MINISTRY OF EDUCATION, ZAMBIA

ZEEP RAW MATERIAL AND RESOURCES ABSTRACTION GUIDANCE DOCUMENT

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Table of Contents

1.0 Introduction

Zambia Education and Enhancement Project (ZEEP) is funded by the World Bank (WB) and implemented by the Ministry of Education on behalf of the Zambian Government. Ministry of Education and the Project Implementation Unit (PIU), through the Environmental and Social Specialists, are responsible for ensuring the project follows the legal requirements of the ZEEP Environmental and Social Management Framework. The scope of ZEEP covers a wide range of subprojects, which include rehabilitation and construction of new community infrastructure including day and boarding schools. The scope of the infrastructure includes:

- Construction of 1 x 3 classroom block
- Construction of 1 x 2 classroom block
- Construction of 1 x 2 classroom block (one room used for 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 boys and girls, respectively
- Construction of water supply system
- Construction of sewage disposal system (water and sanitation facilities)
- Construction of 12 staff houses per school.
- Provision of electricity supply (solar or grid)

These diverse project activities require raw construction materials in considerable quantities that include sand, gravel, and wood. The ESMF did not consider or assess the abstraction of raw materials in any detail and, therefore, there is a requirement to provide further guidance to the Technical Supervisors and the community on the management of Environmental and Social (E&S) impacts and mitigation measures associated with raw material procurement, abstraction, and management. The size of the sub-projects will determine the quantity of raw materials required, depending on the infrastructural components to be constructed per school. An estimation of 594.32 tons of sand is required per school construction.

This guidance applies to all the schools to be constructed under ZEEP. The guidance document provided reflects the requirements of the project's ESMF, the WB environmental and social policies, WB Environmental Health and Safety Guidelines (EHSGs), particularly the EHSGs for construction materials extraction and where applicable Zambian laws and regulations. The scope of the guidelines is focused on the abstraction of raw materials of any type and quantity with an emphasis on the applicability of the safeguard policies on the abstraction of sand. In the context of sand mining from the riverine environment, excessive instream sand-and-gravel mining causes the degradation of rivers, causes bank erosion and the deepening of rivers. Excessive riverbed sand abstraction could threaten bridges, riverbanks, and nearby structures. Sand abstraction could also affect the adjoining

groundwater system and cause the destruction of aquatic and riparian habitats through large changes in the channel morphology. Sand mining generates extra vehicle traffic likely to pose community health and safety risks.

2.0 The aims and objectives of the sand abstraction guidance

This guidance document aims to avoid the unsustainable and illegal extraction of raw materials and resources, avoid irreversible environmental and social impacts, and incorporate the requirements of the WB safeguards policies into screening, E&S due diligence, and implementation of the subprojects projects.

The objectives:

- Review the WB safeguards policies and EHSGs on raw material extraction from all sources.
- Review Zambian's legal instruments in the context of raw material extraction.
- Provide guidance on the application of the safeguards policies in the context of raw material extraction.

3.0 National Legal Framework, the WB Environmental and Social Policies and EHSGs

This section assesses the project-triggered WB safeguards policies, EHSGS, and applicable Zambian legislation as it relates to the sourcing, procurements, and abstraction of raw construction materials for projects under ZEEP.

3.1 Applicable Zambian laws and legislation on the abstraction of raw materials for construction.

Following the provisions and requirements of Zambian laws and regulations, ZEEP does not absolve the technical supervisors and the PIC from their responsibility to apply the requirements of the WB safeguard policies nor the responsibility of the PIU to ensure safeguards are considered in all ZEEP activities. However, there are specific requirements within national law and regulations for licenses, which must be satisfied in parallel with the application of the WB safeguards policies as indicated in the sections below.

3.1.1 The Environmental Management Act No. 12 of 2011

The Environmental Management Act No. 12 of 2011 as read as one with Environmental (Amendment) Act of 2023 Section 29 (1) (1) states a person shall not undertake any project that may have an effect on the environment without the written approval of the Agency, and except following any conditions imposed in that approval. For the construction of the ZEEP schools, a No Objection Letter was granted by the Zambia Environmental Management Agency (ZEMA) with the conditions that ZEEP needs to comply with. In the conditions governing the environmental clearance, condition 2.7 states that Ministry of Education must employ the best available technology (BET) and Best Environmental Practices (BEP) throughout the project cycle. In view of that, where there is need to extract river sand, the community will ensure compliance to the condition stipulated by restoring and rehabilitating the disturbed land as demonstrated in the Environmental Social Management Plan (ESMP). The project shall also ensure to carry out critical site assessment before any extraction activities are carried out.

3.1.2 The Mine and Minerals Development Act No. 11 of 2015

The Mines and Minerals Act in Section 2b categorizes sand as an industrial mineral while the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, S.I No. 28 of 1997 Sub-Regulation 7 (2) (p. 122), defines any activity relating to quarrying and Open Cast Extraction of sand or clay of more than 2 Ha or more as industrial mining. The quantities and land size of sand to be extracted under ZEEP will not exceed more than 500 tons per school. In addition, not all schools will be required to extract river sand during construction purposes as they are within reach of commercial suppliers. In view of that, only schools being constructed in remotest areas with no legalized sources of raw materials will have to alternatively seek for this resource due to the unavailability of ZEMA licensed suppliers and quarry pits in the rural areas. The Mines and Minerals Act however does stipulate the threshold of sand that should be extracted during mining but emphasizes the presence of machinery, plants, buildings, premises, erections, and appliances, whether above or below the ground, that are used in connection with the operation or for the extraction, treatment or preparation of any mineral or to dress mineral ores.

The Mines and Minerals (Environment Protection and Pollution Control) (Regulation 15) stipulates the Protection at surface excavation as follow: -

- A developer who makes, or causes any other person to make, an excavation into which a person or animal may fall, shall make a regular ridge around the boundary of the excavation or take such other measures as are necessary for the safety or health of such person or animal Crack, subsidence or cavity.
- Where any mining operation has caused or is likely to cause any crack, subsidence or cavity on the surface in any area, the whole of the area shall be kept fenced or bounded and shall be a caving area and sufficient notices prohibiting unauthorized entry to the area shall be prominently displayed at suitable places along the fence or bounds.
- No person shall carry out any mining operations likely to cause any crack, subsidence or cavity on the surface within a horizontal distance of one hundred meters from any building, road, railway, lake, river, or any other structure or feature on the surface requiring protection, unless written permission is obtained from the Director, under such conditions as he may prescribe.

Noted Gaps with the local laws and regulations: -

- The Zambian Laws and Regulations do not clearly state any direct regulation on the extraction of sand especially on the riverbanks. There is no clear legislation supporting responsible extraction and consumption of river sand.
- The laws and regulations do not indicate the time constraint of the sand extractions or quantities since at sub project level, the sand demand may be less than the threshold but could be repeated over time.
- The law is not clear on the requirements of sand mining licenses or permits and threshold quantities at community level use but only at industrial level.

The Project will, however, write to the Director of Mines, in the Ministry of Mines and Minerals Development to seek a written permit or clearance on the extraction of river sand by the local community where commercial suppliers may not be feasible as the ZEEP Project is purely a community-based project aimed for community development and national interest through the construction of schools across the country.

4.0 The World Bank Environmental Social Policies

4.1. Environmental Assessment OP/BP 4.01

The World Bank requires an environmental assessment (EA) of projects proposed for Bank financing to help ensure they are environmentally sound and sustainable. The World Bank safeguards policy on Environmental Assessment (OP. 4.01) is triggered as component 2 project activities will involve the construction of additional classrooms and teachers housing. These construction activities require appropriate sourcing of raw materials. Proposed activities under this component have been screened and the Environmental and Social Management Plan (ESMP) prepared. The ESMP is an instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts (including those from the procurement and extraction of raw materials), or to reduce them to acceptable levels; and (b) the actions needed to implement these measures. The ESMP will be implemented with this guidance document to ensure appropriate sourcing of raw materials. Before sand extraction is done, site screening should be conducted to identify potential impacts. The legitimacy of the site needs to be ensured in the form of obtaining consent from the local leadership or landowner prior to sand abstraction.

5.0 Local guidance

The following information that is provided to understand the local context of raw material abstraction and, in particular, sand abstraction. However, all projects are guided by the requirements of the Constitution of Zambia No. 2 of 2016, Section 159 which mandates local authorities to ensure a safe, clean and healthy environment in local communities, and the Environmental Management Act which states that all E&S impacts must be mitigated following the risk mitigations as documented in the screening and project site-specific ESMPs. Following the provisions and requirements of Zambian Laws and regulations, ZEEP does not absolve the PIU from their responsibility to apply the requirements of the WB safeguard policies and guidelines as stated in the ESMP nor does the responsibility of the PIU to ensure safeguards are considered in all ZEEP activities.

For ZEEP school sites, sand requirements will proceed with written consent from ZEMA and from directorate of Mines and Minerals Development, assuming the source of sand is within the site boundaries of the school project, a hill that is susceptible to erosion, or a dry river drainage path traversing through the parent school site. This will need verbal consultation with the village headman or other local community leaders through the Ward Development Committees at the local level, to verify the sources are outside the school site boundaries such as taking sand from local sand deposits from communally designated areas.

The ES Screening must identify, and the ESMP must address the cumulative issues considering the number of construction site abstracting sand and the locations available to identify risk and mitigation measures applicable to the activity. For example, continuous abstraction of sand from a short stretch of a silted or sandy area will likely require alternative sourcing, e.g., from a ZEMA-approved site source, and thus must be costed as part of planning. The ESMP should include awareness amongst the benefiting community on the required local rehabilitation measures at the community level. ZEEP PIU and the World Bank ESS team will verify the extraction and rehabilitation arrangements during field support missions. Abstraction approaches and follow-up rehabilitation requirements will be documented in the project screening forms and the E&S impacts and mitigation measures appropriately assessed and documented in the ESMP.

(a) **Community Based Approach Construction Projects.** This is where community workers abstract sand from local silted areas, usually as part of their community contribution without a ZEMA license or from a non-approved ZEMA site but are usually directed by the village head and the local leaders such as the Ward Development Committee should ensure to rehabilitate the excavated sites, if any are formed. The PIC should assess the source to quantify the volume of sand that will be abstracted with minimal impact on the riverine or the riparian zones and apply the mitigation hierarchy. Though the cumulative community sand abstraction can be above the maximum threshold, the individual assumed school contribution to the sand requirement for the project can be nonpoint and much less than required. With this rationalization on the ground, the Environmental Management Act, through clearance from the Agency may allow such small community abstractions to proceed without a ZEMA license or mines and Minerals License.

(b) **Community-assisted Contractor Works.** This is another small sand abstraction category where the community contributes to the community infrastructure development by putting together some of the materials like sand and stones and a contractor does the actual construction works. In such a scenario, the community abstracts sand without a ZEMA license or permit based on the understanding that the community is deriving value out of the local sand resource as its contribution to the community's infrastructural development. With this view, ZEMA may support the community development aspirations by exempting the community from the related sand abstraction licenses as ZEMA's contribution to community infrastructure development since the licenses are paid for. The PIC with supervision from the district planner and building officer will ensure that the abstraction process does not cause land degradation. Hence, the ESMP and this guidance document should be implemented together. The PIU will check on rehabilitation works during ESMP review and field support missions. The PIC should conduct sustainable extraction based on limiting volumes to within the natural variability of a river's sediment load.

(c) **Commercial extraction of sand deposits.** For commercial and material suppliers, EMA requires the development of a detailed extraction and rehabilitation plan as part of the license application process and requires a licensed transporter to load materials from this source. This ensures control of the sand materials at the source and in transit. For ZEEP, this segment applies to the water reticulation sub-projects and provision of solar power or connecting to the solar grid or National Grid, where the project may require a large amount of sand and gravel or may subcontract an independent contractor. In this scenario, ZEEP will engage contractors that supply these materials. ZEEP does not require a license but engages contractors on condition that they will abstract from a ZEMA-licensed source and will use a ZEMA-licensed sand transporter. The ESMP for the project will be included with the bidding documents and the successful contractor will develop a CESMP. The CESMP will include a rehabilitation plan that takes into account a suitable budget for rehabilitation and transportation costs. The PIU will monitor this process by requesting to review the abstraction licenses at any time and verify abstraction and rehabilitation activities during field support missions. The technical supervisor will also ensure the documentation required to exhibit this compliance status is available for inspection by the PIU.

In addition to what has been guided above, the following measures need to be implemented:

- Sustainable sources of construction sand must be sought. These sources must be passive, so the extraction does not damage rivers.
- Sand auditing should be made prior to sand abstraction to determine the availability of the sand resource.

- The distance between river mining sites should depend on the width and replenishment rate of the river.
- Safety zones should be marked when mining in the proximity of infrastructure such as bridges or embankment.
- Mining should be done during periods of lowest biological activity and attention should be given to spawning seasons and conditions.
- During extraction, ecological niches should be preserved and protected as far as possible.
- Selection of appropriate low-impact extraction methods that should result in supporting of habitat restoration.
- A pre- and post-mining baseline survey as well as monitoring of mining activities should be conducted by the PIC, the district planner, and the PIU.
- Smaller, short-lived extraction sites should be reclaimed immediately.

6.0 Appendices

No. 12 of 2011

Date of Assent: 12th April, 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.

[15th April, 2011

ENACTED by the Parliament of Zambia.

Enactment

Insert 1. Extract from the EMA No. 12 of 2011

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 or Game Management Area
b. Railway lines 10 Km away from built up area
c. Airport and airfields whose runway is 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 seriously polluted or a water abstraction area
e. Establishment of or expansion of harbours or pontoon 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^3/s)
c. Water supply - reservoir surface area 50 m^2 or more

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
c. Precious metals (silver, zinc, cobalt, nickel)
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 a forestation
c. Wood processing plants - 1, 000 tonnes or more

Insert 2. Extract from the EIA Regulations, SI 28 of 1997

inspect any of the registers maintained or kept under this section and may obtain certified copies of any document contained in the registers.

PART VI

SAFETY, HEALTH AND ENVIRONMENTAL PROTECTION

Consideration of environment and human health when granting mining rights or mineral processing licences

80. (1) The Committee shall, in deciding whether or not to grant any mining right or mineral processing licence, take into account—

(a) the need to conserve and protect—

(i) the air, water, soil, flora, fauna, fish, fisheries and scenic attractions; and

(ii) the features of cultural, architectural, archaeological, historical or geological interests; and

(b) the need to ensure that any mining or mineral processing activity prevents any adverse socio-economic impact or harm to human health, in or on the land over which the right or licence is sought.

(2) The Director of Mines Safety and the Zambia Environmental Management Agency may cause such environmental impact studies and other studies to be carried out as the Director of Mines Safety considers necessary to enable a decision under subsection (1) to be made.

Conditions for protection of environment and human health

81. (1) The conditions subject to which the mining right is granted or renewed shall include such conditions as may be prescribed by the Minister, by statutory instrument, or as the Minister may, in a particular case, otherwise determine, in relation to—

(a) the conservation and protection of—

Insert 3. Extract from the Mines and Regulations Act No. 11 of 2015

" industrial minerals " includes a rock or mineral other than gemstones, base metals, energy minerals or precious metals used in their natural state or after physical or chemical transformation, including barites, dolomite, feldspar, fluorspar, graphite, gypsum, ironstone when used as a fluxing agent, kyanite, limestone, phyllite, magnesite, mica, nitrate, phosphate, pyrophyllite, salt, sand, clay, talc, laterite, gravel, potash, potassium minerals, granite, marble, clay, silica, diatomite, kaolin, bentonite or quartz;

" large-scale exploration " means exploration over an area covering a minimum of three hundred and one cadastre units and not exceeding fifty-nine thousand eight hundred and eighty cadastre units;

" large-scale mining " means mining over an area of a minimum of one hundred and twenty-one cadastre units and not exceeding seven thousand four hundred and eighty-five cadastre units;

Insert from the Mines and Minerals Act section 2b.

Protection at surface excavation

72. A developer who makes, or causes any other person to make, an excavation into which a person or animal may fall, shall make a regular ridge around the boundary of the excavation or take such other measures as are necessary for the safety or health of such person or animal
Crack, subsidence or cavity

73. (1) Where any mining operation has caused or is likely to cause any crack, subsidence or cavity on the surface in any area, the whole of the area shall be kept fenced or bounded and shall be a caving area and sufficient notices prohibiting unauthorised entry to the area shall be prominently displayed at suitable places along the fence or bounds.

(2) No person shall carry out any mining operations likely to cause any crack, subsidence or cavity on the surface within a horizontal distance of one hundred metres from any building, road, railway, lake, river, or any other structure or feature on the surface requiring protection, unless written permission is obtained from the Director, under such conditions as he may prescribe.

(3) No person shall erect or construct a building, power line, road or railway within one hundred metres from the line of break of a caving area, except with the written permission of the Director.

(4) No person shall deposit tailings or other fluid material at any place on the surface of a mine, without the prior approval in writing of the Director.

(5) No person shall enter any caving area, except for the purpose of performing statutory duties.

Danger from spontaneous combustion

75. A dump which may cause spontaneous combustion, shall be situated in such a position that it may not cause fire and shall not-

(a) be a danger to any person;

(b) damage any mine shaft, open pit mine, quarry or building; or

Insert: Mines and Minerals Environmental Protection Regulation