



Building a water-smart economy & society in the context of circular economy

Presenter: Dr. Dimitris Xevgenos, Exec. Project Coordinator, TU DelftEmail:d.xevgenos@tudelft.nl



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🖉 🗘 Joep



Amarco RA... (Host)

Giorgio Mannina

GM

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🖉 🎧 Stefania ROCCA

🗘 Admin

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Next generation water-smart management systems: large scale demonstrations for a circular economy and society

Overview



Partners
38 partners from
12 countries

Coordination **TU DELFT** Applied Sciences Faculty

Project Budget **19,174,543.75 €** EC Funding **16,876,959.63** (~88% of total budget) Duration 48 months Start date: 01/09/2020 End date: 31/08/2024 **Partners**





Concept





DEMO Case Studies





Cases & impacts



	Case Study	Capacity	CE Intervention / Demo	Impact
Sea-mining	CS1 Selis / Italy	5,000 l/h	Zero Liquid <discharge combined="" desalination="" heat.<="" of="" recovery="" seawater="" th="" waste="" with=""><th rowspan="2"> Increase in water recovery by 50% Share of renewables & waste heat >50% Mg, NaCl and other salts <10% waste resources </th></discharge>	 Increase in water recovery by 50% Share of renewables & waste heat >50% Mg, NaCl and other salts <10% waste resources
	CS2 Ciemat/Spain	2,500 l/h	Zero Liquid Discharge Seawater Desalination combined with renewable energy (solar)	
Urban-mining	CS3 TU Delft/ The Netherlands and Portugal	500 l/h (5m³/day)	Recovery of high added value raw materials: Kaumera Nereda® Gum & Phosphate from urban wastewater	 >90% of water from NEREDA installation suitable for reuse (capacity: 5 m3/day) Production of CH4 gas (50kg of CODeq per day), which can be converted to energy) 50kg ODM/day of Kaumera & 75g of phosphate/m3 of treated water
	CS4 Larnaca/Cyprus	1,000 l/h	Recovery of water fit-for-purpose, Recovery of phosphorus, Zero Liquid Discharge, Recovery of salt / internal recycling and transformation to chlorine for onsite use	 >90% of water reuse (capacity: 1 m3/h) Use of renewables Calcium phosphate ans salts
	CS5 ACSA/Spain	400 l/h	Energy production, reduced energy consumptiom and production of added value by-products for industrial or agricultural purposes. The main goals of this process are CE, energy efficiency, water reuse and phosphorus and energy recovery.	 >90% of water reuse (capacity: 10 m3/h) Production of biogas: ~0.45 m3 biogás/kg of volatile matter inlet ~75g Vivianite & 5g Ca3(PO4)2 per m3 of treated water
Industrial-mining	CS6 Hexion/ The Netherlands	10 l/h	Zero Liquid Discharge, Transition from ownership to leasing (for the end-user) and Extended Producer Responsability (for supplier) application of Chemical Leasing concept.	 Water consumption decrease by >70% & water recovery increase by 40% (0.95 m3 of water reused per m3 of treated industrial waste water) Waste heat recovery from oxidization reaction (>40%m of total energy need) >90% recycling of chlorine/sodium streams 110 kg NaCl per m3 of treated industrial wastewater
	CS6 VSI/India		Recycling of brines including organic compounds in the sugar production sector.	Replicatiom case study







CIRSEAU Building a water-smart economy and society

€84M BUDGET







Thank you!

Dr. Dimitris Xevgenos, Executive Project Coordinator, WATER-MINING Senior Scientific Coordinator, Delft University of Technology Email: <u>d.xevgenos@tudelft.nl</u>

www.watermining.eu