and sexually Transmitted infections	· Workers to be sensitized on the dangers posed by HIV/AIDS and the means of prevention.	MoE, Community Leaders, Contractors Site Foreman, Ministry of Health, and Head Teacher at beneficiary school	Community Leaders, and Head Teacher at beneficiary school
		· Increased Incidences of sexual relationships between contractors	· Construction workers will be community members and parents from within the school catchment area.		

		and teenage learners	However, the school staff and construction supervisors will continuously engage in sensitization and information dissemination aimed at safeguarding the girl child.		
		· Child labour	· Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance;		
			· Response to SEA: including survivor-centered multi-sectoral referral and assistance to complainants; staff reporting mechanisms; written procedures		

			related to case oversight, investigation and disciplinary procedures at the project level		
		· Poor living conditions and sanitation workers	· It is envisaged that no labour camps will be setup as all construction workers will be from the surrounding communities.	Contractors Site Foreman,	Contractor
	· Use/operation of laboratories	· Exposure of students and teachers to chemicals and wastes while undertaking activities in the laboratories	· Provide training to students and ensure they have proper knowledge of the toxic effects of these chemicals, the routes of exposure and the hazards that may be associated with handling and storage of	School Administration	School Administration

			<p>hazardous reagents.</p>		
			<ul style="list-style-type: none"> <li>· Ensure that laboratories are equipped with a safety or operations manual that includes material safety data sheets or other chemical hazard information from chemical manufacturers and/or suppliers. Ensure the compliance and implementation of the safety measures in the safety manuals for laboratories.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Ensure that there are cabinets designed to protect the students, the laboratory environment and work materials from exposure to infectious aerosols</li> </ul>		

			<p>and splashes that may be generated when manipulating materials containing. Similarly, laboratories should have standard safety equipment such as eyewashes and observe standard safety protocols.</p>		
			<ul style="list-style-type: none"> <li>· Provide PPE for students when handling chemicals in the laboratory (goggles, gloves, dust masks), etc</li> </ul>		
			<ul style="list-style-type: none"> <li>· Ensure that at all times, students while in the laboratory are accompanied by a competent science/subject teacher.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Ensure that the students are provided with training for</li> </ul>		

			<p>responding to emergency situations like exposure (dermal, ingestion) etc.</p> <p>· Ensure there is a disposal plan for disposal of the wastes (solvents and general wastes) generated by the laboratory activities. In accordance with the EHSG, reagents should be autoclaved if possible and then incinerated.</p>		
	<p>· Use of other facilities (dormitories; classrooms; ablution blocks) etc.</p>	<p>· Exposure of students and school community to structural related hazards lack of incorporation of universal access designs.</p>	<p>· Ensure that the designs (structural and mechanical) of all the facilities take into consideration and incorporate structural safety measures and universal access requirements.</p>	MOE and Design Consultants	MOE and Design Consultants

		<ul style="list-style-type: none"> <li>· Exposure to Gender Based Violence and Abuse in the all-girls boarding schools</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure that the design of the all-girls boarding schools include safety and security measures including perimeter walls.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Ensure that the all-girls facilities have a security officer manning the access points and documenting all visitors.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Sensitization of all stakeholders of the school community (including teachers, principals, administrative staff, counsellors, union leaders, parents and students) on the development of safe school plan which would include community-based safe passage to</li> </ul>		

			<p>school and life skills programs for girls and boys which focus on non-violent conflict resolution, assertiveness, reproductive health, inclusion and diversity;</p>		
			<p>· Communications of the Code of Ethics (the teaching profession code of ethics regulation 2018) with clear guidance on how the code is enforced, particularly on corporal punishment, violence and SBGBV;</p>		
			<p>· Implementation of a child friendly Grievance Redress Mechanism (GRM) with related communication</p>		



			and sensitization efforts at the school and community level;		
			<ul style="list-style-type: none"> <li>· Training to guidance and counselling teachers who will serve as Gender Focal Points for schools together with relevant Zonal representatives. The training will focus on the support to be provided for survivors of GBV and students at risk following national protocols. These activities will be informed by international best practices, as well as the experience of ongoing programs. They will be implemented by NGOs with community</li> </ul>		

			support and close collaboration with parents and community leaders. The sub-component will also support specific outreach to at-risk girls with referrals to health and GBV-related services, as well as programs to facilitate the reentry of girls who are out of school, possibly including accelerated programs.		
<b>Water and Sanitation</b>	· Sinking of boreholes for portable water	· Land acquisition	· Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.	Borehole Drilling Company	Borehole Drilling Company

		· Noise and Vibration Impacts during drilling	· Provision of PPE for workers for noise pollution		
		· Dust and air related impacts during drilling	· Train workers on the use of PPEs for noise mitigation and reprimand those not complying		
		· Drilling waste including oil from drilling truck, drilling materials etc.	· Switch off generator and truck when not in use		
		· Workers Health and Safety Impacts during drilling (exposure to noise and vibration, dust or work-related injuries)	· Suppress dust generation at project sites		
		· Ground and surface water contamination	· Use of good quality fuel and lubricants		

		<ul style="list-style-type: none"> <li>· Increased strain on the water table from abstraction activities</li> </ul>	<ul style="list-style-type: none"> <li>· All boreholes will be drilled at recommended distances away from pit latrines and septic tanks</li> </ul>		
		<ul style="list-style-type: none"> <li>· Health related impacts (diseases) due to poor water quality</li> </ul>	<ul style="list-style-type: none"> <li>· Drilling Companies and contractors will be required to access the yields of boreholes and recommend an abstraction rate that will retain the water table to sustainable levels.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Undertake water quality testing for all boreholes during commissioning to determine quality as per WHO Standards</li> </ul>		
	<ul style="list-style-type: none"> <li>· Construction and operation of septic tanks and soak away</li> </ul>	<ul style="list-style-type: none"> <li>· Land acquisition</li> </ul>	<ul style="list-style-type: none"> <li>· Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the</li> </ul>	MoE and Contractors Site Foreman,	MoE and Contractor

			community, the project will consider voluntary land donation.		
		· Ground water contamination from septic tanks and soak away	· Ensure proper siting of the pit latrine		
		· Odour/foul smell	· All septic tank construction will conform to the MoE guidelines for schools to ensure leaks and slippage's into ground water are kept to a minimum or eliminated.		
		· Disease spread			
		· Pest menace			
	· Construction and operation of ablution blocks	· Land acquisition	· Involuntary land donations- In the event that construction of schools requires		

			additional land from the chiefs and the community, the project will consider voluntary land donation.		
		· Odour/foul smell	· Ablution blocks for learners will follow the MoE acceptable school design standards to ensure the health of the learners is protected at all times.		
		· Exposure of users (students) to pathogens	· Ensure proper siting of the pit latrine		
		· Water contamination	· Provide training to communities on proper use of latrines and hygiene		
		· Disease Spread	· Provide hand washing facilities		

		· Pest Menace	· Ensure proper cleaning of pit latrines		
			· Use biopesticides		
			· Provide training on proper latrine		
	· Construction and incinerators for disposal of sanitary pads	· Land Acquisition	· Involuntary land donations- In the event that construction of schools requires additional land from the chiefs and the community, the project will consider voluntary land donation.		
		· Noise and Vibration Impacts during construction from various equipment (mechanized)	· Provision of PPE for workers for noise pollution		

		<ul style="list-style-type: none"> <li>· Dust and air related impacts during construction from various equipment (mechanized)</li> </ul>	<ul style="list-style-type: none"> <li>· Train workers on the use of PPEs for noise mitigation and reprimand those not complying</li> </ul>		
		<ul style="list-style-type: none"> <li>· Workers Health and Safety Impacts during construction from various equipment (mechanized) (exposure to noise and vibration, dust or work-related injuries).</li> </ul>	<ul style="list-style-type: none"> <li>· Switch off equipment when not in use</li> </ul>		
			<ul style="list-style-type: none"> <li>· Suppress dust generation at project sites</li> </ul>		
			<ul style="list-style-type: none"> <li>· The setting of incinerators will conform to ZEMA requirements and the placement of the facility will</li> </ul>		



			take into consideration, wind direction and surrounding facilities.		
			· Furthermore, school authorities will be required to ensure only the recommended materials (i.e. sanitary pads) are incinerated.		
	· Operation of incinerators for disposal of sanitary pads	· Increased air emissions from incineration activities	· The setting of incinerators will conform to ZEMA requirements and the placement of the facility will take into consideration, wind direction and surrounding facilities.	MoE and school administration	MoE and school administration
			· Furthermore, school authorities will be required to ensure only the recommended materials (i.e. sanitary pads) are incinerated.		

<b>Provision of Power Supply</b>	· Connection of power supply to beneficiary schools located in close proximity to the power grid.	· Noise and Vibration Impacts during construction from various equipment (mechanized)	· Provision of PPE for workers for noise pollution	ZESCO and REA	ZESCO and REA
		· Dust and air related impacts during construction from various equipment (mechanized)	· Train workers on the use of PPEs for noise mitigation and reprimand those not complying		
		· Workers Health and Safety Impacts during construction	· Switch off equipment when not in use		
		· Electrical risks associated with power installations and solar panels (workers' health and safety risks)	· Suppress dust generation at project sites		

			<ul style="list-style-type: none"> <li>All power connection to the national grid will be undertaken with the help of ZESCO or the Rural Electrification Authority (REA) to ensure safety and environmental concerns have been taken into consideration. The environmental and social clearance will remain the responsibility of ZESCO and REA were applicable and not the MoE.</li> </ul>		
	<ul style="list-style-type: none"> <li>Installation off the grid solar power to beneficiary schools</li> </ul>	Impacts from used (obsolete) batteries from the solar panels.	<ul style="list-style-type: none"> <li>Off the Grid power connection will be undertaken by certified installers to ensure safety of the learner and school communities are</li> </ul>	Solar Installation Contractor	Solar Installation Contractor

			<p>taken into consideration. Installation will be either roof or ground mounted. In areas that fall in the jurisdiction of the REA project areas, the MoE will be required to coordinated with the authority on the best practices for installing, operation and maintaining solar installation including decommissioning and disposal.</p>		
	<ul style="list-style-type: none"> <li>· Operation of electrical systems by students</li> </ul>	<p>Electric hazards likely to be encountered by students and teachers operating the electrical systems (electrocution) is a potential risk if the electrical</p>	<ul style="list-style-type: none"> <li>· All electrical engineering works in the facilities will be undertaken by a qualified electrical engineer certified ZESCO or the Rural Electrification Authority (REA) to ensure safety and environmental concerns have</li> </ul>	<p>Electrical Engineer/Installer and Contractor</p>	<p>Electrical Engineer/Installer and Contractor</p>

		<p>system is installed by unqualified personnel or if student or teachers tamper with the electrical systems.</p>	<p>been taken into consideration.</p> <ul style="list-style-type: none"> <li>· It is essential that all electrical installations and equipment are inspected and tested regularly, including earthing/grounding systems.</li> <li>· Circuit-breakers and earth-fault-interrupters should be installed in appropriate electrical circuits.</li> <li>· Students and teachers will receive training, awareness and sensitization on the use of electrical systems and warnings not to tamper with the electrical systems.</li> <li>· Each facility will have training on emergency response in case of</li> </ul>		
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			<p>electrical faults including installation of firefighting equipment in case of fires caused by electrical faults.</p> <p>· Fire-fighting equipment should be placed near room doors and at strategic points in corridors and hallways. This equipment may include hoses, buckets (of water or sand) and a fire extinguisher. Fire extinguishers should be regularly inspected and maintained, and their shelf-life kept up to date.</p>		
<b>Provision of ICT Equipment</b>	· Tablets for learners	Generation of electronic wastes (tablets) which when poorly disposed are a	· E-waste will be handled through the project E-waste management plan (Annex 9) to prevent inappropriate disposal to the	· MoE and school administration	· MoE and school administration

		<p>hazard to the environment.</p>	<p>environment and harm the local community.</p>		
			<ul style="list-style-type: none"> <li>· Project will secure official EEE with protective covers and insurance where applicable with suppliers that take back, recycle or otherwise dispose of obsolete equipment where possible.</li> </ul>		
			<ul style="list-style-type: none"> <li>· Teachers, schools and other entities receiving ICT from the project will be informed of and sensitized about proper disposal of EEE. The sensitization or training should include the usefulness and significance of e-waste recycling and the need for returning all</li> </ul>		

			<p>electronic items procured by the project to a collection centre that should be established at an appropriate location.</p>		
			<p>· When there is no supplier take back scheme, this waste will be disposed of through licensed hazardous / solid waste management service providers as stipulated in Solid Waste Regulation and Management Act, 2018, and Environmental Management (Licensing) Regulations (SI. No 112 of 2013) fifth schedule, regulation 18 (1).</p>		





### 11.3 ANNEX 3: ENVIRONMENTAL CODES OF PRACTICE

#### A. General Guidelines (applicable to most rehabilitation and construction activities)

<b>Issue</b>	<b>Environmental Prevention/Mitigation Measures</b>
1. Noise during construction	<ul style="list-style-type: none"><li>(a) Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance.</li><li>(b) Use noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines or planting of fast-growing trees)</li><li>(c) Minimize project transportation through community areas</li><li>(d) Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and residential areas to lessen the impact of noise to the living quarters</li></ul>
2. Soil erosion	<ul style="list-style-type: none"><li>(a) Schedule construction during dry season</li><li>(b) Contour and minimize length and steepness of slopes</li><li>(c) Use mulch, grasses or compacted soil to stabilize exposed areas</li><li>(d) Cover with topsoil and re-vegetate (plant grass, fast-growing plants/bushes/trees) construction areas quickly once work is completed</li><li>(e) Design channels and ditches for post-construction flows and line steep channels/slopes (e.g., with palm frowns, jute mats, etc.)</li></ul>
3. Air quality	<ul style="list-style-type: none"><li>(a) Minimize dust from exposed work sites by applying water on the ground regularly</li><li>(b) Do not burn site clearance debris (trees, undergrowth) or construction waste materials</li><li>(c) Keep stockpile of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals</li></ul>
4. Water quality and availability	<ul style="list-style-type: none"><li>(a) Activities should not affect the availability of water for drinking and hygienic purposes</li><li>(b) No soiled materials, solid wastes, toxic or hazardous materials should be poured or thrown into water bodies for dilution or disposal</li></ul>
<b>Issue</b>	<b>Environmental Prevention/Mitigation Measures</b>
	<ul style="list-style-type: none"><li>(c) The flow of natural waters should not be obstructed or diverted to another direction, which may lead to drying up of river beds or flooding of settlements</li></ul>

- (d) Separate as best as possible concrete works in waterways and keep concrete mixing separate from drainage leading to waterways
5. Solid and hazardous waste
- (a) Collect and transport construction waste to appropriately designated/ controlled dump sites
  - (b) Maintain waste (including earth dug for foundations) at least 300 metres from rivers, streams, lakes and wetlands
  - (c) Use secured area for refuelling and transfer of other toxic fluids distant from settlement area (and at least 50 metres from drainage structures and 100 metres from important water bodies); ideally on a hard/non-porous surface
  - (d) Train workers on correct transfer and handling of fuels and other substances and require the use of gloves, boots, aprons, eyewear and other protective equipment for protection in handling highly hazardous materials
  - (e) Collect and properly dispose of small maintenance materials such as oily rags, oil filters, used oil, etc.
6. Health and Safety
- (a) Working conditions are safe and hygienic (ILO Convention C155): Contractors or supervisors of community workers must take adequate steps to provide safe and hygienic working environments. Additionally, workers' safety must be a priority and adequate steps must be taken to prevent accidents and injury to health associated with or occurring in the course of work.
  - (b) Provide personal protective gear for workers as necessary (gloves, dust masks, hard hats, boots, goggles)
  - (c) Follow the below measures for construction involve work at height (e.g. 2 meters above ground);
    - a. Do as much work as possible from the ground;
    - b. Do not allow people with the following personal risks to perform work at height tasks: eyesight/balance problem; certain chronic diseases – such as osteoporosis, diabetes, arthritis or Parkinson's disease; certain medications – sleeping pills, tranquillisers, blood pressure medication or antidepressants; recent history of falls – having had a fall within the last 12 months, etc;
    - c. Only allow people with sufficient skills, knowledge and experience to perform the task;
    - d. Check that the place (eg a roof) where work at height is to be undertaken is safe;
    - e. Take precautions when working on or near fragile surfaces;
    - f. Clean up oil, grease, paint, and dirt immediately to prevent slipping; and
    - g. Where possible provide fall protection measures e.g. safety harness, simple scaffolding/guard rail for works over 4 meters from ground;


## Issue


## Environmental Prevention/Mitigation Measures

- (c) Keep worksite clean and free of debris on daily basis
  - (d) Keep corrosive fluids and other toxic materials in properly sealed containers for collection and disposal in properly secured areas
  - (l) Ensure adequate toilet facilities for workers from outside of the community
  - (m) Rope off construction area and secure materials stockpiles/ storage areas from the public and display warning signs. Do not allow children to play in construction areas.
  - (n) Fill in all earth borrow-pits once construction is completed to avoid standing water, water-borne diseases and possible drowning
  - (o) Each construction sub-project to have a basic first-aid kit with bandages, antibiotic cream, etc.
7. Other
- (a) No cutting of trees or destruction of vegetation other than on construction site
  - (b) No hunting, fishing, capture of wildlife or collection of plants
  - (c) No use of unapproved toxic materials including lead-based paints, un-bonded asbestos, etc.
  - (d) No disturbance of cultural or historic sites

### 11.4 ANNEX 4: DRAFT GRIEVANCE REDRESS MECHANISM

The Grievance Redress Mechanism (GRM) will be set up at ZEPCU level to be responsible for maintenance of all records, complaints and their responses. A report of GRM performance will be consolidated as part of biannual M&E report, to be submitted to the MoE. The GRM will follow that channels highlighted in the illustrations below.

	Focal Point Unit/Organizations	Focal Persons	Role and Responsibilities	
			When a complaint is submitted	Recording complaints
ZEPCU	Project Implementation Unit ZEPCU (MoE)	<ul style="list-style-type: none"> <li>○ Project Coordinator – (ZEEP) (MoE)</li> <li>○ Director Planning and Information (MoE)</li> <li>○ M&amp;E Officer</li> <li>○ Independent Auditor</li> </ul>	<p>ZEPCU with the support of the Director Planning and Information - MoE (or an independent auditor) will try to address it.</p> <p>❖ ZEPCU will respond to all complaints within 10 business days.</p> <p>❖ If not resolved, the complaint will be reported to the Project Coordinator at the MoE.</p>	<ol style="list-style-type: none"> <li>1. Record the complaint submitted in ZEPCU grievance database.</li> <li>2. Review monthly monitoring submitted by the district/provincial-level and enter all complaints with the status will be recorded in the grievance database.</li> <li>3. M&amp;E officer will periodically review the grievance database and follow-up with focal persons to ensure all cases are addressed.</li> <li>4. Every 6 months, ZEPCU will include performance of GRM report as part of M&amp;E report and submit to MoE which will be shared with the Bank</li> </ol>
				

	Focal Point Unit/Organizations	Focal Persons	Role and Responsibilities	
			When a complaint is submitted	Recording complaints
<b>PROVINCIAL AND DISTRICT LEVEL</b>	<ul style="list-style-type: none"> <li>○ Provincial Educational Officer (PEO)</li> <li>○ District Education Board Secretary (DEBS)</li> </ul>	<ul style="list-style-type: none"> <li>○ PEO - MoE</li> <li>○ DEBS - MoE</li> </ul>	<p>All complaints at district level will be addressed by the DEBS. If not resolved, the complaints will be escalated to the PEO. The PEO will respond to all complaints within 10 business days. If not resolved, the complaint will be escalated to the ZEPCU at national level.</p>	<ol style="list-style-type: none"> <li>1. Record the complaint submitted in a simple form.</li> <li>2. Submit the record of complaints to the DEBS</li> </ol>
				
<b>BENEFICIARY SCHOOL AND COMMUNITY LEVEL</b>	<ul style="list-style-type: none"> <li>○ Head Teacher – beneficiary School</li> <li>○ Community Leader</li> <li>○ Site Manager</li> </ul>	<ul style="list-style-type: none"> <li>○ Head Teacher</li> <li>○ Site Manager</li> <li>○ Community Leaders</li> <li>○ Traditional Leader</li> </ul>	<p>The focal persons on site will try to address it at site level..</p> <p>❖ The focal person on site will respond to all complaints within 10 business days. If not resolved, the complaint will be escalated to the DEBS and PEO respectively .</p>	<ol style="list-style-type: none"> <li>1. Record the complaint submitted in a simple form.</li> <li>2. Submit the record of complaints to the Site Manager</li> </ol>

## 11.5 ANNEX 5: CLASSIFICATION OF PROJECTS UNDER ZAMBIA EIA

The project aims at improving environmental management of contaminated soil/areas. The choice of remediation technique will be technology neutral and will be determined based on assessment of environmental health risks associated with each site. Once the site details are analyzed for level of contamination, remediation targets identified and design firmed up, an Environmental Management Plan will be prepared to supplement the designed mitigation measures. The monitoring of environmental quality will be part of the main project design to assess the performance of the intervention and will be integrated into the EMP.

The Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 provides for Environmental Impact Assessment regulations that classify projects into either the First Schedule or Second Schedule depending on the size, nature and anticipated environmental consequences of a project or sub-project. The Zambia EIA Regulations provide lists of projects or sub-projects prototypes which fall under the two categories

### EIA REGULATIONS FIRST SCHEDULE

#### Projects Which Require Project Briefs

- a) Urban area rehabilitation.
- b) Water transport.
- c) Flood control schemes.
- d) Exploration for and production of hydrocarbons including refining and transport.
- e) Timber harvesting and processing in forestry.
- f) Land consolidation schemes.
- g) Mining and mineral processing, reduction of ores, minerals, cement and lime kilns.
- h) Smelting and refining of ores and minerals.
- i) Foundries.
- j) Brick and earthen manufacture.
- k) Glass works.
- l) Brewing and malting plants.
- m) Plants for manufacture of coal briquettes.
- n) Pumped storage schemes.
- o) Bulk grain processing plants.
- p) Hydro power schemes and electrification.
- q) Chemical processing and manufacturing.

#### Others

- a) Resettlement schemes.
- b) Storage of hydrocarbons.
- c) Hospitals, clinics and health centres.
- d) Cemetery designation.
- e) Touring and recreational development in national parks or similar reserves.
- f) Projects located in or near environmental sensitive areas such as:-
  - I. indigenous forests;
  - II. wetlands;
  - III. zones of high biological diversity;
  - IV. areas supporting populations of rare and endangered species;
  - V. zones prone to erosion or desertification; <sup>[1]</sup><sub>SEP</sub>
  - VI. areas of historical and archaeological interest; <sup>[1]</sup><sub>SEP</sub>
  - VII. areas of cultural or religious significance;
  - VIII. areas used extensively for recreation and aesthetic reasons; (ix) areas prone to flooding and natural hazards;

- IX. water catchments containing major sources for public, industrial or agricultural uses; and [SEP]
- X. areas of human settlements (particularly those with schools and hospitals). [SEP]

## **EIA REGULATIONS SECOND SCHEDULE**

### **Projects which require Environmental Impact Assessment**

#### **1. Urban Development**

- a) Designing of new townships, which are more than 5Ha or more, or sites covering 700 dwellings and above.
- b) Establishment of industrial estates.
- c) Establishment or expansion of recreational areas such as golf course, which would attract 200 or more vehicles
- d) Shopping centres and complexes - 10, 000m<sup>2</sup> and above, floor area.

#### **2. Transportation**

- a) All major roads outside urban areas, the construction of new roads and major improvements over 10 Km in length or over 1 Km in length if the road passes through a national park, Game Management Area.
- b) Railway lines: 10 Km from built up area.
- c) Airport and airfields; runway 1, 800 m or more.
- d) Pipelines: for water, diameter 0.5 m and above and length 10 Km outside built up area, for oil 15 Km or more of which 5 Km or more of their length will be situated in a protected area, a serious polluted water abstraction area.
- e) Establishment of harbours or pontoons areas.

#### **3. Dams, Rivers and Water Resources**

- a. Dams and barrages: covering a total of 25 Ha or more.
- b. Exploration for, and use of, ground water resources including production of geothermal energy: water to be extracted to be more than 2 million cumecs m<sup>3</sup>/s.

#### **4. Mining: Including Quarrying and Open Cast Extraction**

- a) Copper mining, coal site.
- b) Limestone, sand, dolomite, phosphate and clay extraction's of 2Ha or more. [SEP]
- c) Precious metals (silver, zinc, cobalt, nickel). [SEP]
- d) Industrial metals.
- e) Gemstones.
- f) Radioactive metals.

#### **5. Forestry Related Activities**

- a) Clearance of forestry in sensitive areas such as watershed areas or for industrial use 50Ha or more.
- b) Reforestation and afforestation.
- c) Wood processing plants - 1, 000 tonnes or more.

#### **6. Agriculture**

- a) Land clearance for large scale agriculture.
- b) Introduction and use of agrochemical new in Zambia.
- c) Introduction of new crops and animals especially exotic ones new to Zambia.
- d) Irrigation schemes covering an area of 50 Ha or more.
- e) Fish farms: production of 100 tonnes or more a year.
- f) Aerial and ground spraying

#### **7. Processing and Manufacturing Industry**

- a) Cement works and lime processing - 1, 000 tonnes or more a year.
- b) Fertilizer manufacturing or processing - 1, 000 tonnes or more a year.
- c) Tanning and dressing of hides and skins - 1, 00 skins a week.
- d) Abattoirs and meat processing plants - 20, 000 carcasses and above a month.
- e) fish processing plant - more than 100 tons a year.



- f) Pulp and paper mills - daily output 50 air dried tonnes and above a day.
- g) Food processing plants - 400 tonnes or more out put a year.

8. Electrical Infrastructure

- a) Electricity generation station.
- b) Electrical transmission lines - 220 Kv and more than 1 Km long.
- c) Surface roads for electrical and transmission lines for more than 1 Km long.

9. Waste Disposal

- a) Sites for solid disposal: construction of permanent disposal site with 1, 000 tonnes and above a day.
- b) Sites for hazardous disposal 100 tonnes or more a year.
- c) Sewage disposal works - with capacity of 15, 000 litres or more a day.

10. Nature Conservation Areas

- a) Creation of national parks, game management areas and buffer zones.
- b) Commercial exploitation of natural fauna and flora.
- c) Introduction of alien species of flora and fauna to local ecosystems.

## 11.6 ANNEX 6: LIST OF KEY PEOPLE CONSULTED

ENVIROMENT AND SOCIAL MANAGEMENT FRAMEWORK STAKEHOLDERS' CONSULTATIVE MEETING				
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### 11.7 ANNEX 7. PHOTOS OF STAKEHOLDER CONSULTATIONS

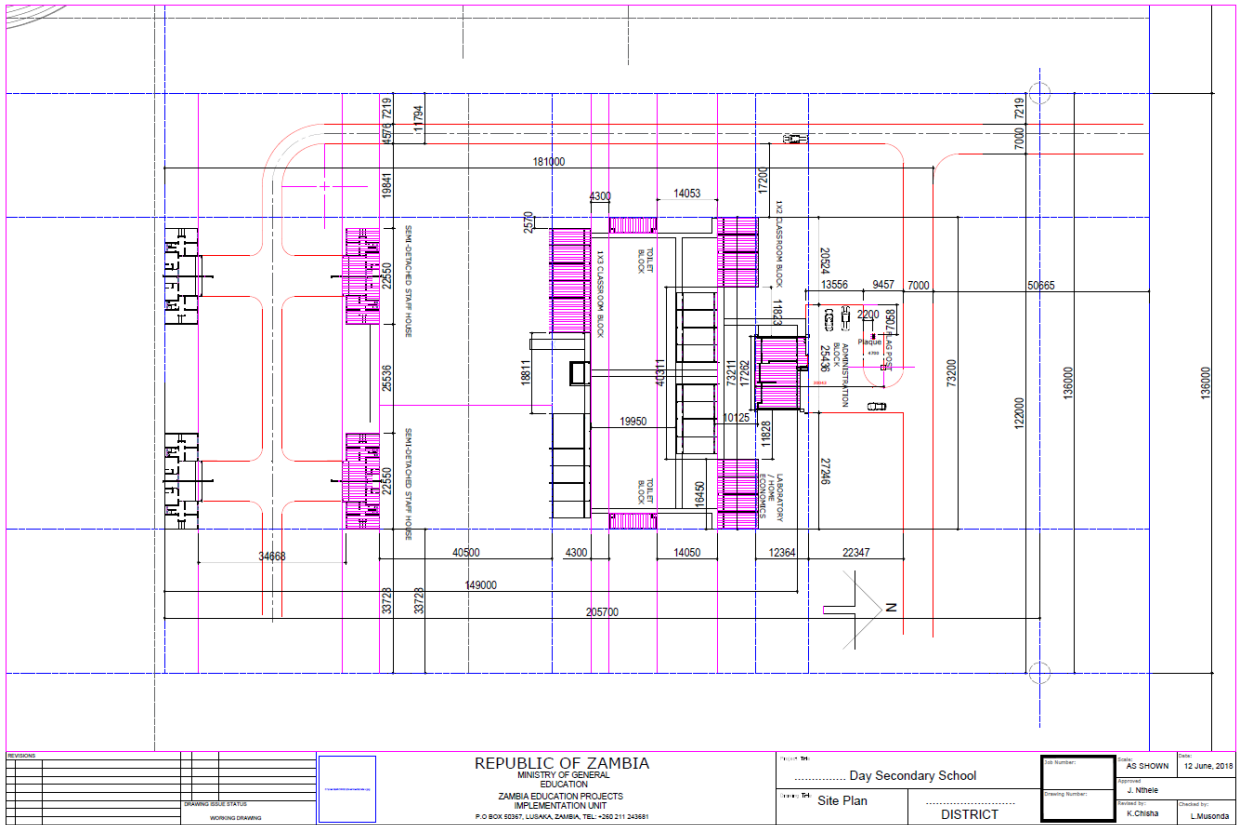




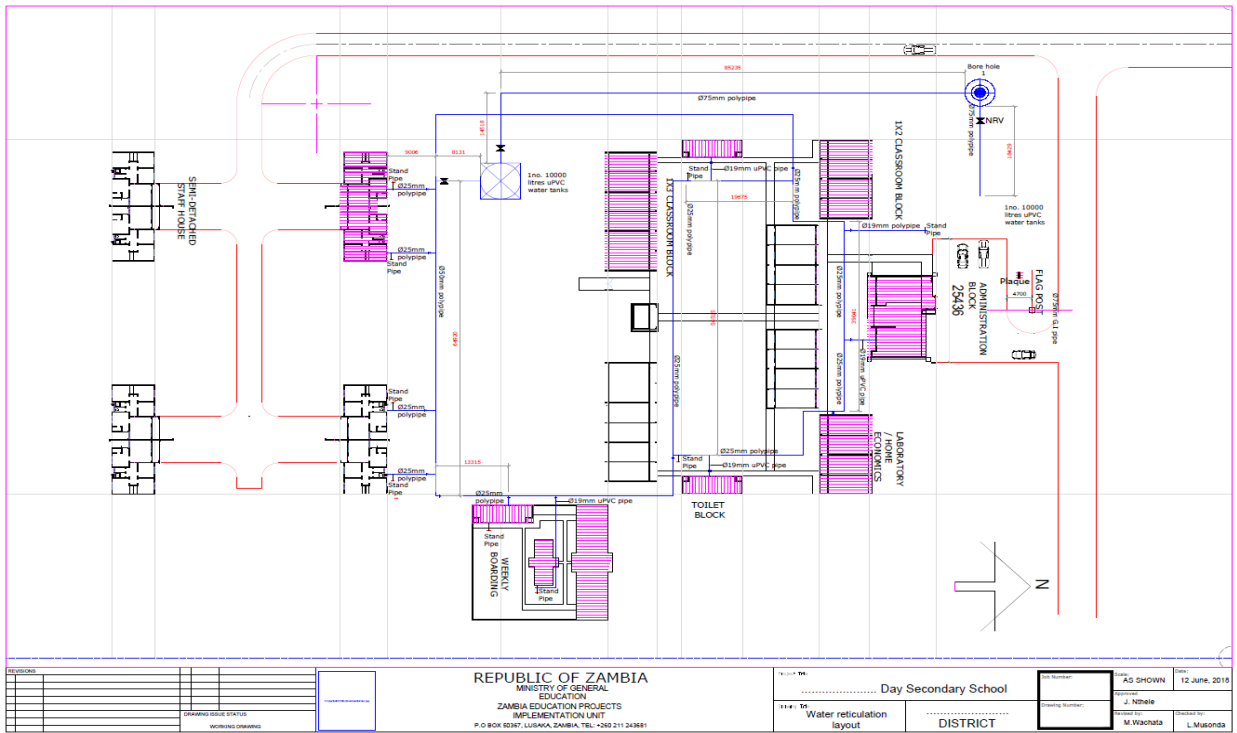


# 11.8 ANNEX 8. SAMPLE DESIGNS/LAYOUT OF FACILITIES

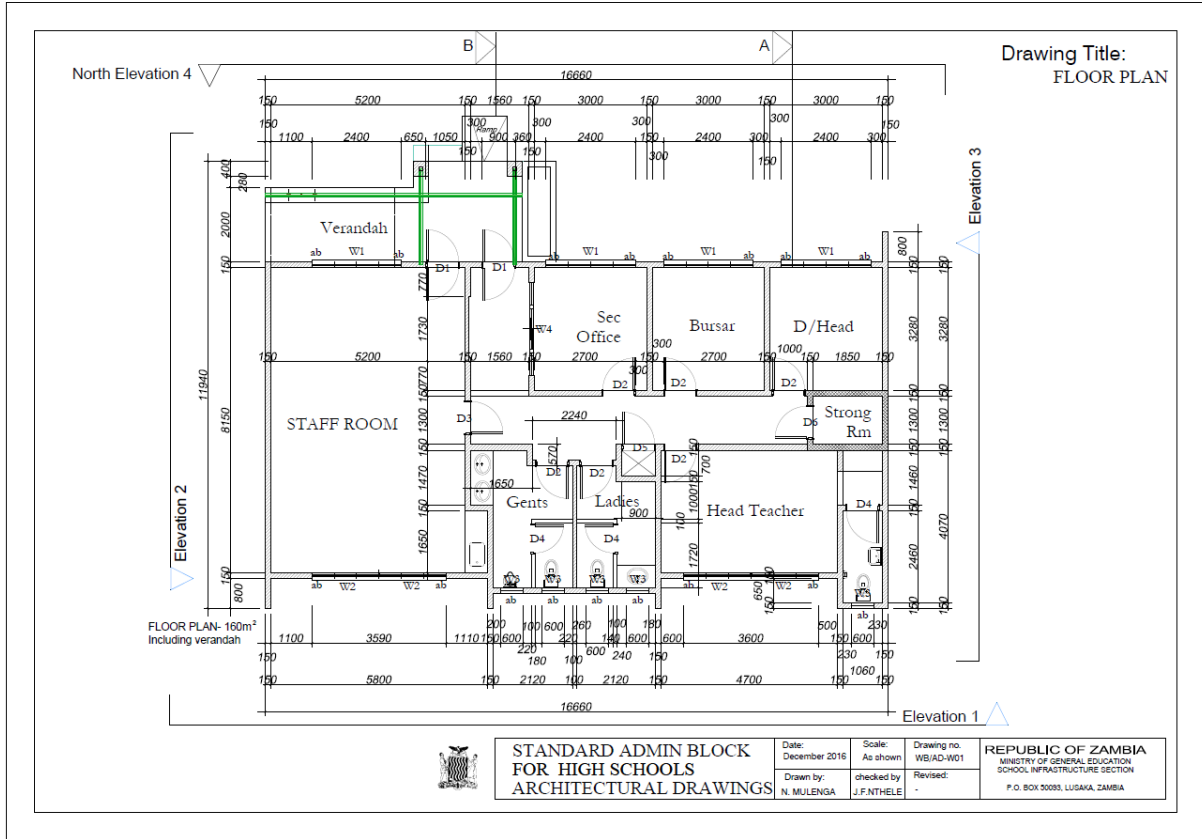
## ZEEP Site master plan



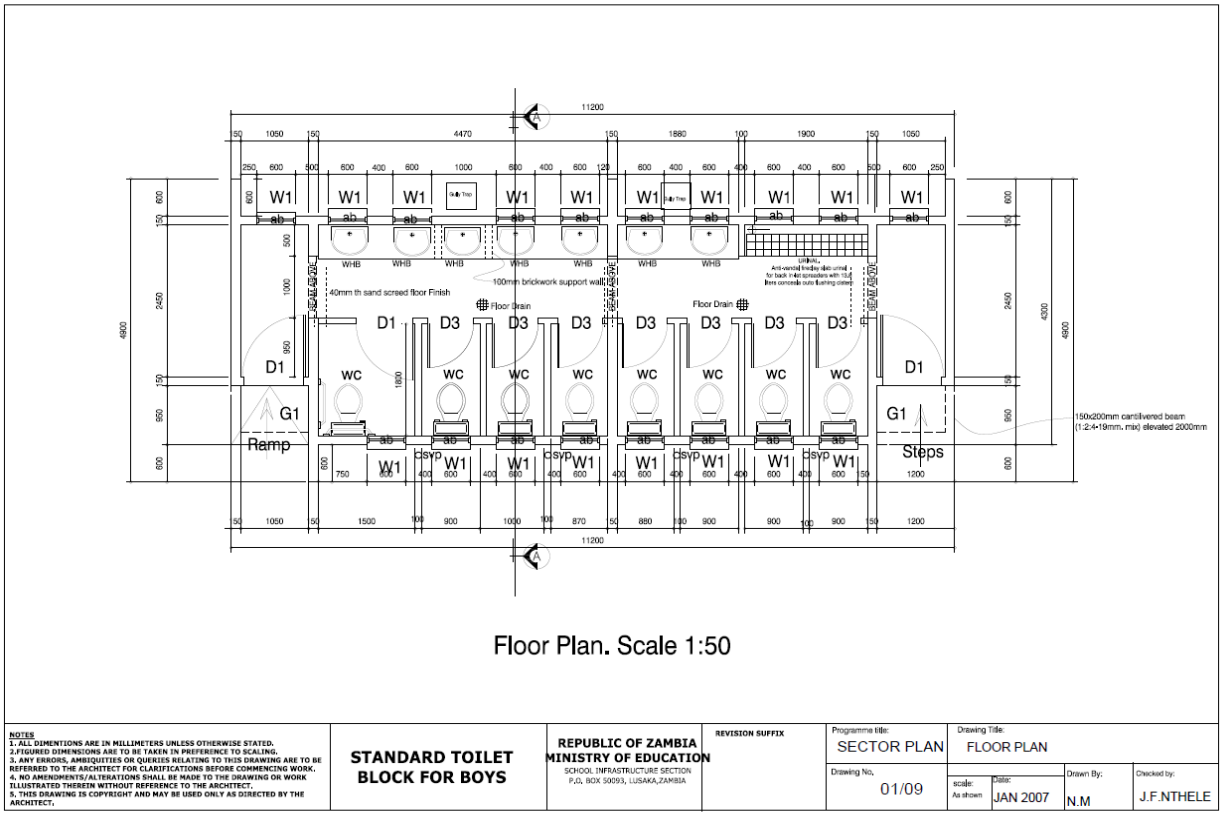
## Sewerage and water system plan



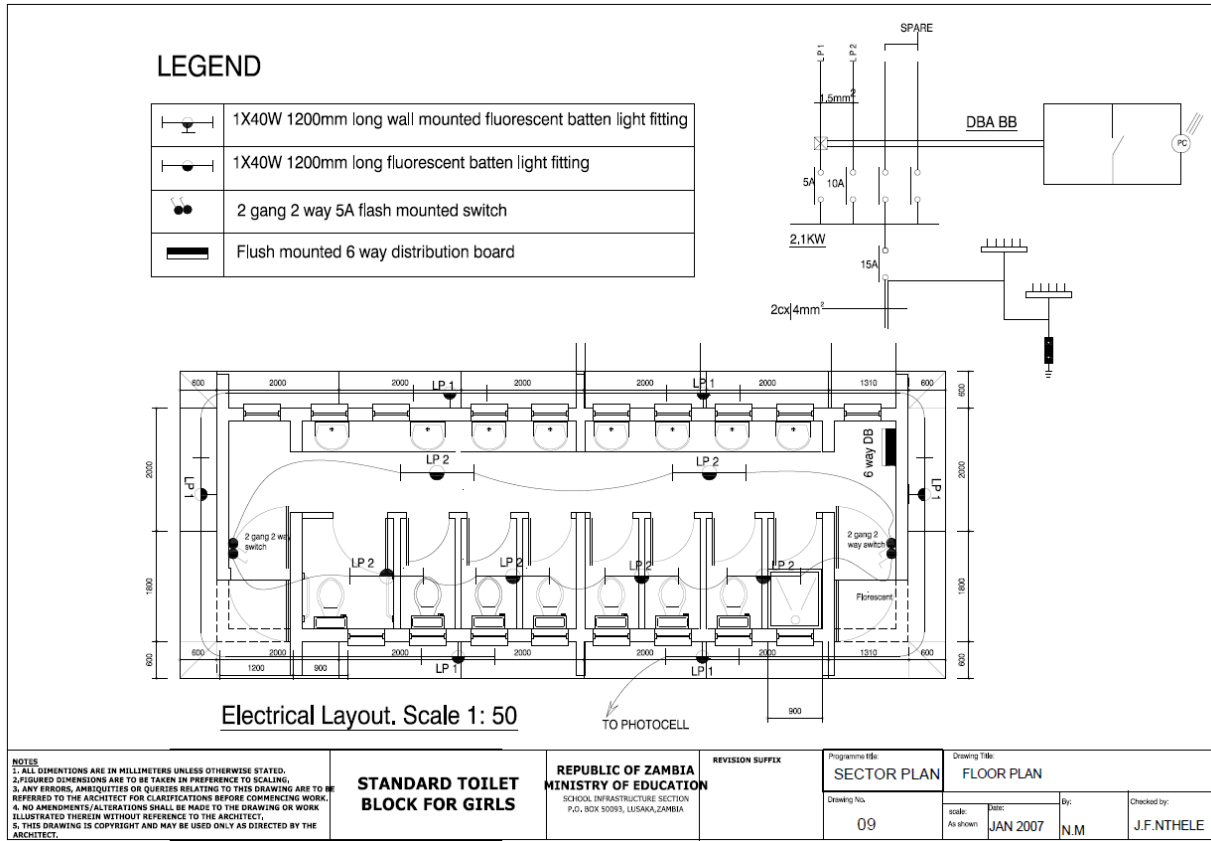
## Administration block floor plan



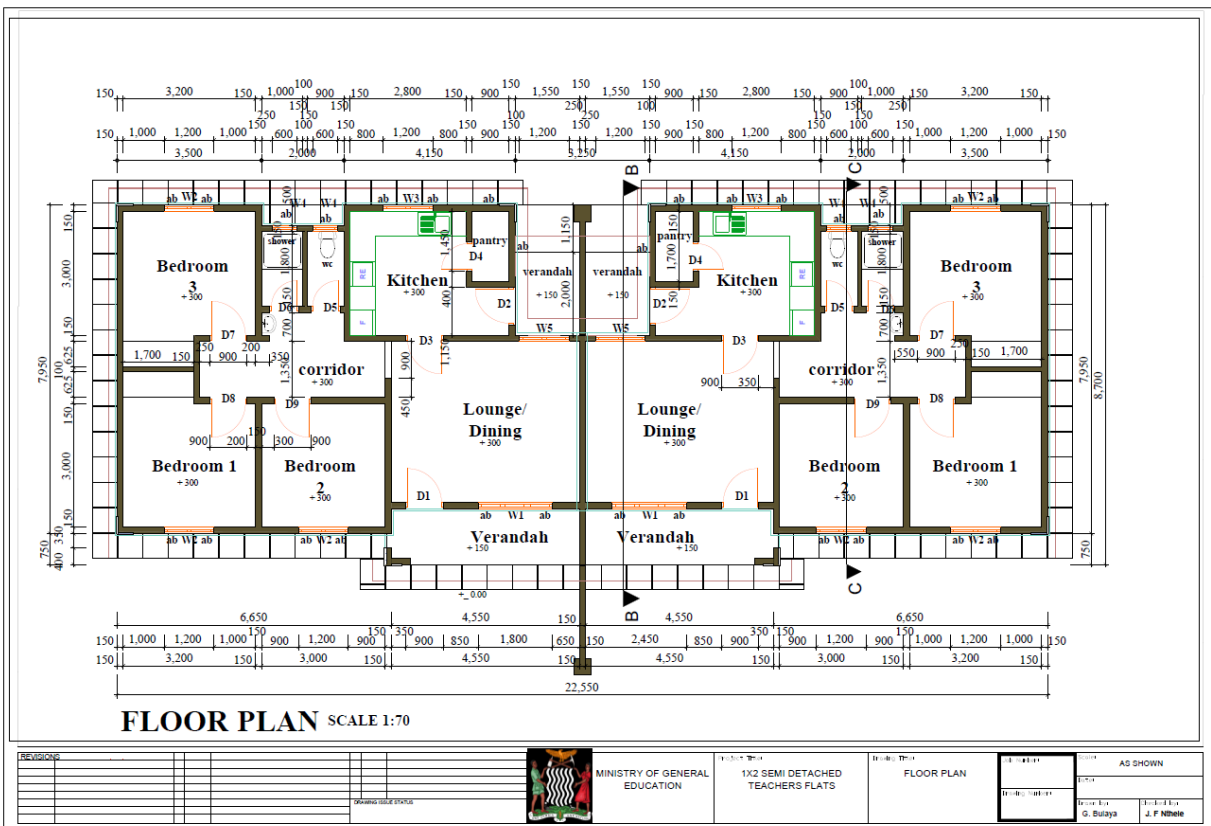
## Boys ablation block floor plan



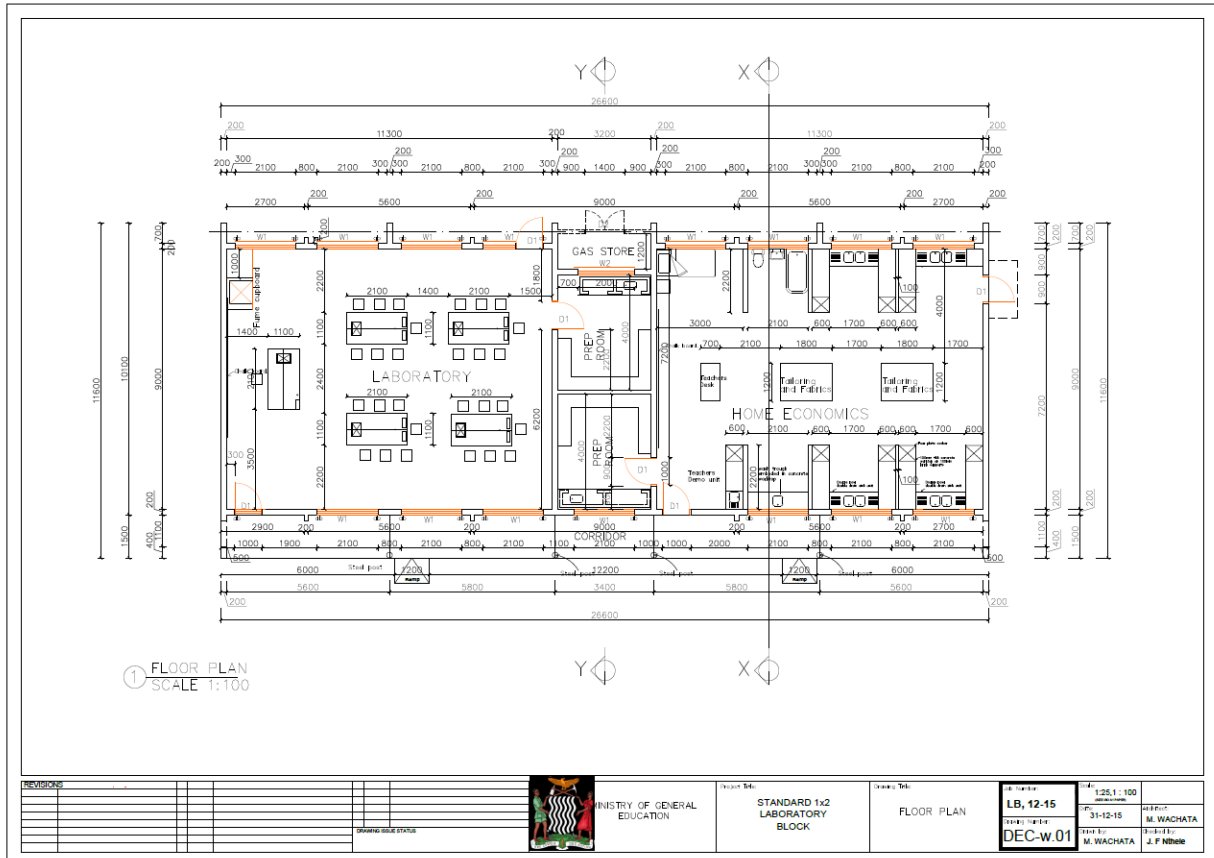
## Girls abluion block floor plan



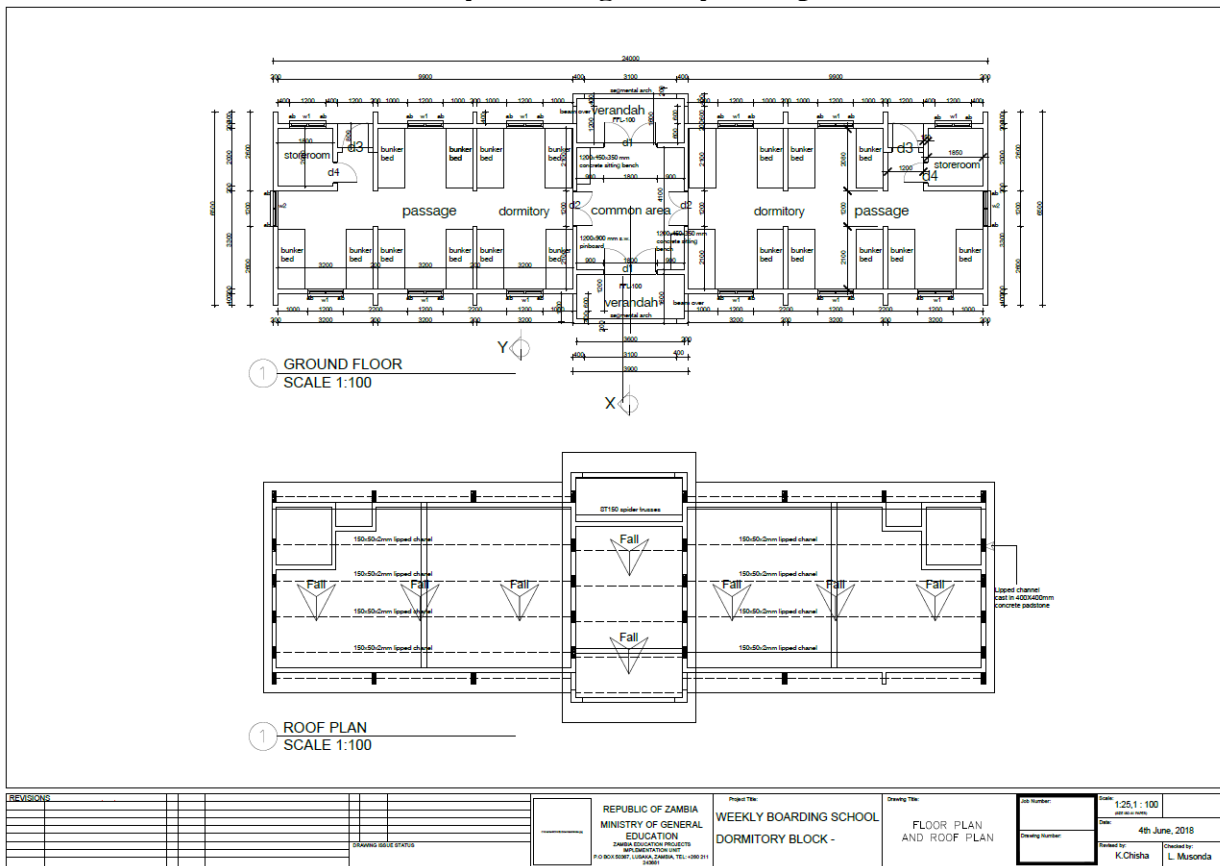
## Teacher houses floor plan



## Sciences laboratory and Home Economics block floor plan

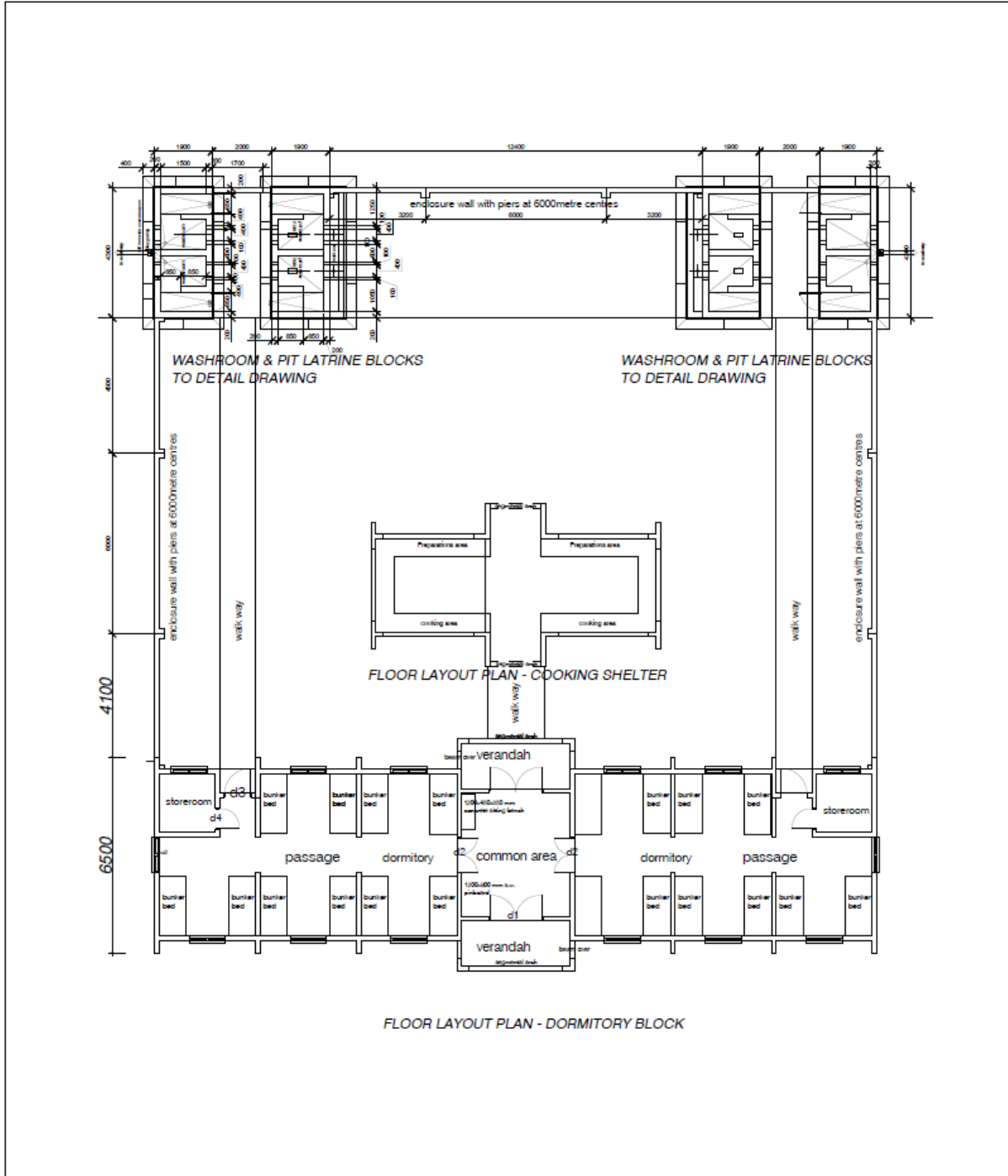


## Weekly boarding facility floor plan

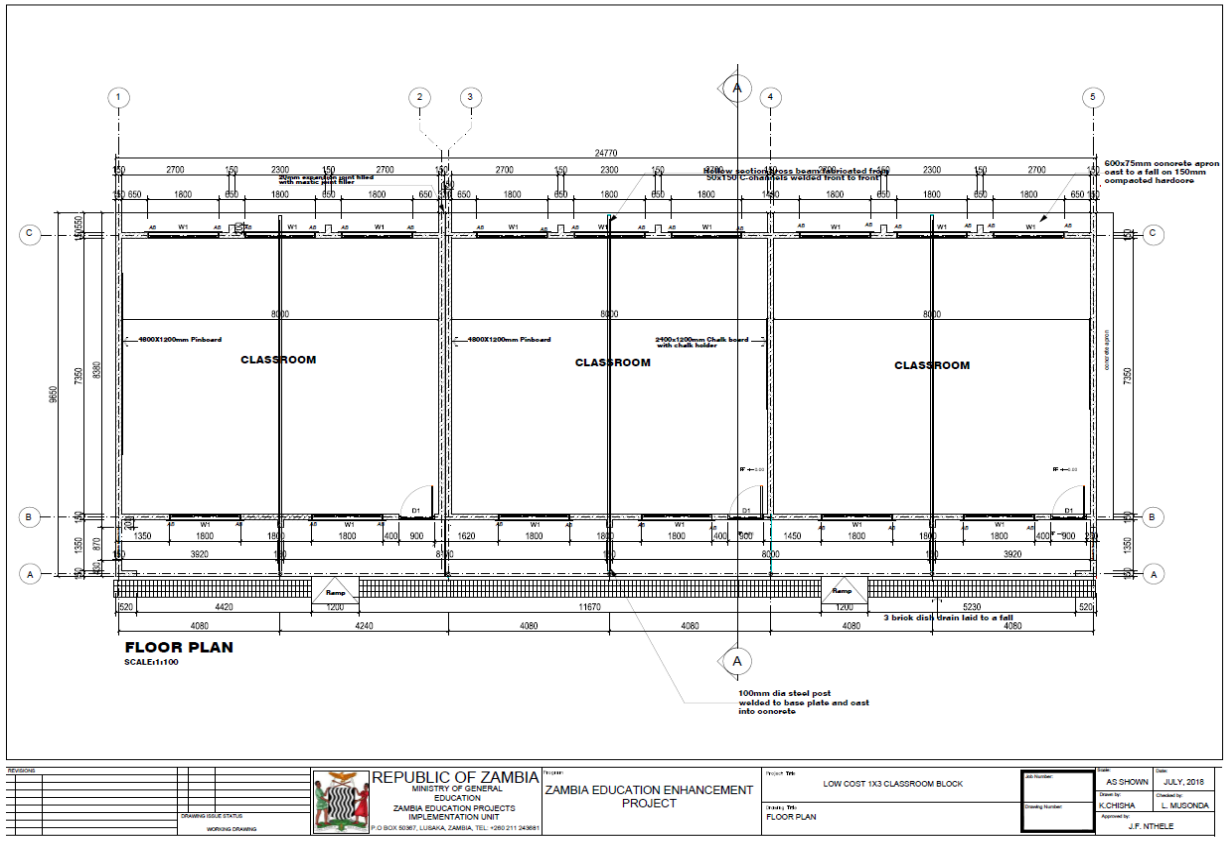




# Weekly boarding facility layout



## 1x3 classroom block floor plan



## 11.9. ANNEX 9. Electronic Waste (E-Waste) Management Plan (EWMP)

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## 1. Considerations on Waste Management

The project will manage environmental and social risks and impacts in a systematic manner, proportionate to the nature and scale of the activity and to the potential risks and impacts themselves. The generation of all forms of waste is one of those risks that must be considered during preplanning, construction, operations, and the decommissioning phases of the project. Waste management planning for the project should be conducted early as possible to identify sound management practices and procedures all within the country's legal and environmental frameworks. Project wastes include hazardous, solid, demolition or construction and electronic waste. The focus of this plan is on Electronic waste or e-waste. This E-waste management plan should be implemented throughout the project's lifecycle to protect the environment, safeguard the health of the local communities, and comply with The World Bank Group Environment, Safety and Health Guidelines (EHSG) and Good International Industry Practice (GIIP).

### 1.1. E-waste definition and general considerations

Electronic waste (E-waste) is a term used to cover items of all types of electrical and electronic equipment (EEE) and its parts that have been discarded, irreparable or at the end of life. Although e-waste is a general term, it is considered to cover laptops, desktops, tablets, televisions and mobile phones. E-waste contains materials that, if mishandled, can be hazardous to human health and the environment, but, most importantly, also materials that are valuable and scarce.

### 1.2. Toxicity and radioactive nature of e-waste to the human, water, soil, and animals

Electrical and electronic equipment contain different hazardous materials, which are harmful to human health and the environment if not disposed of carefully. While some naturally occurring substances are harmless in nature, their use in the manufacture of electronic equipment often results in compounds which are hazardous (e.g. chromium becomes chromium VI). Lead, mercury, cadmium, and polybrominated flame retardants are found in electronic equipment and are all persistent, bio-accumulative toxins (PBTs). They can create environmental and health risks when computers are manufactured, incinerated, landfilled or melted during recycling. PBTs, in particular are a dangerous class of chemicals that have longevity in the environment and bioaccumulate in living tissues. PBTs are harmful to human health and the environment and have been associated with cancer, nerve damage and reproductive disorders. Table 1 is a selection of the mostly found toxic substances in e-waste.

**Table 1.1 Toxic Substances in E-waste**

Substance	Occurrence in E-waste
<b>Halogenated compounds</b>	
PCB (polychlorinated biphenyls)	Condensers, Transformers
TBBA (tetrabromo-bisphenol-A)	Fire retardants for plastics (thermoplastic components, cable insulation)
PBB (polybrominated biphenyls)	TBBA is presently the most widely used flame retardant in printed
PBDE (polybrominated diphenyl ethers)	
Chlorofluorocarbon (CFC)	Cooling unit, Insulation foam
PVC (polyvinyl chloride)	Cable insulation
<b>Heavy metals and other metals:</b>	

Arsenic	Small quantities in the form of gallium arsenide within light emitting diodes
Barium	Getters in CRT
Beryllium	Power supply boxes which contain silicon-controlled rectifiers and x-ray lenses
Cadmium	Rechargeable NiCd-batteries, fluorescent layer (CRT screens), printer inks and toners, photocopying-machines (printer drums)
Chromium VI	Data tapes, floppy-disks
Lead	CRT screens, batteries, printed wiring boards
Lithium	Li-batteries
Mercury	Fluorescent lamps that provide backlighting in LCDs, in some alkaline batteries and mercury wetted switches
Nickel	Rechargeable NiCd-batteries or NiMH-batteries, electron gun in CRT
Rare Earth elements (Yttrium, Europium)	Fluorescent layer (CRT-screen)
Selenium	Older photocopying-machines (photo drums)
Zinc sulphide	Interior of CRT screens, mixed with rare earth metals

### **Arsenic**

Arsenic is a poisonous metallic element, which is present in dust and soluble substances. Chronic exposure to arsenic can lead to various diseases of the skin and decrease nerve conduction velocity. Chronic exposure to arsenic can also cause lung cancer and can often be fatal.

### **Barium**

Barium is a metallic element that is used in sparkplugs, fluorescent lamps and "getters" in vacuum tubes. Being highly unstable in the pure form, it forms poisonous oxides when in contact with air. Short-term exposure to barium could lead to brain swelling, muscle weakness, damage to the heart, liver and spleen. Animal studies reveal increased blood pressure and changes in the heart from ingesting barium over a long period of time. The long-term effects of chronic barium exposure to human beings are still not known due to lack of data on the effects.

### **Beryllium**

Beryllium has recently been classified as a human carcinogen because exposure to it can cause lung cancer. The primary health concern is inhalation of beryllium dust, fumes or mist. Workers who are constantly exposed to beryllium, even in small amounts, and who become sensitized to it can develop what is known as Chronic Beryllium Disease (berylliosis), a disease that primarily affects the lungs.

Exposure to beryllium also causes a form of skin disease that is characterized by poor wound healing and wart-like bumps. Studies have shown that people can still develop beryllium diseases even many years following the last exposure.

### **Brominated flame retardants (BFRs)**

The 3 main types of BFRS used in electronic and electrical appliances are Polybrominated biphenyl (PBB), Polybrominated diphenyl ether (PBDE) and Tetrabromobisphenol - A (TBBPA). Flame-retardants make materials, especially plastics and textiles, more flame resistant. They have been found in indoor dust and air through migration and evaporation from plastics. Combustion of halogenated case material and printed wiring boards at lower temperatures releases toxic emissions including dioxins, which can lead to severe hormonal disorders. Major electronics manufacturers have begun to phase out brominated flame-retardants because of their toxicity.

### **Cadmium**

Cadmium components may have serious impacts on the kidneys. Cadmium is adsorbed through respiration but is also taken up with food. Due to the long half-life in the body, cadmium can easily be accumulated in amounts that cause symptoms of poisoning. Cadmium shows a danger of cumulative effects in the environment due to its acute and chronic toxicity. Acute exposure to cadmium fumes causes flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. The primary health risks of long-term exposure are lung cancer and kidney damage. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalacia and osteoporosis).

### **CFCs (Chlorofluorocarbons)**

Chlorofluorocarbons are compounds composed of carbon, fluorine, chlorine, and sometimes hydrogen. Used mainly in cooling units and insulation foam, they have been phased out because when released into the atmosphere, they accumulate in the stratosphere and have a deleterious effect on the ozone layer. This results in increased incidence of skin cancer in humans and in genetic damage in many organisms.

### **Chromium**

Chromium and its oxides are widely used because of their high conductivity and anti-corrosive properties. While some forms of chromium are nontoxic, Chromium (VI) is easily absorbed in the human body and can produce various toxic effects within cells. Most chromium (VI) compounds are irritating to eyes, skin and mucous membranes. Chronic exposure to chromium (VI) compounds can cause permanent eye injury, unless properly treated. Chromium VI may also cause DNA damage.

### **Dioxins**

Dioxins and furans are a family of chemicals comprising 75 different types of dioxin compounds and 135 related compounds known as furans. Dioxins is taken to mean the family of compounds comprising polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). Dioxins have never been intentionally manufactured but form as unwanted by-products in the manufacture of substances like some pesticides as well as during combustion. Dioxins are known to be highly toxic to animals and humans because they bio-accumulate in the body and can lead to malformations of the foetus, decreased reproduction and growth rates and cause impairment of the immune system among other things. The best-known and most toxic dioxin is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD).

## **Lead**

Lead is the fifth most widely used metal after iron, aluminium, copper and zinc. It is commonly used in the electrical and electronics industry in solder, lead-acid batteries, electronic components, cable sheathing, in the glass of CRTs etc. Short-term exposure to high levels of lead can cause vomiting, diarrhoea, convulsions, coma or even death. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys. It is particularly dangerous for young children because it can damage nervous connections and cause blood and brain disorders.

## **Mercury**

Mercury is one of the most toxic yet widely used metals in the production of electrical and electronic applications. It is a toxic heavy metal that bio-accumulates causing brain and liver damage if ingested or inhaled. In electronics and electrical appliances, mercury is highly concentrated in batteries, some switches and thermostats, and fluorescent lamps.

## **Polychlorinated biphenyls (PCBs)**

Polychlorinated biphenyls (PCBs) are a class of organic compounds used in a variety of applications, including dielectric fluids for capacitors and transformers, heat transfer fluids and as additives in adhesives and plastics. PCBs have been shown to cause cancer in animals. PCBs have also been shown to cause a number of serious non-cancer health effects in animals, including effects on the immune system, reproductive system, nervous system, endocrine system and other health effects. PCBs are persistent contaminants in the environment. Due to the high lipid solubility and slow metabolism rate of these chemicals, PCBs accumulate in the fat-rich tissues of almost all organisms (bioaccumulation).

## **Polyvinyl chloride (PVC)**

Polyvinyl chloride (PVC) is the most widely used plastic, used in everyday electronics and appliances, household items, pipes, upholstery etc. PVC is hazardous because contains up to 56 percent chlorine which when burned produces large quantities of hydrogen chloride gas, which combines with water to form hydrochloric acid and is dangerous because when inhaled, leads to respiratory problems.

## **Selenium**

Exposure to high concentrations of selenium compounds can cause selenosis. The major signs of selenosis are hair loss; nail brittleness, and neurological abnormalities (such as numbness and other odd sensations in the extremities).

## **2. *E-Waste Management Plan (EWMP)***

### **2.1. *E- Waste management during construction, operational and closure phase***

This Electrical Waste Management Plan (EWMP), will be implemented throughout the project's lifecycle and is not limited to the use of electronic devices used for educational purposes. E-waste could also be generated during construction, operation of the hub and satellite centres and at decommissioning. The plan is required to be adopted during project implementation period when project-financed electrical equipment (computers, tablets, mobile phones, laptops, etc.) are replaced, irreparable or at their end of life. This plan must comply with the existing Zambian legislation and regulations, WB EHS and Good International Industrial Practice (GIIP).

## 2.2.Objective of the EWMP

The aim of this e-waste management plan is to detail project requirements with respect to e-waste.

The overall objectives of the waste management assessment are summarised below: (i) to assess the activities involved for the proposed project and determine the type, nature and estimated volumes of waste to be generated; (ii) to identify any potential environmental impacts from the generation of waste at the project sites; (iii) to recommend appropriate waste handling and disposal measures in accordance with the current legislative requirements, WB EHSR and GIIP.

## 2.3.Electronic Products under the Project

The project will procure diverse electronic equipment. These include tablets, laptops, desktop computers, cameras, printers, and flash drives. The table below lists the equipment that will be procured on the project and the activities where they will be utilized.

**Table 2.1: Type and Quantities of electronic devices to be procured and activities where they will be used and quantities**

<u>Types of Electronic Devices</u>	<u>Activities</u>	<u>Quantity</u>
Tablets	Subcomponent 1.1 (g) tablets for targeted schools, 1.3 (c) the design and establishment of a teacher database compiled through a comprehensive teacher census, including all necessary hardware and software, Component 2's tablet-based monitoring system	Unknown
Laptops	Subcomponent 1.1 (l) revamping the resource centers includes computers.  Laptops could also be used throughout the project for report writing, planning, designing, electronic communications; trainings; physical and virtual meetings	Unknown
Printers	Subcomponent 1.1 (l) revamping the resource centers includes printers.	4
<u>Projector</u>	Used for presentations during meetings and trainings	<u>1</u>
<u>Flash Drives</u>	Store data	<u>75+</u>
<u>Cameras</u>	Capture videos and photos during project implementation	<u>3</u>
<u>Desktops</u>	Subcomponent 1.1 (l) revamping the resource centers includes computers. Additionally, desktops could be used throughout the project for data storage, receipt of Grievances and or complaints and general electronic work such as project management, report writing, budgeting, etc.	<u>2</u>



## ***2.4.E-Waste management legal framework, EHS and GIIP***

### ***2.4.1. Zambian Law***

The Environmental Management (Licensing) Regulations (SI. No 112 of 2013) implement the Environmental Management Act 2011 and concern a wide variety of matters regarding environmental protection including air quality control, waste management, hazardous waste and other substances harmful to the environment such as pesticides and ozone-depleting substances. E-waste belongs to the fifth schedule, regulation 18 (1), list of hazardous wastes, 'Waste electronic or electronic assemblies....' Any contractor that is contracted to treat, handle, transport, store, dispose of, transit, trade in shall hold a ZEMA hazardous waste licence. Project related e-waste could end up in a landfill. Any such landfill must be managed in accordance with the guidelines prescribed in the regulation's ninth schedule and in accordance with section 24. (2) the requirements of an operator at a hazardous waste disposal site. There will be no transboundary movement of project related hazardous waste.

### ***2.4.2. Environmental and Social Safeguards***

The project will follow national legislation, World Bank Operation Policy 4.01 Environmental (and Social) Assessment, EHS and GIIP for the management of e-waste. The project will avoid the disposal of e-waste by reuse, recycle and recovery. Where e-waste cannot be reused, recycled or recovered then the project will treat, destroy or dispose of e-waste in accordance with The Environmental Management (Licensing) Regulations (SI. No 112 of 2013). That is, when hazardous waste management is conducted by third parties, the project will use ZEMA license hazardous waste contractors and all e-waste will be disposed of in a hazardous waste landfill in accordance with the Environmental Management (Licensing) Regulations (SI. No 112 of 2013).

### ***2.4.3. WBG EHS***

The WBG EHS promote waste prevention, reuse and recycling, good housekeeping, inventory control, avoidance of damage and instituting procurement measures that allow the return of reusable material. It requires the segregation of hazardous wastes from other waste, its appropriate storage (labelled containers) and record keeping. It allows collection, transport and disposal in accordance with the Environmental Management (Licensing) Regulations (SI. No 112 of 2013). The EHS also requires monitoring records for hazardous waste collected, stored, or shipped using the recommended procedures (see below).

### ***2.4.4. GIIP***

GIIP promotes the use of an obligation on distributors to offer consumers a take-back system where e-waste items can be disposed of free of charge. There are two types of take-back systems, and distributors of EEE items must offer one of these schemes to their customers. Examples include: free in-store take-back scheme where distributors accept e-waste items from customers purchasing equivalent new items; distributor take-back scheme where consumers can dispose of electrical and electronic equipment (EEE) waste free of charge at designated collection facilities. E-waste generators should manage and dispose of e-waste responsibly by methods mentioned in the preceding paragraphs. In addition, when purchasing a new electrical item, a consumer could arrange with the retailer to collect the old one. Businesses and other users (i.e. schools, hospitals and government agencies) of EEE must ensure that all separately collected e-waste is treated and recycled.

## ***2.5.E-Waste Mitigation Measure and Management/Disposal Plan***

This e-waste management plan contains proposed mitigation measures through which all e-waste can be managed in accordance with Zambian law, WB Safeguard Policies, WB EHS and GIIP. The mitigation measures or guidelines have been designed in order to avoid, minimize and reduce negative

environmental and social impacts at the project level. The mitigation measures are presented in the following sections.

### ***2.5.1. Procurement of electronic items of a high quality and from reputable retailers/sources***

The first mitigation measure is to ensure that all electronic devices are procured from retailers and sources that are credible, that all devices will have a clear date of manufacture and warranty and the item is of a high quality. ZEPCU procurement officers will be informed of this requirement. This will avoid procurement of poor quality, refurbished or second-hand electronic devices with a shorter life cycle that leads to a rapid generation of e-waste. All items should be purchased where applicable, with protective covers and insurance. If possible, retailers or source of electronic items should be engaged where a repair, renewal, recycling or take back scheme option is offered. If the retailer or source does not offer some or all of these options, then the project is to locate legally licensed facilities that do repair or recycle electronic items. If such options do not exist, then disposal should follow the Environmental Management (Licensing) Regulations (SI. No 112 of 2013) as detailed in the preceding paragraphs.

### ***2.5.2. Awareness and Sensitization***

Teachers, schools and other entities receiving ICT from the project will be informed of and sensitized about proper disposal of EEE once they become damaged, irreparable or at their end of life. The sensitization or training should include the usefulness and significance of e-waste recycling, and the need for returning all electronic items procured by the project to a collection centre that should be established at an appropriate location.

### ***2.5.3. Disposal***

The last option in the management of e-waste is disposal. All e-waste should be segregated from other waste, collected at a designated point, inventoried and stored in a labelled container. When preparing e-waste for transportation the following should be implemented:

- Name and identification number of the material(s) composing the e-waste
- Physical state (i.e., solid, liquid, gaseous or a combination of one, or more, of these)
- Quantity (e.g., kilograms or liters, number of containers)
- Waste shipment tracking documentation to include, quantity and type, date dispatched, date transported and date received, record of the originator, the receiver and the transporter
- Method and date of storing, repacking, treating, or disposing at the facility, cross-referenced to specific manifest document numbers applicable to the e-waste
- Location of each e-waste within the facility, and the quantity at each location

Any entity that is contracted to treat, handle, transport, store, dispose of, transit or trade e-waste is required to hold a ZEMA hazardous waste licence. Project related e-waste could end up in a landfill site. However, any hazardous waste disposal using this method, requires that the landfill must be managed in accordance with the guidelines prescribed in Zambian regulation's ninth schedule and in accordance with section 24 (2) the Requirements of an Operator at a Hazardous Waste Disposal Site. Transboundary movement of project-related hazardous waste is not expected.

In Zambia, safe disposal of e-waste is still a new phenomenon as most people dispose of their e-waste at dumpsites together with other solid waste materials. According to an ICT survey that was conducted by the Zambia Information and Communications Technology Authority (ZICTA) in 2018, the country disposes of 90% of its e-waste in dumpsites and only 10% of the population using electronic devices are even aware of the risks associated with careless disposal of such materials. However, a good number of private

companies have ventured into providing waste disposal services which also includes e-waste. Another initiative is where suppliers of electronic equipment introduced a system of taking back defective products for recycling or proper disposal. For example, in 2020 Airtel Networks Zambia Plc partnered with Ericsson on a 'Product Take-Back' program to minimize the potential environmental impact associated with the disposal of decommissioned electrical equipment. These initiatives have provided an opportunity for electronic equipment users to safely dispose of e-waste or to return it to suppliers. Currently many non-governmental organisations dispose of their waste through registered private companies offering such services. More awareness is still needed to sensitise communities on the dangers of careless disposal of e-waste on the environment.

#### **2.5.4. Monitoring of Environmental and Social Indicators**

Some goals of monitoring are to measure the success of a project, determine whether interventions have resulted in negative impacts, if further interventions are needed or if monitoring should be extended in some capacity. Monitoring indicators will be very dependent on specific activity contexts.

#### **2.5.5. Monitoring**

The Ministry of Education which is implementing this project through ZEPCU will be responsible for overall monitoring and evaluation of compliance with this e-waste management plan. The results of the monitoring reports will be submitted to the Bank. In appreciation of the fact that it would be impossible to visit or monitor all project investments to be financed under the project, "spot checks" may be undertaken.

#### **2.5.6. World Bank Monitoring Support**

The Bank will provide a second line of monitoring compliance and commitments made in this e-waste management plan through supervision. The Bank will further undertake monitoring during its scheduled project supervision missions.

Specifically, for each year that the agreement is in effect, MoE will be required to submit all the monitoring reports through ZEPCU to the Bank as part of its reporting and the Bank supervision missions will review these reports and provide feedback.

### **2.6. Monitoring Roles and Responsibilities**

#### **2.6.1. Ministry of Education**

The Ministry of Education will provide overall responsibility for the Government of Zambia cooperation on this program and remain the World Bank's principal client for the delivery of the program.

#### **2.6.2. Schools**

The schools and other entities that will be provided electronic items financed by this project will be responsible for drafting e-waste management plans (before receipt of EEE goods) and ensuring that the mitigation measures outlined in their e-waste management plans are followed. ZEPCU will review and clear these e-waste management plans, providing guidance and support to project implementers where necessary. Implementing entities with e-waste management plans will provide quarterly reports to ZEPCU on the status of implementation of the plans.

**Table 2. E-Waste Management/Disposal Plan**

Issue: Procurement and provision of Electronic Devices (computers, tablets, printers, etc.)				
Impact	Mitigation	Monitoring	Responsibility	Budget (USD)

<p><b>Air Pollution through improper disposal</b> which leads to release of toxic, hazardous and carcinogenic gaseous</p> <p><b>Human Health</b> Impacts due to poor disposal.</p> <p><b>Pollution of water bodies</b></p> <p>Electrical and electronic equipment contain different hazardous materials, which are harmful to human health and the environment if not disposed of carefully.</p>	<p>Procure Electronic devices from credible manufactures to avoid purchasing second hand, refurbished or obsolete devices with a short shelf life or already categorized as E-Waste. If possible, select sources offering repair and take back schemes. Ensure insurance coverage and electronic physical protective devices are fitted.</p> <p>Reuse and recycle all E-waste where applicable and possible.</p> <p>Establish e-waste collection points in all schools; including collection bins/receptacles;</p> <p>Conduct awareness and sensitization targeting the users of the electronic devices to ensure that they engage in best practice for E-waste management.</p>	<p>Warranty and take back schemes for Electronic Devices purchased</p> <p>Credibility of manufacturers supplying the electronic devices</p> <p>Availability of E-waste receptacles in each school</p> <p>Number of awareness and training conducted for users of electronic devices on E-waste</p> <p>E-waste certificates of disposal using licensed hazardous waste contractors and licensed hazardous waste landfills.</p>	<p>MOE</p>	<p>0.00 USD. E-waste management does not have a specific budget however the mitigation and monitoring activities will on undertaken alongside the routine project activities such as procurement, trainings, monitoring visits, etc.</p>
<p><b>Pollution of land resources including landfills</b></p> <p>Electrical and electronic equipment contain different hazardous materials, which are harmful to human health and the environment if not disposed of carefully.</p>	<p>Procure Electronic devices from credible manufactures to avoid purchasing second hand, refurbished or obsolete devices with a short shelf life or already categorized as E-Waste. If possible, select sources offering repair and take back schemes. Ensure insurance coverage and electronic physical protective devices are fitted.</p> <p>Reuse or Recycle all E-waste;</p>	<p>Warranty and take back schemes for Electronic Devices purchased</p> <p>Credibility of manufacturers supplying the electronic devices</p> <p>Availability of e-waste receptacles in each school</p>	<p>MOE</p>	<p>0.00 USD. E-waste management does not have a specific budget under the project. However, the mitigation and monitoring activities will on undertaken along side the routine project activities such as procurement, trainings,</p>

	<p>Establish E-Waste Collection Centres in all schools; including collection bins/receptacles;</p> <p>Use licensed hazwaste contractors and licensed hazwaste landfill sites.</p> <p>Create and maintain records of all E-waste items for disposal, securely store and prepare for shipment correctly.</p> <p>Conduct awareness and sensitization targeting the users of the electronic devices to ensure that they engage in best practice for e-waste management.</p>	<p>Number of awareness and training conducted for users of electronic devices on e-waste</p> <p>E-waste certificates of disposal using licensed hazardous waste contractors and licensed hazardous waste landfills.</p>		<p>monitoring visits, etc.</p>
<p><b>Growth of informal e-waste disposal centres.</b></p> <p>Improper and indiscriminate disposal of e-waste is likely to lead to the exponential increase of informal waste disposal centers in communities near schools which further exacerbates the problem of e-waste</p>	<p>Procure electronic devices from credible manufactures to avoid purchasing second hand, refurbished or obsolete devices with a short shelf life or already categorized as e-waste. If possible, select sources offering repair and take back schemes. Ensure insurance coverage and electronic physical protective devices are fitted.</p> <p>Reuse or recycle all e-waste;</p> <p>Establish E-Waste Collection Centres in all schools; including collection bins/receptacles;</p>	<p>Warranty and take back schemes for Electronic Devices purchased</p> <p>Credibility of manufacturers supplying the electronic devices</p> <p>Availability of e-waste receptacles in each school</p> <p>Number of awareness and training conducted for users of electronic devices on E-waste</p> <p>E-waste certificates of disposal using licensed hazardous waste</p>	MOE	<p>0.00 USD. E-waste management does not have a specific budget under the V&amp;A project. However the mitigation and monitoring activities will on undertaken alongside the routine project activities such as procurement, trainings, monitoring visits etc.</p>

	<p>Use licensed hazwaste contractors and licensed hazwaste landfill sites.</p> <p>Create and maintain records of all E-waste items for disposal, securely store and prepare for shipment correctly.</p> <p>Conduct awareness and sensitization targeting the users of the electronic devices to ensure that they engage in best practice for E-waste management.</p>	<p>contractors and licensed hazardous waste landfills.</p>		
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**2.7. References:**

- a. Environmental Waste Management, Environmental, Health, and Safety (EHS) Guidelines General EHS Guidelines. International Finance Corporation, World Bank Group (IFC-WBG), 2007
- b. The (Zambian) Environmental Management (Licensing) Regulations (SI. No 112 of 2013).
- c. Environmental Social Standards 1 and 3. The World Bank Environmental and Social Framework 2017.
- d. The European Union Waste Electrical and Electronic Equipment (WEEE) Regulations 2013.