

Draft Project Title	Enabling sea water usage for coastal cities
Short Description of the project idea and expected outcomes	<p>Within a larger project, we would focus on sea water desalination as effective contribution to solving water quantity problems.</p> <p>Producing potable water from sea water often has the challenge that it is very energy intensive. In areas where fresh water sources and clean energy availability is limited nature based solutions are the most sustainable options. Energy efficient (EE) treatment processes and renewable energy (RE) based solutions are highly demanded. Innovative combination of treatment processes based on reverse osmosis (RO) can decrease the energy demand and make Photovoltaik RO systems viable, on the other side solar thermal based purification technologies can be more efficient making direct use of solar energy. Although promising solutions have been demonstrated in Europe their market breakthrough requires funding support for the verification of the systems performance in operational environments in order to be able to prove readiness for the global market.</p>
Main Objectives	Upscale and promote nature based desalination technologies by integrating these solutions in smart city planning. Solutions focus on energy efficiency, economic viability and ecologic sustainability as well as social acceptability. Target areas for further replication of the solutions are cities lacking fresh water sources and having high demand for safe water as well as limited clean energy infrastructure.
Specific Objectives	<ul style="list-style-type: none"> - Evaluation of existing PV RO and solar thermal desalination solutions and development of core performance indicators - Development of innovative combination of proven technology modules achieving optimal performance - Identification of suitable target markets and demonstration sites for nature based desalination solutions - Finalisation of desalination technologies specifications and system layout of demonstration sites - Setup of PV-RO and solarthermal based demonstration sites at four suitable promotion locations (inside and outside EU) - Monitor, evaluate and optimize performance of system prototypes to prove their competitiveness. - Conduct promotion and replication activities worldwide in areas highlighted by a market analysis.
List of potential activities	<p>Adelphi's role would be in assessing potential replication sites for the technologies, conducting feasibility studies, identifying stakeholders, organising project development workshops, etc.</p> <p>This would involve the following activities:</p> <ol style="list-style-type: none"> 1: Validation of demand and needs assessment Validation of system layout of pilot sites and participatory workshops with local stakeholders of technologies for finalisation of technological specifications. 2: Feasibility study for system prototypes Development of detailed project plans and implementation plans. Conduct of workshops with local partners involved in the setup, monitoring, future replication and market uptake. 3: Implementation of viable solutions Setup of both RO and solar-based technologies on 4 typical sites (Europe: Island in Greece, Associated Country: arid area without freshwater in Israel, Developing Countries: Island in Cuba and area with saline groundwater in Costa Rica). 4: Monitoring, evaluation and optimization of performance One year monitoring of the performance of the installations and evaluation of energy consumption, yield, quality and reliability, cost benefit analysis, environmental impact and life cycle assessment of the technologies. Comparative study of EE and RE approaches to identify the most successful technological setup. 5: Market Analysis, promotion and replication Demand analysis for EE/RE desalination technologies worldwide and assessment of geographical, political, social and economic context. Conduct prefeasibility studies for replication pilots. Promotion events, scientific publications in journals, presentation on conferences, etc. Organisation of two desalination conferences in the countries with the most successful pilot sites for EE and RE in the last year of the project. 6 Project Management

Expected impact on European level	As part of a larger project, our endeavours will allow promising solutions for desalination to find support and funding in order to setup system prototypes and validate them in operational environments. These prototypes would be set up in areas with poorer economies lacking fresh water sources and having high demand for safe water as well as limited energy infrastructure, both inside and outside the EU. The implementation, monitoring, and the comparative performance study of these system prototypes will prove their readiness for the global market. Finally, market analysis, promotion and replication activities can be performed worldwide.
Call identifier	SCC-02-2016-2017; CIRC-02-2016-2017; SC5-33-2017;
Full topic	Demonstrating innovative nature-based solutions in cities; Closing the water gap; Water in the context of the circular economy
Type of action (RIA, CSA, etc.)	IA, ERA-NET-Cofund, IA
	I am looking for a project leader/coordinator
Which kind of partner are you searching for?	Research Institute/University SME Industry Public institution
Expertise or specific role of partners sought	Coordinator of the overall project
Partners sought from specific country or region, please indicate	Focus could be on Southern/Eastern European cities
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Description of the organisation	adelphi is a leading independent think tank and public policy consultancy on climate, environment and development. Our mission is to improve global governance through research, dialogue and consultation. Our staff of more than 150 provides interdisciplinary research, policy advisory, and corporate consulting. We facilitate policy dialogue and provide training for public institutions and businesses worldwide, helping to build capacity for transformative change. Our work covers the following key areas: Climate, Energy, Resources, Green Economy, Sustainable Business, Green Finance, Peace and Security, International Cooperation and Urban Transformation.