PRESS RELEASE

Pioneering a Circular Approach in Water Desalination

World Water Day 2025: LIFE INDESAL Supports Glacier Preservation Through Sustainable Water Solutions

Brussels, 20 March 2025 – As the world marks **World Water Day 2025,** dedicated to the theme of **Glacier Preservation,** on 22 March 2025, the urgency of protecting our frozen water resources has never been clearer. Glaciers are melting at an alarming rate, disrupting the global water cycle and threatening the water security of nearly **2 billion people** (UN-Water/UNESCO) who rely on glacier-fed rivers, snowmelt, and mountain runoff for drinking water, agriculture, and energy production.

As part of the global response to the water crisis, the **LIFE INDESAL** project is developing an **innovative, integrated, and circular seawater desalination system** with a low carbon footprint. By harnessing **Low-pressure Multistage System Reverse Osmosis (LMS RO),** a novel desalination technology that reduces energy use, and resource recovery technologies such as reverse electrodialysis (RED) and electrodialysis with bipolar membrane (EDBM), LIFE INDESAL demonstrates a sustainable way to produce safe freshwater while reducing energy consumption and environmental impact.

> "The LIFE INDESAL technological scheme composed by the LMS RO, RED and EDBM presents the potential to sensibly improve the seawater desalination. In the LIFE INDESAL project these three innovative processes are integrated in a flexible and modular pilot plant with an influent capacity of 8 m^3/h and operated in real life conditions."
>
> - **Luca Sbardella,** Project Manager, Innovation Department, ACCIONA Water Business

Desalination as a Climate Adaptation Solution

In a context of global warming and natural freshwater resources become increasingly unpredictable, desalination plays a vital role in securing water supplies for communities and industries. However, conventional desalination technologies face two main challenges: **energy consumption and brine disposal.**

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The **LIFE INDESAL** project tackles these challenges through an **integrated circular approach** that recovers energy and valuable minerals from desalination brines. By incorporating **LMS RO technology**, the system has the potential to reduce energy consumption compared to conventional 2-pass desalination process. Moreover, the project seeks to integrate **renewable energy production** and recovery resources from brine, making desalination more sustainable in the context of climate change adaptation.

> "For the past year, the LMS RO pilot plant showed robust operation and the potential to improve flux distribution, achieving a balance and thus reducing possible energy losses. Due to this peculiarity, together with others, the LMS RO is expected to reduce the specific energy consumption of seawater desalination up to 0.2 kWh/m^3, if compared to a conventional 2 pass reverse osmosis process."
>
> **- Luca Sbardella,** Project Manager, Innovation Department, ACCIONA Water Business

Pilot Plant in Spain

LIFE INDESAL aims at demonstrating at pilot scale (8 **m^3/h**) under real environmental conditions. The three technologies have been integrated in a **pilot unit** (PU), fully automated and highly equipped with online sensors and analysers to control and monitor the processes and enable continuous operation in San Pedro del Pinatar II seawater desalination plant in Murcia (Spain), property of Mancomunidad de los Canales del Taibilla (MCT).

Data from the PU performance will be used to conduct a projection of a **450,000 m^3 /d seawater** reverse osmosis (SWRO) plant that incorporates the LIFE INDESAL solution.

The environmental impacts of the project under different categories are being assessed and will be compared to a conventional SWRO plant, clearly quantifying the associated benefits.

A Call for Action on World Water Day 2025

Glacier preservation is a survival strategy for both people and the planet. On this **World Water Day 2025**, LIFE INDESAL underscores the need for urgent and **innovative water management solutions** to complement global efforts in reducing carbon emissions and protecting freshwater resources.

Through sustainable seawater desalination practices, LIFE INDESAL contributes to climate resilience, ensuring that communities have access to a reliable and **low-carbon** water supply. By integrating **circular economy principles** into water treatment, the project aligns with the broader mission of achieving **sustainable water security in a changing climate.**

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Background:

If you wish to know more about the LIFE INDESAL project, check out this video: https://youtu.be/O_F4zNUBFh8

About LIFE INDESAL

LIFE INDESAL tackles the challenge of supplying safe freshwater from alternative resources, contributing to fight climate change and to the shift to the circular economy. The project aims to develop and demonstrate a novel integrated and circular seawater desalination system with a low carbon footprint that produces multi-purpose desalinated water, renewable energy and resources simultaneously.

Want to know more about EU projects on sustainability? Or speak to a sustainability expert on topics such as energy transition or sustainable cities? Then join REVOLVE's pool of journalists here.

The Mancomunidad de los Canales del Taibilla (MCT), an autonomous organism dependent on the Estado de Medio Ambiente del Ministerio para la Transición Ecológica y el Reto Demográfico, is acknowledged for enabling the installation of the pilot plant and supply of services.

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