

Case Study: **Bangladesh**

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ROHINGYA COMMUNITIES BENEFIT FROM PIPE WATER DISTRIBUTION NETWORKS IN THE CAMPS OF COX'S BAZAR, BANGLADESH



■ Background

Globally, at least two billion people use a drinking water source contaminated with faeces¹. As result of microbial contamination with faeces, it poses the greatest risk to drinking-water safety. In 2010, the UN General Assembly explicitly recognized the human right to water and sanitation. Everyone has the right to sufficient, continuous, safe, acceptable, physically accessible, and affordable water for personal and domestic use. Sustainable Development Goal (SDG) target 6.1 calls for universal and equitable access to safe and affordable drinking water. The Bangladesh government has a strategy to meet the SDG water target. The right to safe water is recognized as a foundation of all other human rights. Bangladesh has made significant progress regarding universal access to improved water sources but access to basic safe drinking water is still low at 39.2 per cent (Joint Monitoring Programme, 2020).

Cox's Bazar District has some of the worst water, sanitation, and hygiene indicators in Bangladesh according to the 2019 WASH Mapping undertaken by the Department of Public Health Engineering (DPHE) with support from UNICEF and the International Centre for Diarrheal Disease Research, Bangladesh. The sector lacks adequate national budget allocations while the district is regularly affected by cyclones and floods. The humanitarian situation for Rohingya refugees in Bangladesh remains dire and as per the Joint

¹ World Health Organization. (2022). [Drinking water](#).

Government of Bangladesh-UNHCR Population Factsheet of 30 April 2022, the total Rohingya population was 925,380 individuals and 192,257 families living in the camp settlements in two Upazilas of Cox's Bazar. Within them, there are newly registered forcibly displaced Myanmar nationals (888,766 individuals and 188,960 families) living in two sub-districts of Cox's Bazar (Ukhia and Teknaf Upazilas). In the Rohingya refugees' camps, 52 per cent are children, 52 per cent are women, 48 per cent are male, 1 per cent are persons with disabilities, and 4 per cent are older persons². Of these, there are an estimated 613,966 children in need, making this very much a children's crisis. Weak and vulnerable girls and boys who have been uprooted from their homes, separated from their families, suffered trauma and had their right to education taken away. There is a strong likelihood that this number will change and grow, making an already desperate situation worse. This new influx of refugees not only aggravates the pre-existing protracted crisis of Rohingyas in Bangladesh but also puts additional pressure on the already fragile social and economic structure as well as water and sanitation services of Cox's Bazar district.

■ Strategy and implementation

In Bangladesh, UNICEF is working with the Government to provide sustainable safe water access to 24 million people by 2030. Within this commitment, there is a Joint Response Plan for Rohingya Humanitarian Crisis (JRP) in Cox's Bazar district. In June 2018, it was decided among a group of experts from IOM, UNHCR, UNICEF, DPHE, and Oxfam that the water distribution network would consist of a few individual systems for water supply.

As the lead actor, the DPHE has developed a master plan for 26 camps consisting of 138 Water Distribution Zones (WDZs). Following the WASH sector Master Plan, UNICEF has set a target to install 46 WDZs for the construction of pipe water distribution networks in seven camps.

UNICEF's WASH Section partners (NGO-Forum for Public Health, CARE Bangladesh, World Vision Bangladesh, BRAC, Asia Arsenic Network, Village Education Resource Center, Dushtha Shasthya Kendra) implemented all pipe water distribution networks at the ground level and partners are regularly operating and maintaining the pipe water networks to keep them functional while providing regular water supply to the camps' populations.

The major steps of pipe water distribution network implementation in the Rohingya Refugee camps are described below:

- **Implementation step 1: Finalization and government approval of the technical drawing and design:** In the first step of implementation for the Solar Power Pipe Water Distribution Network, UNICEF and responsible implementing partners prepared a detailed drawing, design, and bill of quantity for each of the specific sites which were reviewed by UNICEF's Technical Expert and was provided with support. In this phase, a rigorous sharing meeting and discussion happened with Cox's Bazar District Level Government. The DPHE finalized the drawing and design and submitted it to the Refugee Relief and Repatriation Commission (RRRC) office in Cox's Bazar (the administrative authority of the Government). RRRC staff members reviewed the documents, visited proposed sites, made recommendations, and provided approval to implement the project.
- **Implementation step 2: Borehole drilling and pump house construction:** In this step, UNICEF's partner started the borehole drilling as per the approved technical design. During the borehole drilling process, UNICEF officers visited the sites of the camps to ensure quality work. After the

² Bangladesh Country Office. (2022). [Humanitarian Situation Report No.60](#)

successful completion of borehole drilling and the determination of a sufficient water source in the aquifer, UNICEF's partner constructed a pump house to place the pump with other fittings, a backup generator, and an auto chlorination dosing machine and other necessary equipment.

- **Implementation step 3: Water tank basement construction:** After the completion of borehole drilling, construction work of the water tank basement was commenced. The heavy tank basement's structures were constructed with reinforcement cement concrete (RCC) for the placement of large size water tank.
- **Implementation step 4: Installation of water reservoir tank:** After the construction of the water tank basements, a large-scale water reservoir tank with a water capacity of 95,000 liter (95m³) was installed (on top of the hills to maintain gravitational flow system). This was done to supply the water from the reserves tank to the pipelines through gravitation flow system.
- **Implementation step 5: Instillation of solar panel:** In some cases, in parallel with the other construction works of the water distribution networks, a solar panel was installed at the selected sites. The main purpose of the solar panel's installation is to produce/generate electricity which is to be used for pumping water from the borehole.
- **Implementation step 6: Established pipe water networking system and construction of tap stand in community place:** Finally, an established pipe network connection was connected from main water reserve tanks. The tap stands are the ultimate water collection points from where refugee peoples are collecting water.

■ Progress and results

Over the last four years, UNICEF Bangladesh has made enormous progress in the provision of WASH services for refugees in partnership with the government-supported administrative authority (RRRC and DPHE). UNICEF's implementing partners have been working for a long time to construct a piped water distribution network in the seven camps. A total of 47 pipe water distribution network systems have been constructed in the seven Rohingya Refugee camps under Cox's Bazar and provided water supply to the targeted Rohingya Refugee people.

The access to safe water supply in the mentioned seven camps has increased from 10% (in 2018) to 73% of the population (in 2022) through the pipe water distribution networks. UNICEF's WASH Section in Cox's Bazar has the Humanitarian Performance Monitoring (HPM) target to achieve 250,000 people in humanitarian situations accessing safe water for drinking, cooking, and personal hygiene. As per a third-party monitoring report (in April 2022) 175,000 people have been reached through 47 pipe water distribution networks.

This piped water distribution network construction has created a positive social impact on women and adolescent girls in the targeted refugee camps. From the household survey report of a third-party monitoring agency, it was found that mainly adult women (55%) collected water from the source, followed by adolescent girls and boys (12%). The report also highlighted, tap water as the primary drinking water source in eight camps (71%). Time needed to reach water point in eight camps was recorded at less than 5 minutes (69%), 5 to 30 minutes (30%) and 30 to 60 minutes (1%). It was also recorded that only 8% of households treat their water before drinking compared to 73% of households who did not, as they consumed water directly from taps stand (which has been treated by the pipe water distribution network) and 50% of households were satisfied about to access water.

Through a community engagement facilitation process, WASH Committees were established in the sub-block level of the camps and UNICEF's implementing partner is strengthening their capacity for operation and maintenance and monitoring of WASH facilities. As part of their responsibility and the community ownership building process, committees are taking part in the operation and maintaining the pipe water distribution networks in the camps. Furthermore, skilled caretakers are involved in each of the pipe water distribution networks. Additionally, this intervention has created job opportunities for the Rohingya refugees. Implementing partners of UNICEF are ensuring a bacteria-free water supply through the automatic chlorine dosing systems which were installed and used, and residual chlorine is being regularly monitored at different water points by testing with field kits. As a result, people are getting safe drinking water through this water technology.

■ Lessons learned and way forward

The pipe water distribution network can be a sustainable model in bad weather conditions (like heavy rainfall and storms) in the context of refugee camps. More replication of this water supply technology model is appropriate which requires government approval.

UNICEF Bangladesh can take the initiative to do qualitative research on how this water technology can make a social impact on women and adolescent girls of the Rohingya refugee community and related water supply services. In addition to this, qualitative research could be conducted to assess the health impact related to water-borne diseases within the UNICEF-supported camps for further exploration.

This technology can be replicable not only in an emergency context but can also be embedded in a national programme and other countries as this has proven to be effective to serve larger groups of the population in special humanitarian settings.

Related links:

- [Rohingya's access to piped- water](#)
- [Cox's Bazar District WASH Mapping and Participatory WASH Plan](#)
- [Joint Response Plan for Rohingya Humanitarian Crisis \(Mid-Term Review\)](#)

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