

Terms of Reference for Cox Bazar Technical Resource Unit

Principal Hydrogeologist

Context

Beginning 25 August 2017, extreme violence in Rakhine State, Myanmar, drove over 700,000 Rohingya refugees across the border into Cox's Bazar, Bangladesh in the span of a few months (source: NPM and RRRC Family Counting). A situation of statelessness imposed over generations rendered this population acutely vulnerable, even before the severe traumas of this most recent crisis. The people and Government of Bangladesh welcomed the Rohingya refugees with resounding generosity and open borders. The speed and scale of the influx was nonetheless a challenge, and the humanitarian community stepped up its support to help mitigate a critical humanitarian emergency. The response is also designed to support the Bangladeshi communities most directly affected by the influx and improve their ability to cope with the strains of hosting a refugee population that now comprises nearly a million children, women and men who are forced to rely upon humanitarian aid for their basic needs.

Over a year later, Rohingya refugees continue to arrive in Bangladesh, though in much fewer numbers than the initial influx in late 2017. More than 14,922 new arrivals were reported from 1 January to 15 November 2018 (source: UNHCR). In Bangladesh, refugees continue to face compounding vulnerabilities. They live in congested sites that are ill-equipped to handle cyclone hazards – with alarmingly limited options for relocation or evacuation. Many refugees have expressed anxiety about their future, explaining that while they wish to return, they would not agree to do so until questions of citizenship, legal rights, and access to services, justice and restitution are addressed ([ISCG Situation Report 29 November 2018](#))

WASH Sector – Challenges and limitations

While recognizing that many sectors are in need of upscaling, in terms of both quantity and quality, the WASH sector is facing multiple challenges. Without improvements of the conditions regarding water, sanitation, waste management and hygiene, preventable disease outbreaks will continue to be a high risk of impacting the health conditions exacerbated by the population density in the camps. The current caseload clearly poses also a lasting impact on the environment of which the first signs are evident.

It needs to be recognised that the WASH sector has largely achieved its task to provide the basic infrastructure to deliver its services in terms of supplying sufficient water to all beneficiaries except Teknaf where water trucking is needed. However, all stakeholders engaged in the WASH sector and beyond mentioned that there are shortcomings, especially in the medium and longer term. For this next phase of the emergency, a plan is in place to design and install up to approximately 140 small scale decentralized groundwater fed chlorinated systems for approximately 600,000 people in Kutupalong mega camp and also pursue further groundwater exploration to the south in the Teknaf area which has experienced almost chronic water scarcity especially in 2017.

Some of the challenges that have been expressed by the WASH sector in Cox Bazar include:

- Variation in quality with regards to a large number of partners (greater than 50) in designing and delivering services and infrastructure on pre-set standards that are defined by primarily Department of Public Health Engineering (DPHE) with support of the WASH Sector;
- Insufficient approach to advising the WASH sector on technical matters through the various Technical Working Groups
- Water supply management options especially in Teknaf where water scarcity was an issue at the peak of the normal dry season;

- Environmental impact from unmanaged ground and surface water utilisation and poorly designed sanitation and faecal sludge management can be considered a high level risk;
- Coordinated and adequate solid waste management is unresolved; and
- Technical solutions that engages the community and results in manageable operational and maintenance costs.
- Coordination of the groundwater investigations carried out by several different stakeholders.

The Technical Resource Unit

As a function of these challenges given the scale and complexity of the context in Cox Bazar. The Swiss Development Agency for Cooperation (SDC) Humanitarian Aid department will support the WASH Sector and DPHE to fill technical gaps with the setting up a Technical Resource Unit (TRU) as an integral part of the WASH Sector mechanism. The services provided by the Technical Resource Unit may include:

1. Technical advice, on methods, design, construction, operation and maintenance of WASH infrastructures as well as monitoring natural resources (water, soil, air)
2. Provision of specialized WASH equipment to support the sector (field laboratory, FSM laboratory, piezometric network, borehole camera, pressure probes with data loggers, Theodolite for profile survey, borehole logger, sieve analysis unit for water well, pressure test equipment for pipe network, remote pump operation system...)
3. Development of technical standards, briefs and guidance on construction, operation and maintenance of WASH infrastructures;
4. Capacity development/ training on the Programme Management Cycle PCM: programme assessment, design, planning, implementation, monitoring and evaluation;
5. Community Engagement: ensuring feedback from communities are addressed with practical actions;
6. Monitoring process: support to ground water supply data collection, centralization, treatment and analyse,
7. Piloting Innovation: be the main channel for introducing new approaches and operational research as well as linking specialised consultancies (e.g. international research institutes, universities, private sector)

Overall Objectives and Outputs

The overall objective of the TRU Principal Hydrogeologist is to enhance capacity of DPHE and WASH partners to assess, design, supervise, monitor WASH infrastructure and services for both the Rohingya mass influx population and the host communities of Cox Bazar as an integral part of providing coordination services.

The outputs will include:

- Rohingya and host communities receive equitable WASH infrastructure and services to standards outlined by DPHE and or other relevant GoB ministries and departments and in doing so ensuring a high quality of response;
- DPHE with support of the TRU has a strategy to mitigate risks of gross environmental degradation associated with the mass influx of Rohingya's on the overall Cox Bazar District;
- DPHE with support of the TRU has a strategy to mitigate risks of disease outbreaks associated with the mass influx of Rohingya on the overall Cox Bazar District; and
- Ensure an adequate information management system is established to allow management and monitoring of assets, services and risks to both public health and the environment,
- A sustainable Ground Water Management plan and programme is set up, monitored, documented and communicated

Responsibilities and Key Accountabilities of the Principal Hydrogeologist

- Act as the key focal point to develop, support and monitor the implementation of the WASH sector groundwater monitoring program by (1) collating, consolidating and analysing the ground water monitoring results from WASH sector members, (2) Liaise with DPHE hydrogeological Department to ensure compliance and coherence of WASH sector members' ground water monitoring initiatives with overall DPHE policy and hydrogeological monitoring activities, (3), Liaise with hydrogeologist experts from the WASH sector and other concerned agencies (IWM, Bangladeshi universities...), (4) lead an group work as part of the water TWG and provide regular updates on groundwater monitoring progress to the WASH sector and DPHE, (5) with the WASH sector IM, develop and update the tools for data collection and monitoring, (6) monitor and revise the WASH sector groundwater monitoring strategy and provide updates on regular basis, (7) support the hydrogeological components of the water networks programme by reviewing proposed solutions and planning possible optimized new options, (8), maintain hydrogeological folder of the WASH sector website by uploading last groundwater monitoring results and updating the hydrogeological library and database, (9) support the water strategy for Teknaf Upazilla currently under development
- Subject matter expert for groundwater for the Technical Resource Unit as part of overall WASH Sector Coordination;
- Provide senior technical support to field hydrogeologists in a variety of contexts, including hydrogeological assessments, groundwater sustainability, aquifer mapping, design installation and testing of pumping wells and monitoring wells and groundwater monitoring (in terms of quantity and quality);
- Assist with the water technical working group necessary development of a sound understanding of the hydrogeological environment (conceptualisation), risks to the water sources and how to mitigate through a robust monitoring strategy and implementation plan;
- Support the DPHE on the follow up of the groundwater investigations to ensure a good coordination between the several stakeholders and to identify potential gap;
- Advise the DPHE on groundwater monitoring strategy, database designing and modelling to establish annual water balance;
- Conduct senior technical reviews on production boreholes design and water supply facilities, in conjunction with the Technical Resource Unit,
- Foster mentoring and development of technical and management staff to ensure the ownership of water management tools by the DPHE;
- Foster and manage effective relationships with existing and prospective WASH stakeholders and the DPHE at Cox's Bazar and Dhaka level;
- Keep abreast of local WASH plans and future developments;
- Assist the WASH Sector in delivery of local projects in accordance with sound Project Management principles (i.e., maintain project quality, schedule and budget) as part of best practice hydrogeological technical coordination,
- Critically review and contribute on studies, researches and evaluation held in the WASH sector

Length of Deployment.

It is expected based on the above objectives that the hydrogeologist will be deployed for an initial period of 1 year.

Qualifications and professional experience.

Required

Academic: University Degree in Hydrogeology, Groundwater hydrology, Civil Engineering (Water Resources Engineering).

Experience:

- At least 8 years direct Hydrogeological and Drilling experience based in the field
- Experience and professional training in geology and geophysical methods.
- Proven ability to deal with multiple tasks in a courteous and service-oriented manner in a demanding working condition that often has short deadlines.
- Ability to coordinate a range of diverse actors and drillings activities to achieve a common objective in the area of groundwater development and production.
- Exposure to UNHCR mandate, its priorities and principles.

Skills:

- Ability work in difficult field context.
- Ability towards analytical and creative thinking for rapid technical/mechanical solutions
- Good communicator with strong interpersonal and negotiations skills to deal with persons of various cultural and educational backgrounds.
- Strive to live up to high ethical and professional standards.
- A team player with service oriented attitudes.
- Proficiency in computer software such as Ground water modelling, MS Excel, Word, GIS.
- Excellent technical reporting skills.

Languages: Excellent knowledge of English (written / oral / comprehension) is essential.