BRIEF

Rebuilding after AILA: Using solar pumping systems to restore water supply

Banishanta Union, Dacope, Khulna

CONTEXT

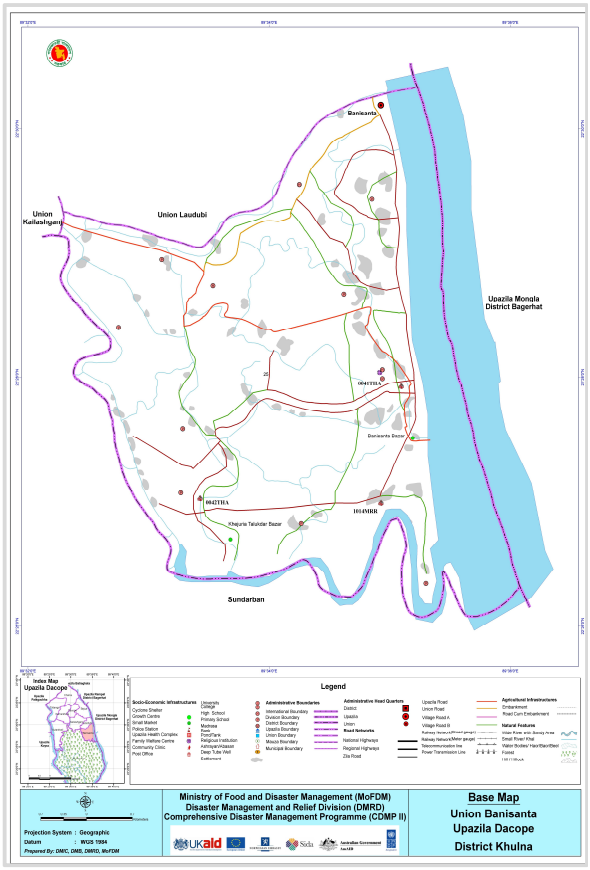
The southern coastal regions of Bangladesh's are those worst affected by disasters and climate change. In 2009, the storm surge created by cyclone AILA struck the western regions of Bangladesh. The Khulna District was particularly affected. In the Banishanta union, for example, over 90% of people were severely affected when rivers broke through their embankments to submerge villages and cause widespread flooding.

AILA also caused significant damage to water infrastructure in the affected areas and there was widespread contamination with saline water. Prior to AILA, surface water (mainly ponds for rainwater harvesting) was the primary source of drinking water. The flooding and ongoing inundation brought about by AILA however, contaminated both groundwater aquifers and surface water supplies. This created a host of problems, including:

- People were forced to rely on the trucking and distribution of water from the government and NGO's;
- Women, as the traditional collectors of water for the household, were spending an average of 4-5 hours each day collecting water and often walk 2-3 km to reach a safe water source or collection point.
- People were forced to drink un-safe pond water or spend their limited financial resources on traveling to collect, or on purchasing water;
- People were spending significantly more on purchasing water; before AILA families were spending 4-5 BDT per day to purchase water, after AILA this increased to 40 BDT per day.

The lack of access to clean drinking water is a major reason why people would frequently suffer from diarrhoea, dysentery, cholera, typhoid and worm infections. The consumption of salty water can also create problems with hypertension (or high blood pressure) which is a precursor to stroke, heart failure and other heart diseases. It can also cause skin disease, the common cold and diarrheal dysfunction. Another potential danger is the effect on expecting mothers and their children, including pre-eclampsia; a multi-organ disorder which causes swelling and convulsions in the body.

The levels of salinity, and the cumulative health impacts, were continuing to rise day by day in affected communities.



Details of the 3-Stage Pond Sand Filter

The PSF system:

- Measures 24' x 12' x 6' and has an overhead tank height of about 20';
- Operates by a 1.4kW centrifugal pump that draws raw water from the pond to the PS;
- Uses a 1.4 kW pump to lift the potable water to an overhead tank that is powered by a 1440 Wp solar panel;
- Distributes water by gravity flow through a 3 km underground pipeline;
- Delivers water through around 9 water dispenser or water distribution platforms; and
- Has the capacity to deliver 10,000 litres per day.

ACTION

To mitigate this problem, GIZ initiated a solar pumping system to provide clean drinking water to affected people. To build on this important initiative, CDMP became involved to extend these efforts to a greater number of people.

In the Banishanta Union, one of the worst affected by AILA, ponds were the only source of water as aquifers were completely contaminated with saline. To address this, a 3-Stage Pond Sand Filter (PSF) system with Activated Carbon bed adding Potassium Aluminum Sulfate (Fitkari) solution was introduced to purify water for drinking.

To date, three systems have been installed; each plant with the capacity to provide 10,000 litres per day and around 6923 beneficiaries from 1485 households are now benefitting from access to clean drinking water.

To support the operation and sustainability of this initiative, a Plant Management Committee (PMC) has been formed for each plant to undertake overall management and ensure the equal access of beneficiaries. Regular maintenance of the plant is undertaken by a caretaker who is appointed by the PMC and all expenses, including the salary of the caretaker, are covered by the cumulative contribution of the water users.

This initiative is restoring access to an everyday necessity for some of the worst affected communities of cyclone AILA; allowing them to rebuild their lives and livelihoods in the aftermath of this devastating event.

STATISTICAL INDEX

ITEM	FIGURE	RANK
Area	6,954.00 A	1832
Population	16,124.00 P	3665
Sex Ratio (M/100F)	104.00 %	2264
Density of Population	2.32 P	3666
Literacy Rate	47.00 %	1325
NER in Primary Education	48.86 %	2281
Girls' NER in Primary Education	47.87 %	2483
Unemployment Rate	3.83 %	548
Improved Sanitary Latrine	31.90 %	1917
Improved Drinking Water Source	13.67 %	4378
Electricity Connection	2.59 %	4030

Source : BBS
As on (Date): Jan 27, 2001

DEVELOPMENT PARTNERS: UKaid, European Union, Norwegian Embassy, Sweden, Australian AID

IMPLEMENTING PARTNER: UNDP

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