

DAM INTEGRITY EXPERT/ENGINEER (Senior Technical Adviser)

GENERIC TERMS OF REFERENCE

Joint UNEP/OCHA Environment Unit¹

Natural disasters such as earthquakes and floods often result in significant secondary environmental impacts including concerns over the integrity and risk of overflow of major infrastructures, such as dams. This secondary impact can pose immediate, life-threatening risks to humans (both local communities and responders), the aquatic environment as well as longer-term challenges to dam stability and water use for agricultural purposes. Therefore, a key element of humanitarian response is a rapid risk assessment of major infrastructure in the vicinity of the emergency and risks posed to affected populations.

Responsibilities

- Work with national and international emergency responders to address acute life threatening situations derived from instability of the dam and major infrastructure, under the guidance of the UN Resident Coordinator;
- Provide recommendations for longer-term actions should be developed. The assessment should also provide recommendations to the national authorities, including disaster management and environmental authorities, for appropriate preparedness and risk reduction measures
- Identify any outstanding expertise or equipment needs to address any immediate risks and impacts to humans and the (aquatic) environment from and for the dam (if necessary);
- Support the transition from relief to recovery, by advising responsible actors at national and international level (Government and Humanitarian Country Team (HCT)) of issues such as further sampling and analysis, continued water quality monitoring or water management (immediate and long-term).

Expected Actions

- Undertake a rapid assessment of the stability and integrity of the relevant dam (as agreed);
- Assess dam integrity and stability with specific focus on potential impacts to communities and the environment in the medium and long-term
- Communicate rapidly and regularly all findings of the assessment to national authorities, as well as the Joint Environment Unit, emphasizing the possible need for additional specialized expertise and/or additional equipment as required;
- Make recommendations for addressing immediate and mid-term threats of the tailings dam, particularly to nearby communities and the environment
- Identify, where applicable, pre-existing hazards contributing the potential instability of the dam (e.g. structural weaknesses towards natural disasters; lack of procedures for safeguarding, dewatering; management of facility; lack of

¹ For more information on the Joint Environment Unit: <http://ochaonline.un.org/ochaunep>

prevention and preparedness measures; communication to nearby communities on risks and evacuation measures);

Note: Contact with media, including interviews, will only be undertaken with consent of the UN Resident Coordinator.

Education and work experience

- Minimum 7 years of professional experience as a dam engineer, specifically structural and/or mechanical engineering or other
- Minimum Master's Degree in structural/mechanical engineering, e.g. (PhD is considered an advantage):
- Prior experience of conducting rapid dam integrity assessments preferably in a disaster response environment
- Knowledge of tailing sites and post-disaster assessments is considered an advantage
- Ability to distinguish immediate response actions from medium to long-term mitigation, rehabilitation and reconstruction activities;
- Familiarity with management of operational support functions including telecommunications, logistics and basic field security;
- Ability to coordinate with international and local agencies involved in disaster response;
- Ability to rapidly assess basic needs and local capacities;
- High motivation, coupled with an ability to improvise effectively in rapidly changing situations with minimal guidance and support;
- Team skills required for working in a multi-disciplinary, multi-national team in field conditions of hardship with an ability to assume authority as and when needed;
- Availability for short-notice mobilization (within 6 to 48 hours) and must be able to stay in the field for up to 3 weeks;
- Availability for additional follow-up, collaboration and editing of mission report after the official mission deadline, if required
- Knowledge of MS Windows and MS Office and ability to operate standard IT and communications equipment.