



PRESS RELEASE

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Circular Desalination Solutions for Providing Fresh Water

The EU is committed to addressing water scarcity and has prioritized the development and implementation of sustainable water management practices, including desalination technologies. The use of desalinated water is expected to increase in the coming years as a reliable and sustainable solution for freshwater supply in water-scarce regions.

“By 2050, half of the EU territory will suffer from severe droughts. The acquisition of water from the sea presents itself as a compelling alternative source. In this workshop, we will explore and identify potential solutions to address this pressing issue.”

- **Dr. Dimitris Xevgenos, Executive Coordinator of the WATER-MINING project and Assistant Professor in Circular Value Chains & Sustainability at TU Delft.**

In the quest for sustainable water sourcing, especially in a region as scarce as the Mediterranean, desalination is becoming an increasingly attractive and affordable.

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"Desalination for the Environment, Clean Water and Energy" conference is taking place from 22 May to 26 May 2023 at the Parklane Hotel in Limassol, Cyprus. The European Desalination Society organises the event at the University Campus Bio-Medico of Rome, Faculty of Engineering.

The opening session "Workshop on Circular Desalination: Value Chains and Sustainability", will be led by Professor **Dimitris Xevgenos**, Executive Project Coordinator at **WATER-MINING** Project and Assistant Professor in Circular Value Chains & Sustainability at TU Delft. The workshop will take place on Monday 22 May, from 10:30 AM to 4:00 PM EEST / 10:00 AM to 3:00 PM CET.

The workshop is part of the activities of the WATER-MINING Project, which aims to replicate case studies of SEA-MINING. Its focus is on **circular desalination**, exploring the value chains and sustainability of this innovative approach and its implementation in two case-studies plants in **Lampedusa** (Italy) and **Almeria** (Spain).

The workshop will provide a forum for experts in the field to share their insights and discuss innovative ideas on circular desalination. Interested parties are invited to attend this informative and engaging

workshop, which promises to shed light on the latest developments in circular desalination. [Registration](#) is now open for the workshop.

Desalination and a higher demand for water supply

Desalination removes salt and other minerals from seawater or brackish water to make it suitable for human consumption, agricultural irrigation, or industrial use. Desalination is a growing industry, particularly in areas where freshwater resources are scarce or limited. The increasing population worldwide directly drives up the demand for water desalination plants. However, it can be expensive and energy intensive.

European Union Invests in Desalination Technology to Address Water Scarcity

The European Union (EU) has invested heavily in desalination technology as a solution to water scarcity, particularly in southern European countries where water availability is projected to decrease. According to a study conducted by European Commission's Joint Research Centre (2019), there are currently 1,200 operating desalination facilities in EU Member States located across the Mediterranean Sea, where 82% of the total EU desalination capacity is situated.

Desalination technology has proven to be a key solution for providing public water supply, especially in municipalities and tourist facilities in the Mediterranean region, where 95% of the capacity is employed (1.88 billion m³/year). This technology has also been utilised in industrial applications, power plants, and irrigation.

Desalination in Cyprus

Cyprus is one of the countries facing the biggest water scarcity problems, and desalination plants have been vital in providing freshwater to the population. With climate change and growing demand for water, other southern European countries such as Spain, Portugal, Greece, Malta, Italy, and Turkey are also projected to face water scarcity in the near future.

According to an article by Deutsche Welle, the hottest and driest nation in the EU, Cyprus, relies on desalination for 80% of its drinking water (Kuepper, 2021). Cyprus's four desalination facilities, according to [study](#) done in 2021 on the environmental implications of desalinating saltwater there, are responsible for 2% of the nation's overall greenhouse gas emissions. Solutions to increase the sustainability of desalination are therefore required.

Desalination in Lampedusa, Italy

WATER-MINING Case Study 1 is a project demonstrating the feasibility of an advanced desalination process in [Lampedusa](#), Italy. The process comprises several technologies that produce high-quality water with a circular approach, recover valuable minerals, and employ waste heat as an energy source. The project faces challenges in recovering certain minerals and producing enough chemicals, but its



success leads to a more competitive and environmentally sustainable water production method. The project also presents business opportunities in producing and selling high-quality water, minerals, salts, and chemicals.

Desalination in Almeria, Spain

WATER-MINING Case Study 2 demonstrates Zero Liquid Discharge using a circular approach with solar-powered Nanofiltration (NF) plant and pilot Multi-Effect Distillation (MED) plant in Plataforma Solar de Almería, producing high-value salts and irrigation water. Key innovations include solar energy, high-value salts, and high-efficiency MED. The main challenges are weather conditions, scaling, managing excess retentate of NF, and water quality. Expected outcomes include over 50% renewable energy, a 70% increase in recovery ratio, high purity NaCl, and a 10% reduction in MED energy consumption. CS2 promotes thermal desalination tech for sustainability and valuable product generation.

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ABOUT WATER-MINING

WATER-MINING is an EU-funded multidisciplinary research project that creates water management solutions using a circular economy approach. The project's consortium consists of 38 public and private partners and four linked third parties from 12 countries and is led by the Delft University of Technology. WATER-MINING works with pilot sites in Cyprus, Spain, Portugal, Italy and the Netherlands to demonstrate new and efficient ways to reclaim nutrients, minerals, biopolymers, energy and freshwater from desalination, and industrial and urban wastewater. To successfully integrate these value-added products into resource supply chains, the project produces science-based, market-oriented policy recommendations, designs circular business models, and engages stakeholders, leading to sustainable management of water resources.



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