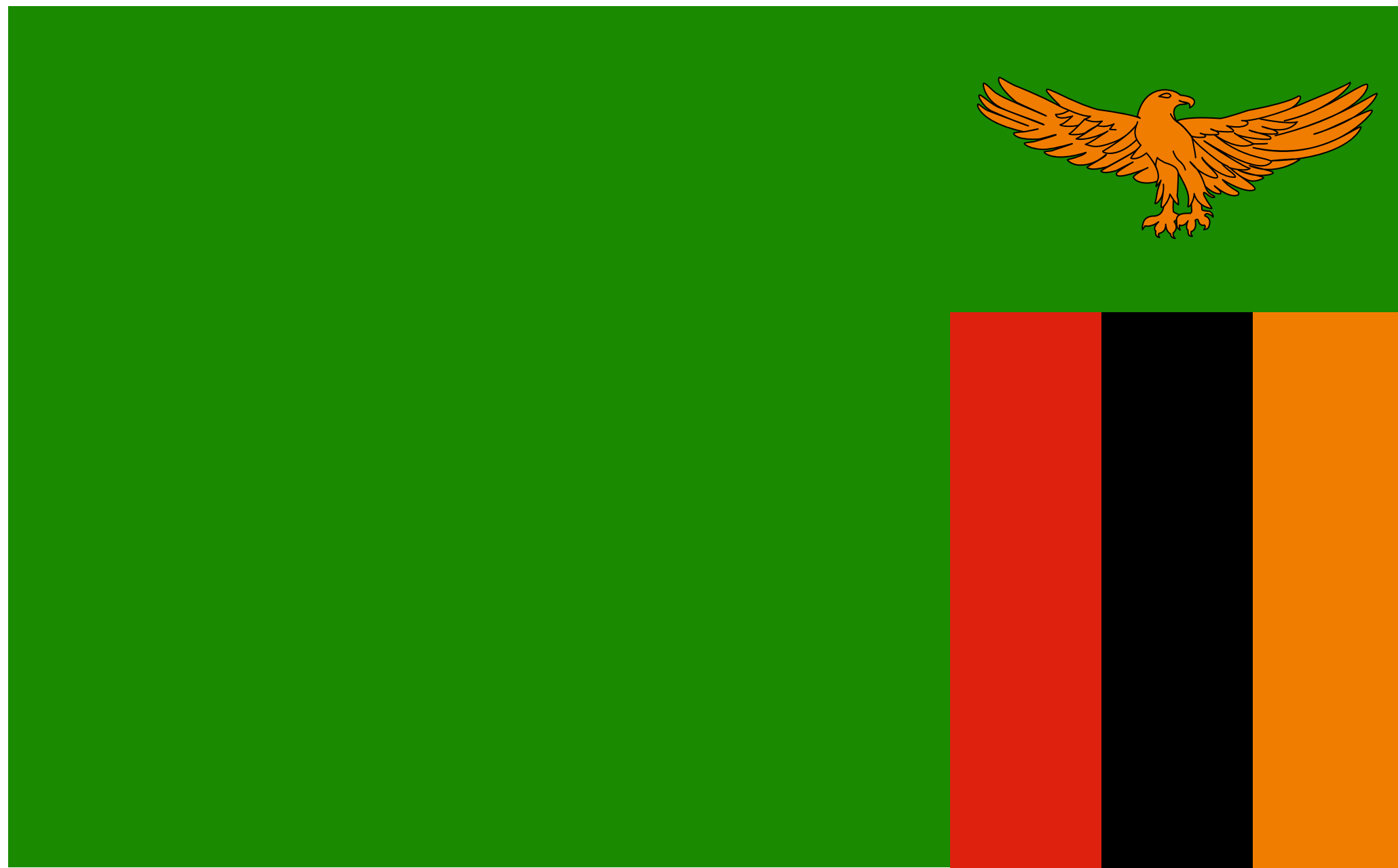


# ZAMBIA



## A NATIONAL GUIDELINE FOR MINE WASTE FACILITIES - WASTE ROCK DUMPS AND TAILINGS STORAGE FACILITIES

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## THE CHANGE PROJECT

**Regulatory authorities** in Zambia have previously been having challenges in terms of effective enforcement of regulations governing the safety and environmental concerns emanating from Tailings Storage facilities (TSF) and dumps in the mining industry. It is against this background that the Zambia Environmental Management Agency and Mines Safety Department has developed comprehensive national guidelines for the proper management of TSF and dumps for both operators and regulators. The guidelines seek to further expand the legal provisions and provide a baseline for operators of TSF and dumps.

**The reasons why** the two institutions seek to work together for the national change project are;

1. Both MSD and ZEMA are regulators who deal with tailings storage facilities and waste rock dumps,
2. Both authorities monitor acid mine drainage, water treatment, stability and safety of these facilities,
3. Both authorities provide guidance to developers / operators on how to manage their facilities in an environmentally safe manner,
4. Both facilities sanction non complying facilities,
5. There is need for knowledge exchange, sharing of capabilities and building institutional capacities.

**The main purpose** of developing a national management guideline on tailings storage facilities and dumps in Zambia is to meet current deficiencies in inspecting, monitoring and proper management of the mine waste facilities. The guide provides proper inspection considerations accurately aligned with the legislation and this will in turn improve the quality of inspections conducted by ZEMA and MSD on the facilities. The guidelines will also accord operators a good reference tool for proper management of the facilities.



Part of the team with mentors during a mine visit.



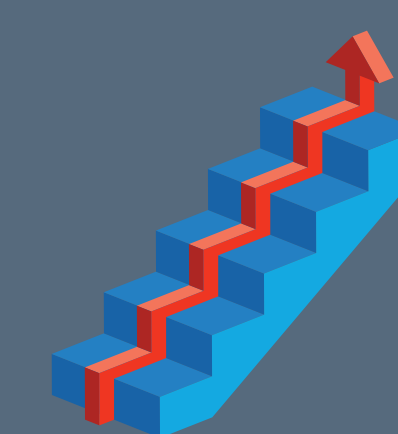
## SIGNIFICANCE FOR THE PEOPLE AND THE ENVIRONMENT

**Effluents and dust** emitted from tailings and waste-rock management facilities, controlled or uncontrolled, may be toxic in varying degrees to communities, biodiversity and also land degradation. The one common problem is an environmental problem in mining known as 'acid rock drainage' or ARD. ARD is associated with sulphide ore bodies mined for Pb, Zn, Cu, Au, and other minerals, including coal.

**The key issues** that the guide highlights are the root of these environmental problems are:

- tailings and/or waste-rock often contain metal sulphides
- sulphides oxidise when exposed to oxygen and water
- sulphide oxidation creates an acidic metal-laden leachate
- leachate generation over long periods of time
- where there is deficiency of acid buffering minerals.

**With the guide present** and used well, the team expects minimal land degradation allowing for reuse of the land in the future for other activities. This would also help minimize contamination of surface and ground water resources.



## RESULTS AND ACHIEVEMENTS

**The measurable outputs** of the national guideline for TSF and dumps will be;

1. A Consolidated document consisting national guidelines for proper management of TSF and dumps for the mining industry in Zambia.
2. A consolidated inspection tool for Tailings Storage Facilities
3. A consolidated inspection tool for Waste Rock Dumps
4. Sampling techniques and minimum instrumentation listing (by principle of operation/intended analysis aspect)
5. A glossary of applicable laws governing management of TSF and dumps from various Zambia legislation.
6. A training module for inspectorate on inspection of TSF and dumps
7. A training module for operators of TSF and dumps on management of the facilities.



## THE WAY FORWARD

**The checklists** for mine waste facilities have been developed but not yet adopted by the industry. However, the core purpose of the checklists will be to serve as a guide on what is of interest during inspections of these mine waste facilities. A submission made during the Zambian Mining law reforms will ensure support for the guidelines on mine waste management to be rolled out to all affected operations once finalized. Consultations will continue using available communication platforms like zoom conferencing with key stakeholders in order to arrive at a document that will streamline the inspectorates' interest as well as that of the operatives.

**The initial phase** of the project will end with the compilation of guidelines and modelling of the training modules for management of tailings storage facilities and dumps. The activities after the compilation will include; holding workshops to launch the training modules and train the trainer programs for the guidelines, periodic evaluation of impact of guidelines and updating the guidelines in the right of emerging technologies and legal changes. Various methods will be used in engaging key stakeholders, some of the methods to be used include; interviews, questionnaires, focus groups, meetings and mails.



Team member testing for pH levels near a tailings dam.