

Improving water, sanitation, and hygiene access for people living in extreme poverty in hard-to-reach areas

Concern Worldwide's experience in Bangladesh



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Girls and women pay the heavy burden of water collection from distant sources in Coastal areas

The Water, Sanitation and Hygiene (WASH) crisis in Bangladesh

Bangladesh has significantly improved national water and sanitation coverage over the last few decades but a number of hard-to-reach areas of the country remain critically underserved. The remote Coastal, Char and Haor regions, as well as, Hill Tracts and urban slums in Bangladesh, receive very little attention due to a range of geophysical, socio-cultural, and economic factors. These areas suffer from acute water, sanitation and hygiene crisis due to inadequate infrastructural development, poor road communication networks, entrenched extreme poverty and lack of community awareness¹.

People living in extreme poverty suffer the most from water borne diseases due to inadequate safe water sources and safe sanitation facilities. A 2008 World Health Organisation (WHO) report states that over 7,000 children die from diarrhoea every year, and

water-related diseases cause nearly a quarter of all deaths in Bangladesh. The WHO also estimates that 50% of malnutrition in Bangladesh is associated with repeated diarrhoea or intestinal worm infections as a result of unsafe water, inadequate sanitation, or insufficient hygiene².

Findings from Concern Worldwide's Contextual Analyses in Coastal, Char and Haor areas:

Concern Worldwide Bangladesh has a long-standing and established focus on providing WASH interventions to extreme poor communities in Char, Coastal and Haor regions. In the Coastal areas, salinity intrusion is intensified by climate change (rising sea levels, droughts, erratic rainfall, drying up of rivers, etc.) and shrimp farming, which has contaminated surface and ground-water sources. Concern Worldwide's contextual analysis in the Coastal region found that although more affluent households can afford to buy water purifying filters, extremely poor people

¹ National Strategy for WASH Hard to Reach Areas of Bangladesh, 2011

² 'Safer water, better health', by Prüss-Ustün et al, WHO, Geneva, 2008

travel 3-4 hours to fetch water, or spend BDT 25 for 20 litres of water, or resort to drinking saline and arsenic contaminated water from tube wells.



As floods inundate riverine Char islands, communities remain at high risk of water contamination

Monsoon floods and river erosion in riverine Char islands cause widespread damage to homesteads, drinking water sources, particularly tube wells, and sanitation facilities such as low-cost pit latrines. For the



Hanging latrines are a common sight in remote Haor areas

poorest and the most marginalized people living in the Chars, basic services such as safe drinking water and sanitation facilities remain largely inaccessible.

In the Haor wetlands, only 15% of people have access to improved sanitation facilities and only 20% to an improved source of drinking water³. Communities face frequent natural disasters such as seasonal flash floods and wave erosion, which wash away not only their water and sanitation facilities, but their homesteads as well. In addition, arsenic contamination in groundwater is common in the area without adequate remedial measures.

Concern Worldwide's approach to tackle the WASH crisis in Bangladesh

Concern has been working in Bangladesh since 1972, and has supported WASH interventions for more than two decades in emergency and development contexts. Our primary WASH interventions have included the installation of water and sanitation hardware facilities, hygiene education, capacity building of partners, partnerships with community and government institutions, advocacy to increase local government resourcing for WASH allocations for the extreme poor, and collaboration with other WASH actors in the country. Concern's WASH interventions reached 281,956 direct beneficiaries and a further 32,933 indirect beneficiaries across Bangladesh between 2013 to 2016.

The strategic goal of Concern for WASH is to contribute to the achievement of health and wellbeing of the extreme poor within the context of Sustainable Development Goal (SDG 6)⁴, which calls for clean water, sanitation and hygiene.

³ Multiple Indicator Cluster Survey 2013-2014

⁴ Water Sanitation and Hygiene Strategy , Concern Worldwide

Concern Worldwide's contribution to WASH development in Coastal, Char and Haor areas

Since 2007 Concern has applied an integrated approach to sustainably address water, sanitation and hygiene issues in the spatial poverty pockets of the Coastal, Char and Haor regions:

- **Southwest Coastal region:** Shyamnagar, Koyra, Dacope, Mongla, Assasuni
- **Northeast Haor region:** Jamalganj, Itna, Mithamoin, Authagram, Ajmiriganj, Atpara, Madan
- **Northwest Char region:** Bera, Bagha, Chapai Nawabganj Sadar, Bhedarganj, Naria, Gosairhat

Concern's primary interventions in these areas include:

1. Installation of water and sanitation facilities:

- a. Deep tube wells with raised platforms
- b. 3-chamber sanitary latrines for schools
- c. Community based Arsenic Iron Removal Plants
- d. Household Arsenic Removal Units
- e. Rainwater Harvesting Systems (with polymer tanks)- in communities, households, and schools

2. Behaviour change techniques

- a. WASH awareness through innovative folk performances

- b. Training for school teachers to help change WASH behaviour
- c. Capacity building of WATSAN Committees to change the scenario
- d. Community based WASH committees to ensure sustainability of WASH installations
- e. Observation of international days to enhance WASH awareness

Water and Sanitation facilities

Concern designs innovative WASH technologies to meet the water, sanitation and hygiene crisis in Bangladesh, which take into consideration local practices, gender specific requirements, cost effectiveness, and sustainability of project interventions.

a. Deep tube wells with raised platforms:

Groundwater is the only source of safe drinking water across large parts of the Char, Haor and Coastal areas. Water extraction from shallow aquifers is relatively less costly, but the water is more likely to be contaminated with arsenic and other chemical pollutants. Conventional hand pumps cannot be used around the year as ground water levels have significantly reduced due to the impact of climate change and excessive withdrawal of ground water. Concern has installed deep tube wells to tackle the water crisis in remote, hard-to-reach areas in Char, Haor and Coastal regions of Bangladesh. The average depth of each deep tubewell is 720ft, which are installed on raised platforms to keep the tube well safe during floods or other natural disasters.



A deep tube well with raised platform installed in Mithamoin, Kishoreganj, which serves almost 100 people in this community.

"We didn't have any tiffin period because after tiffin we didn't have enough drinking water, or water to wash our hands and tiffin boxes"

– Muktar Hossain

Muktar Hossain is in Class 4 of Gopalpur Government Primary School in Mithamoin, Kishoreganj in the northwest Haor region. As with many other villages in the Haor area, Muktar's village becomes partially submerged in the rainy season. For five months in the year, Muktar has to swim thirty minutes to get to school while carrying his school bag and drinking water on his back. Muktar's school had no drinking water facilities so Muktar and his schoolmates used to collect water from households neighboring their school. Neighbours eventually refused to provide any more water to the students due to the critical shortage of freshwater in the area. Based on the extreme need of the school community, Concern installed a deep tube well at Muktar's school in 2016. Muktar and his fellow students now enjoy regular lunch periods, and additionally, Muktar's headmaster Shyamal Chandra Biswas, has noted that the dropout rate of female students declined after the installation of the tube well.



b. 3-chamber latrines in schools :

Concern installed 3-chamber latrine blocks in schools in Char, Coastal and Haor regions. Each facility has three separate squatting cubicles for boys, girls, and teachers for use during school hours. The latrines were built using bricks, with adequate water facilities for users to practice proper hygiene and sanitary



These 3-chambered latrine blocks in schools provide much needed sanitation access in hard-to-reach areas of the Haor region.

cleanliness, and appropriate ventilation systems for sufficient air circulation and natural light in the chambers. Awareness messages were also painted on the walls to reiterate the importance of proper hygiene practices. Specific facilities have been incorporated for menstrual hygiene management which helps to reduce absenteeism of female students during menstruation. Partition wall in the girls' toilet has been provided to ensure their privacy.

c. Community Arsenic Iron Removal Plants (AIRP) in the Char :

Community based Arsenic Iron Removal Plants were established in the Char areas, where ground-water contains relatively high concentration of iron (e.g. ≥ 5.0 mg/l) and arsenic (e.g. ≥ 0.30 mg/l).

Concern and International Training Network-Bangladesh University of Engineering and Technology (ITN-BUET) modified the design and implemented the plants with due consideration of the socio-economic conditions of communities in the Char region. Community members can easily treat arsenic contaminated water using the Arsenic Iron Removal Plant by passing raw water through multi-filter chambers. Each plant can serve about 25 households, reaching 125 individuals on average.



A woman using a community based Arsenic Iron Removal Plant in Bagha, Rajshahi.

Salma Begum lives in Koyra, Khulna where there is an acute safe drinking water crisis. Salma used to spend several hours a day to walk long distances to fetch water from distant sources. Salma's life has significantly improved since she gained access to safe drinking water through Concern's Rainwater Harvesting System. Freed from her daily water collection duties, Salma now helps her husband at work by catching fish fries. This helps provide their family with additional income and has earned her the respect of her family members. Today, her quality of life has improved and she is able to better provide for her two children.



d. Household Arsenic Removal Unit in the Char :

Concern's Arsenic Removal Unit installed in the Char region uses alum coagulation (fitkari), followed by filtration through a sand filter. Bleaching power is used as a disinfectant to reduce microbial contamination and the naturally-occurring iron present in water promotes removal of arsenic through absorption.

This arsenic removal process is effective because of the availability of alum and bleaching powder, low cost technology, and relatively simple operation and maintenance of the arsenic removal unit. Each unit is able to produce about 18 litres of treated water per cycle, which is sufficient for a family of 5.



A woman using the Household Arsenic Removal Unit at home

e. Rainwater Harvesting Systems (RWHS) in the Coastal region:

Despite the abundance of water in the area, coastal communities suffer from inadequate sources of safe drinking water due to salinity and arsenic contamination of groundwater aquifers and salinity in surface water. Concern's Rainwater Harvesting System (RWHS) is an effective way to address the water crisis faced by poor households, communities and schools in the area by building modified shelters to collect rainwater in large polymer tanks.



Integrated model of Household level Rainwater Harvesting System with vegetable gardening in coastal area

Asrina Parveen is a student of Class 10 at Jahir Nagar Siddiquia Dakhil Madrassa. She lives in a village named Choto Vetkhali at Munshiganj union in Shyamnagar, Satkhira, which is about 45 minutes away from her Madrassa. At her school, students used to collect water from neighbouring houses. Asrina said, "Although people did not mind giving water to the students, the students were uncomfortable asking for water from other people on a daily basis. This also hampered our regular studies."

Asrina and her fellow female students were particularly affected by the lack of proper latrines at their school. They were reluctant to use the school toilets and suffered greatly during their menstruation. In 2016, Concern installed a deep water tube well and sanitary latrines at Asrina's school. Asrina said, "After we got the latrine in our school, we don't feel discomfort or have to skip school anymore".



- *Rainwater Harvesting System for extreme poor households*

Concern piloted a model of household level RWHS integrated with vegetable gardening through the multi-country climate change adaptation project (named as "Paribartan Project") in the coastal region. This RWHS was designed specifically to develop the adaptive capacity of extreme poor families who live in inaccessible areas that are highly saline.

After cyclone Aila in 2009, Concern provided RWHS of

1500-2000 liter capacity single PVC tanks with a raised brick foundation to rehabilitate affected households. As part of the humanitarian response, some extreme poor households received building support to reconstruct their homes with corrugated iron roofing. These households were selected to receive the household level RWHS as corrugated iron rooftops serve as the catchment to store rainwater. Today, this model continues in other resilience projects in coastal region of Bangladesh.

- *Rainwater Harvesting System for extreme poor communities*

The RWHS is typically affixed to roofs made of concrete or corrugated iron but extreme poor households in the coastal areas tend to use traditional roofing materials such as straw and golpata. To ensure access of drinking water by all, Concern used a community based approach where the RWHS is provided to a group of households comprised of traditionally thatched roofs and at least one house with a concrete or corrugated iron roof. The design of the community based RWHS includes two polymer tanks of 2000 litre capacity each and a brick foundation to mitigate against the impact of possible natural disasters.

Concern promotes sustainability and encourages community ownership over the RWHS by encouraging beneficiaries to provide the land on which the RWHS will be built, and to contribute to the construction of the brick foundation.



A community based Rainwater Harvesting System with a storage capacity of 4000 litres in Shymanagar, Satkhira

- *Rainwater Harvesting System for remote and underprivileged schools*

Concern installed similar school based RWHS in the Coastal region, fitting each target school with a tank of 20,000 litres capacity to provide drinking water for around 400 students and teachers per school. To ensure the sustainability of water and sanitation infrastructure, school authorities and management committees at target location were given thorough orientation and training on the operation and management of the RWHS.



A school based Rainwater Harvesting System with a storage capacity of 20,000 litres in the Coastal region

Facilitating behaviour change practices

To improve health and hygiene practices and ensure sustainable behaviour change among target populations, Concern and partners conduct awareness raising programs and training for key WASH stakeholders, facilitate community engagement and women leadership, and arrange WASH-related events such as observation of World Water Day.

a. WASH awareness through innovative folk performances

Concern and partners organize live performances and screenings of 'Pot Songs' to raise awareness on proper WASH practices and change WASH behaviour in remote Coastal and Haor areas. These performances offer a package of awareness building songs and drama in front of large audiences to promote hygiene education and share authentic messages to improve health. Children learn about the correct method of handwashing and adolescent girls and women learn about proper menstrual hygiene

Communities enjoy receiving awareness messages through entertainment as they learn about various WASH practices by watching performances on stage. After a 'Pot Song' performance, Asma Akter from Itna, Kishoreganj said, "Previously, most of us did not know that we should wash our hands with soap after using the toilet. If we do not know, then how will our children learn? I think these programs will help us improve our hygiene practices if they are organized in smaller gatherings like yard meetings in the future, so women and girls can share their questions and learn more."





Pot songs are a popular method to raise WASH awareness in rural Bangladesh.

Concern and partners have screened recordings of 'Pot Song' performances in 20 communities in Haor and Coastal regions to broadcast WASH messages to a larger audience. The screenings were followed by a quiz to engage community members and enhance their learning. Hima Akhter, a student of Class 5 at Gopalpur Government Primary School said, "From these 'Pot Song' performances, I got to learn about water pollution and arsenic contamination. In our village, most of the tube wells are contaminated by arsenic. I will be cautious while collecting water from tube wells. Now I always consume water from green coloured tube well, which are designated as arsenic free".





A refresher training session for teachers in Mithamoin, Kishoreganj

b. Enabling school teachers to help change WASH behaviour

Concern and partners collaborate with school teachers to transform existing behaviours into positive practices. A number of training and orientation were organised for school teachers focusing on different context based WASH problems in the Coastal and Haor regions. The interactive training sessions deliver key messages by engaging participants through group work and poster presentations.

A participant at one of the training session, Paresh Chandra Das who teaches at Boronpur Government Primary School in Mithamoin, Kishoreganj said, "Previously, students drank less water than they needed due to a shortage of drinking water. They used to bring one litre of water to school but by the afternoon, after lunch, they didn't have any water to drink. The deep tube well in our school is a blessing. We can drink water whenever we need and sometimes, students from water-scarce areas take water for their families. Now that our students can drink water round the year, including in the dry period, they appreciate this tube well and clean the tube well platform and surrounding areas on their own."

c. Capacity building of Water supply and Sanitation committees (WATSAN)

Each Union has a WATSAN committee led by an elected councillor, which works under the supervision of the Union Parishad Chairman to address the chronic water crisis in Coastal and Haor regions. The basic functions of the committee are to monitor the activities of service providers and provide relevant feedback to the public.

Concern and partners focus on enhancing the capacities of government WATSAN committees to foster sustainable WASH related outcomes. Concern provides training to WATSAN committees on their roles and responsibilities to ensure post implementation support to water supply and sanitation interventions. Members of various community based WASH committees are also present at these trainings to keep them informed and help them to build links with their local WATSAN committees.

The Chairman of Dhaki union of Mithamoin, Kishoreganj, Mujibor Rahman who participated in a refresher training session said "we should regularly monitor water facilities to maintain safe sources of

"Coordination between communities, respective departments of Government, and WATSAN committees can play a vital role. If our future generation can learn the proper sanitation and hygiene education, we will be a successful nation."

-Khan Mohammad Alamgir
Upazilla Education Officer



water. If any water point becomes non-functional, we should take responsibility to convince the WASH committee and school authorities to solve the problem as soon as possible."

d. Community based WASH committees

Concern implements an innovative approach of community based WASH committee to ensure sustainability of WASH interventions and encourage bottom-up participation in decision making processes. Concern and partners form WASH committees with 9 members to represent a broad cross section of the community, including 4 men, 3 women and 2 student members.

Community based WASH committees are responsible for assisting partner NGOs to finalize the selection of

installation sites, oversee construction, mobilize resources, and ensure the functionality of installed WASH hardware. Two committee members are trained on how to use the toolbox provided to maintain the deep tube wells and RWHS so that community members and women in particular, are empowered to be self-reliant.

Julhas from Uttar Hati community in Mithamoin, Kishoreganj said, "This training is very important to learn how to operate and maintain the tube well. Being a member of WASH committee, I always want to keep the deep tube well functional so the committee needs to have monthly meetings to discuss our problems. Sometimes, we need help from DPHE specialist to fix the problems. It is very necessary to get help from them when we need".

"To make a sustainable change in WASH sector, we should talk about best practices in WASH committee meetings. If we can play an active role in generating awareness, then the members will automatically feel to maintain their water and sanitation hardware functional."

- Moushumi Rani Mandal, Atulia Community WASH Committee Member, Shyamnagar

Concern and partners held a training session for a community based WASH committee in Shyamnagar, Satkhira, where participants engaged in group discussions and poster presentations. They shared their knowledge on safe drinking water, and discussed necessary steps to maintain the latrines and sources of drinking water.



e. Observation of international days to enhance WASH awareness

Concern celebrates WASH related international days by engaging with relevant government agencies, NGOs and communities to commemorate the significance of WASH issues. These international days include World Water Day, World Toilet Day, Global Hand Washing Day and World Menstrual Day.

In 2017, Concern and partners commemorated "World Water Day" on 22 March with the Upazilla administration of Mithamoin and Itna in Kishoreganj; Koyra in Khulna and Shyamnagar in Satkhira. The theme of World Water Day 2017 was "Waste Water" to draw attention on how to reduce and reuse wastewater. Over

80% of all the waste water from our homes, cities, industry and agriculture flows back to nature, polluting the environment and losing valuable nutrients and other recoverable materials worldwide. The overall focus of this commemorative event was to build awareness and motivate people to reduce the quantity and pollution load of waste water.

Concern commemorated World Menstrual Hygiene Day by distributing sanitary napkins to adolescent school students to raise hygiene awareness. On Global Hand Washing Day, Concern and partners organized sessions in remote schools and communities to demonstrate hand washing in order to encourage people to change current practices for improved health.

Students from different schools participated in a rally, and drawing and debate competitions. The debate competition topics were context-specific - in the Coastal region the topic was 'The salinity problem in the coastal region is not naturally occurring but rather is caused by human beings' while in the Haor region, the topic was 'Human ignorance causes water pollution'.



Distributing sanitary napkins among adolescent girls' school students at Tamiza Khatun Govt. Girls' High School, Mithamoin Upazilla

Concern Worldwide's current WASH programme in Bangladesh

Concern is currently working on a charity:water funded project titled "WASH for the Wellbeing of Poor and Extreme Poor in Haor and Coastal Region in Bangladesh" in Atpara and Madan sub-districts of Netrokona in the Haor region, and Mongla sub-district of Bagerhat and Ashashuni sub-districts of Satkhira in the Coastal region to continue its work on WASH development in the country.

Concern Worldwide is a non-governmental, international, humanitarian organisation dedicated to the reduction of suffering and working towards the ultimate elimination of extreme poverty in the world's poorest countries.

To learn more about our work, visit www.concern.net

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