



World Water Day 2020: Desalination technologies provide safe and sustainable drinking water

Improvements in electrodialysis technology are creating new ways of producing freshwater. Funded by the EU, **REVIVED water** is developing low-energy, sustainable solutions to address the growing demand for access to safe drinking water.

UNESCO estimates that around 2.2 billion people live without access to safe, clean drinking water. By 2050, up to 5.7 billion people could be living in areas where water is scarce for at least one month a year. With seawater making up 97.5% of the world's water resource, low energy desalination solutions will be a vital component of providing sufficient levels of good-quality drinking water for a growing population.

REVIVED water brings together ten partners from six European countries to address the drinking water challenge. The project focuses on electrodialysis technology: using an electric current to make salts and other ions move out of salty water across a semi-permeable membrane. This approach has been successfully implemented across a range of settings.

Clean water for communities most in need

REVIVED water installed solar-powered desalination systems to produce fresh, clean drinking water for seven rural communities across Somaliland, Djibouti, India and Tanzania.

The groundwater in these remote areas is high in salt, causing health issues in the local population. Electrodialysis technology in the REVIVED system removes this excess salt without affecting the other minerals in the water that help keep us healthy. The community systems also include electrochemical cells that produce their own chlorine to disinfect the water and make it safe to drink. Each REVIVED water unit can produce up to 2,000 litres of fresh drinking water per day.

Compared to other water treatment options, the REVIVED water community units are more durable and have lower operating costs. REVIVED water provides free spare parts and training to local partners to ensure that the community systems can be operated and maintained for many years to come.

The systems are monitored and controlled remotely using signals sent through the mobile phone network. Each unit is fitted with a SIM card that relays information to technicians at Phaesun, a German company that specialises in off-grid solar powered systems. Using this data, Phaesun can monitor how the desalination systems are operating and make any adjustments that are needed.

Florian Martini, project engineer at Phaesun, carried out unit installations in Tanzania:

*"It was wonderful to see how modern technology fits into the traditional way of life of the Maasai,"
"A great advantage is that, unlike other desalination technologies, no waste products are produced and no diesel is needed to operate the systems. The clean water is highly appreciated!"*

Improving desalination technology and sustainability at an industrial level

REVIVED water has also tested new ways of applying the electrodialysis innovations to industrial-scale desalination plants, aiming to achieve more energy efficient and cost-effective solutions. A new, multi-stage electrodialysis system for seawater desalination is currently being piloted at the

Afsluitdijk in the Netherlands. Meanwhile, at the Burriana desalination plant in Spain, REvIVED water is piloting the combination of ED with traditional reverse osmosis systems.

The project is now looking to extend these approaches to a commercial setting.

Further findings from REvIVED water will be presented at the final project meeting at Afsluitdijk, Netherlands on 22 April 2020. For more information, please visit <https://revivedwater.eu/>



Installing a REvIVED water desalination unit at the village of Beyo Gulan, Somaliland (photo credits: Phaesun).



Working with local partners: explaining the REvIVED water desalination system to community members from Beyo Gulan, Somaliland and students from the Ultravision School, Padti, India (photo credits: Phaesun).

Notes for editors

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REvIVED water Consortium



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