

Summary of potential CASE STUDY 1: WE-WE' approach empowers women with water entrepreneurship model in climate-vulnerable communities.

Bangladesh is experiencing more frequent and intense cyclones, storm surges, and sea-level rise effecting the coastal belt. Sea level rise is a primary driver of environmental and socio-economic vulnerabilities in coastal regions, leading to issues like salinity intrusion and coastal flooding. Although the process of salinity intrusion into groundwater and soil occurs gradually, its impacts are already severe, diminishing freshwater resources for drinking and agriculture. Bangladesh's coastal areas also face substantial risks from cyclones and storm surges, which destroy water sources and sanitation points. The anticipated increases in the intensity of these events, along with coastal flooding, poses considerable threats to communities in the affected areas.

WaterAid with together with a local implementing partner, Rupantor, supported climate-vulnerable communities in the Shyamnagar region of the Sathkira District, in the far southwest of the country, who face rapidly rising sea levels and increasingly frequent cyclones. The lack of piped water networks and sporadic human settlements worsen these impacts. The main aim was to ensure that communities have access to a more reliable water supply, in spite of climate impacts. The poor residents of Satkhira often find themselves at risk of drinking contaminated water and getting sick, or walking several kilometres to get clean water while learning to make do with less water. Those who end up drinking saline water, were found to have average sodium levels that exceed the recommended daily limits. This caused a higher incidence of pre-eclampsia and eclampsia among pregnant women, causing abortions. The lack of clean water, also caused a high incidence of waterborne diseases among families who could not afford healthcare.^{1,2}

Through this project, WaterAid Bangladesh created a livelihoods model around water entrepreneurship for women in marginalized and climate-vulnerable communities. The model was called the 'WE-WE' approach. The Water Entrepreneurship for Women Empowerment model is rooted in the principle that climate resilience is increased when women's voices are both heard and acted upon in plans for improving water supply and distribution. The women who participate in the business model formulation have limited literacy and are generally confined to lives as homemakers with complete dependency upon their husbands or male figureheads for financial support. There are little to no opportunities to get involved in any income generating activities. However, their current active participation with the RO business helps them supplement household income and meet family needs.

Members of the women management committee put down a small promissory instalment to begin construction of the RO plant in a bank account as an operation and maintenance fund. This investment is recouped over the life of its operations. Each month, proceeds from the sale of water are used to pay for utilities and maintenance expenses. Profit is shared between members based on initial investment, although a sizeable portion is set aside to cover the initial construction cost.

RO plants are essential to places like Sathkhira because of lack of drinking water and high salinity. There is an acute water crisis in all the regions along the coastal belt. In particular, during the summer months, surface water recedes and becomes extremely saline.

¹ Khan, A. E., Ireson, A., Kovats, S., Mojumder, S. K., Khusru, A., Rahman, A., & Vineis, P. (2011). Drinking water salinity and maternal health in coastal Bangladesh: implications of climate change. *Environmental health perspectives*, 119 (9), 1328-1332.

² Pinchoff, J., Shamsudduha, M., Hossain, S. M. I., Shohag, A. A. M., & Warren, C. E. (2019). Spatio-temporal patterns of preeclampsia and eclampsia in relation to drinking water salinity at the district level in Bangladesh from 2016 to 2018. *Population and Environment*, 41(2), 235-251.

In areas without alternative freshwater availability, the 'WE-WE' approach:

1. **Identifies** existing women groups or forms groups consisting of women with strong business sense and initiative;
2. **Co-invests** most of the capital costs towards constructing a water treatment facility (for example, a reverse osmosis plant), while providing technical support to the women's group, developing their leadership, business development, accounting, and reporting skills; and
3. **Ensures** that women can run a water business, generate profits, and recover the initial capital investment cost, including through a preliminary start-up fund to cover short-term operations and maintenance.

It is not only women who invest time and energy into fetching water for the family, adolescents and young girls are also pulled out of school for this purpose and have fewer chances at socioeconomic development in life. The 'WE-WE' approach lessens this burden by significantly reducing the time and human effort required to fetch water.

This approach also builds bottom-up accountability and reduces the health impacts associated with climate change. Highly saline water sources have been a precursor to hypertension, liver damage, pre-eclampsia, and reproductive health deterioration in the region. Reverse osmosis (RO) units can clean 500 litres of water per hour helping to provide safe drinking water to communities thus eliminating the risk of non-economic losses on health and mobility.

Before WaterAid's intervention in the area, there were existing RO plants, however they were mostly situated in commercially viable areas, serving customers with higher demand and who had the means to pay for the water – rather than serving the more marginalized communities in remote and hard-to-reach areas. Any amount above production costs is profits that go towards payback of the initial investment for the plant and generates a working wage for the women committee. Consumers range from individuals to township businesses. The women management committee track purchase behaviour over time and account for spikes in demand during summer months or before festivals to ensure an uninterrupted supply of clean water. These RO plants have been largely funded by donors looking to finance climate adaptation globally. Microfinancing may help establish similar entrepreneurs and scale this solution with support from national and local policies that recognise rapid and slow onset climate impacts in climate planning and the resultant non-economic losses.