# ASTRA Newsletter - #2

**Dear Water Expert,** Welcome to the second edition of the ASTRA newsletter. In this issue, we summarize the most challenging aspect of safe water delivery in Bangladesh: salinity. With remarks, suggestions (or to unsubscribe), please mail us at info@astradst.info .

## Salinity and desalination in Bangladesh

Saline intrusion in shallow and deep groundwaters is one of the main challenges to tackle in developing regions. As many of the affected coastal areas rely on agriculture, salinity affects not only the availability of drinking water sources, but irrigation possibilities as well. With that, saline intrusion is a serious threat to food sovereignty.

Although several methods exist for salt removal from groundwater (e.g. distillation, ion exchange, membrane- or solar-based), in practice only two techniques are relevant for Bangladesh. Membrane using methods (mainly reverse osmosis) exist at some locations. Solar-based distillation methods are a cheap and reliable choice but their scope is limited to household-scale at present. At a higher scale of delivery, salinity issues are primarily tackled through the selection of an alternative water source.

In the ASTRA project, the main existing Bangladeshi salinity mitigation methods were identified to be (i) deep-tube wells, (ii) rainwater harvesting technologies (with/out aquifer recharge) and (iii) small-scale, piped water systems (astradst.info). Deep wells enjoy widespread popularity because of the often contamination-free water delivered. Rainwater use is widespread as it is a renewable source. Unfortunately, both systems have significant limitations. Deep-tube well applicability depends strongly on local geology and the occurrence of further contaminations. Rainwater harvesting tends to have a low user preference because of the required handlings and its restrictions in the dry season. The ASTRA research shows that a potentially scalable solution for future salinity mitigation is available in the form of small-scale, low-cost piped water systems. Such systems are built already by e.g. DPHE & GIZ on several Bangladeshi locations.



*Low-cost, community-scale piped water system with water tower (implemented by GIZ) in Samnashi, Bangladesh. Note the solar panel on the top of the tower. © Ebo Roek*

## DESAL Prize

Acknowledging the lack of adequate water desalinating methods, USAID, the Dutch Ministry of Foreign Affairs (MFA-NL) and the Swedish International Development Agency (SIDA) initiated the DESAL Prize (https://www.thedesalprize.net/). This prize is to motivate the design of innovative solutions that tackle salinity and saline intrusion problems in asset-poor regions. Submitted innovations must provide for both drinking and irrigation water. Readers of this newsletter are encouraged to subscribe to the DESAL Prize newsletter for updates.

## BRAC presentation at IRC

Last month, Dr. Mushtaque Chowdhury (vice-chairperson & interim executive director of BRAC) gave a presentation on Bangladeshi health, education and water delivery progress. The event was hosted by the Netherlands Water Partnership in the Hague. The presented research was recently published in a special edition of the Lancet and it investigates the paradox behind the success of Bangladesh in tackling vast, poverty-related challenges with limited financial assets. The main bottlenecks to the current success were identified by Dr.Chowdhury as the prevailing arsenic and salinity crisis in Bangladesh. Further information can be found at: http://www.thelancet.com/series/bangladesh