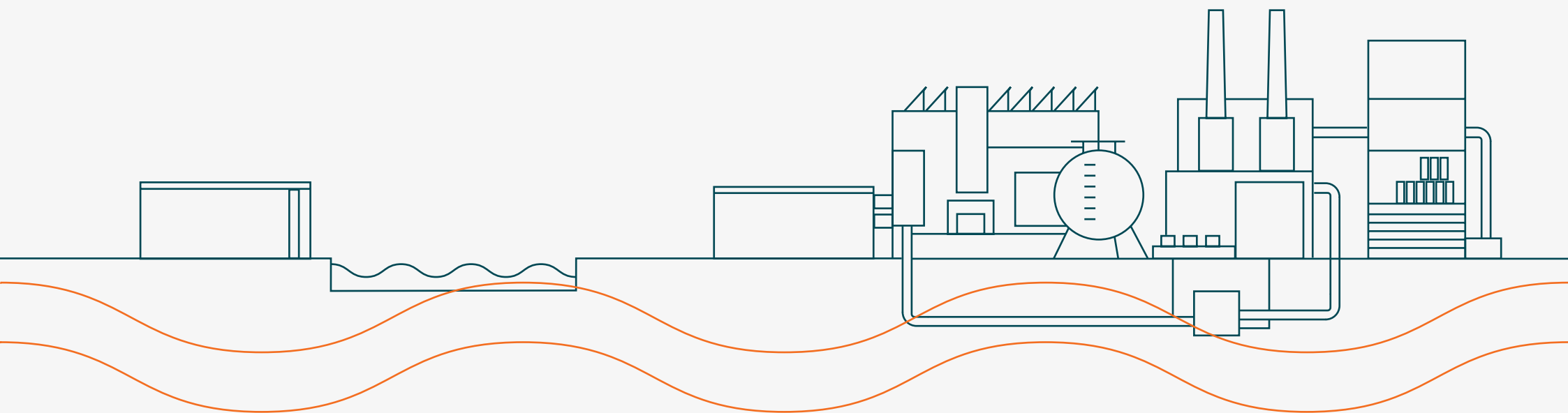


Next Generation Smart Water Management Systems



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 869474.

About

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 (TU Delft, the Netherlands). 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.

Water Value Chain

Water as a Resource

Water demands must be met by policymakers, and in the face of increasing water scarcity, alternative water resources must be integrated into the supply. Desalination is expected to play a key role, especially in water-stressed regions.

Water as a Consumable

Over the last century the global population tripled, and together with increasing levels of consumption and living standards, water demand increased substantially. Urban water consumption is an important fraction of the total human water use, but it presents a possible alternative source of water via wastewater recovery technology.

Water as a Durable

Durable goods are defined as goods used for final consumption regularly over a period of over one year. Development of innovative technologies to reuse industrial water is promising for reducing water demand from within this sector via advanced wastewater treatment and recovery technology.



Desalination
Sea-mining



Urban wastewater
Urban-mining



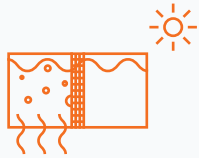
Industrial used streams
Industrial-mining

Data-mining

New water services

- Fit-for-purpose water
- Carbon neutral water services
- Safe water reuse
- Smart water management
- Recovery and supply of critical raw materials
- Supply of nutrients
- Supply of alginate-like polymers
- Rate setting mechanisms
- Demand management

Benefits



Advanced desalination combined with solar energy and waste heat



Production of a valuable bio-based product from the residues of wastewater treatment



Sustainable techniques for extracting phosphate from wastewater



Energy-efficient nutrient recovery from wastewater



Zero-Liquid-Discharge loop systems for pollution-free wastewater



Circular economy business models within the wastewater cycle



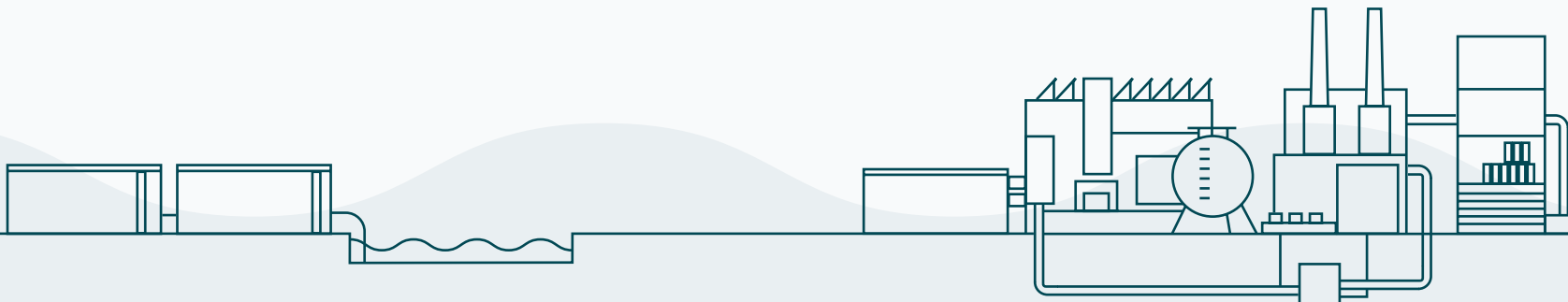
Mobilise private funding through public-private partnerships



Bring circular water systems to public attention and increase awareness



Advance new policy and regulatory measures



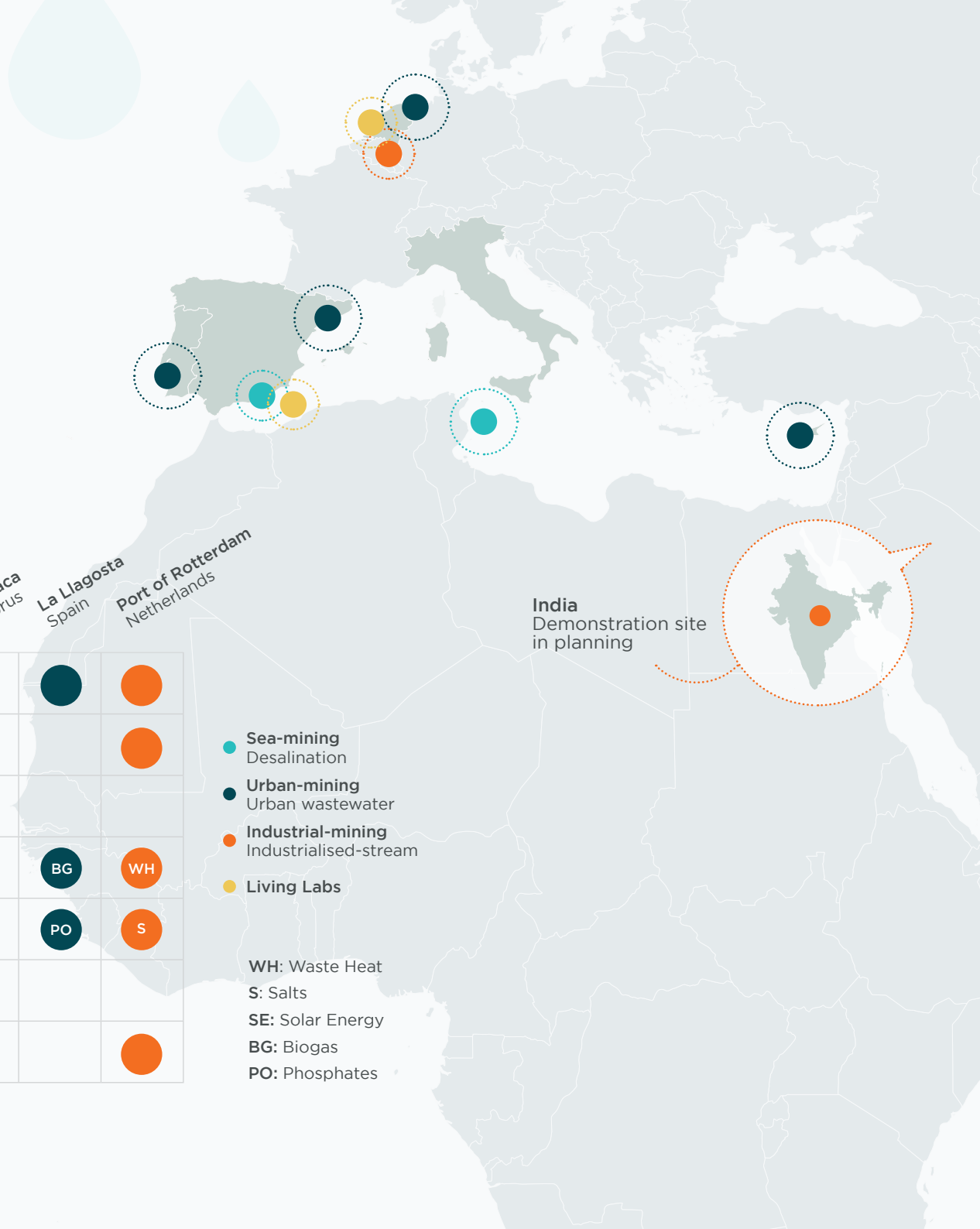
Locations & Services

The WATER-MINING project includes six demonstration sites covering the three water sources: sea, urban and industrial and includes two physical living labs in Almeria, Spain and the port of Rotterdam, The Netherlands.

Services	Lampedusa Italy	Almeria Spain	Faro Portugal Delft Netherlands	Larnaca Cyprus	La Llagosta Spain	Port of Rotterdam Netherlands
Maximize water usage efficiency	●	●		●	●	●
Reduce water consumption						●
Safe water reuse			●			
Energy production and saving	WH	SE	BG	SE	BG	WH
Recovery and supply of critical raw material	S	S	PO	PO/S	PO	S
Supply of alginate-like polymers			●			
Chlorine recycling				●		●

- Sea-mining
Desalination
- Urban-mining
Urban wastewater
- Industrial-mining
Industrialised-stream
- Living Labs

WH: Waste Heat
S: Salts
SE: Solar Energy
BG: Biogas
PO: Phosphates



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