

**Project Information:**

<b>Project Acronym</b>	<b>DESSIN<sup>1</sup></b>
<b>Title</b>	<b>Demonstrate Ecosystem Services Enabling Innovation in the Water Sector</b>
<b>Call</b>	<b>FP7-ENV.2013.WATER INNO&amp;DEMO-1</b>
<b>Grant Agreement No</b>	<b>619039</b>
<b>Starting Date</b>	<b>01/01/2014</b>
<b>Duration</b>	<b>48 Months</b>
<b>Project Budget</b>	<b>9,054,608 €</b>

**Project abstract:**

The main objectives of DESSIN were:

- To demonstrate and promote innovative solutions to water-related challenges with a focus on: (i) water quality issues associated with implementing the Water Framework Directive (WFD) and (ii) water scarcity.
- To demonstrate a methodology for the valuation of ecosystem services (ESS) as catalyser for innovation in water management. DESSIN launched demonstration projects of innovative solutions for the two challenges mentioned above, with special focus on urban areas. The solutions integrated technological, monitoring, modeling and management approaches for a more resource-efficient and competitive water sector in Europe. As a second key feature, an Evaluation Framework was developed and applied to account for changes in the value of ecosystem services (ESS) of water bodies that result from implementation of the solutions. By adopting this twofold approach, we were able to demonstrate how innovative solutions, integrated in the water cycle, can increase the value of the services provided by freshwater ecosystems, thus generating additional incentives and arguments for their market uptake and practical implementation. This supported innovation and competitiveness in water management by enabling a more informed selection of the most promising solutions, as regards to their impact on the water body and their economic implications. The whole project was centered around the following suite of carefully selected sites across Europe, representative of global major water challenges, where public and private water management organisations and end-users, technology providers (SMEs), supporting RTD experts and relevant public authorities were brought together: Emscher (Germany), Hoffselsa (Oslo area, Norway), Westland (The Netherlands), Athens (Greece) and Llobregat (Barcelona Area, Spain). DESSIN was coordinated by IWW Water Centre (Germany).

**Activities of EYDAP in the project:**

- ④ EYDAP installed a packaged plant unit consisting of an advanced membrane bioreactor coupled with nano-filtration and reverse osmosis membranes in Metamorfofi. The aim of the pilot unit was to demonstrate the use of mobile, distributed wastewater treatment units that can abstract raw wastewater from the sewer mains, treat on site and provide water for a variety of urban uses at the point of demand (including irrigation of urban green spaces).
- ④ The plant was operational for a time period of 24 months in total. During this time EYDAP was monitoring the unit's operating parameters (e.g. sludge retention time, hydraulic retention time, organic loading and additives employed, incl. alum, ferric chloride, polyaluminium chloride) in order to record their impact on the system's performance: (i) final effluent quality, (ii) membrane fouling (iii) system energy demand, (iv) quantity of sludge produced and (v) GHG emissions.
- ④ EYDAP assisted in the implementation of an ESS monitoring experiment for the urban green use of the treated water (incl. heat island effects). This activity was required in order to develop a framework for

<sup>1</sup> [dessin-project.eu](http://dessin-project.eu)

integrating multiple sources of information (satellite, local weather stations, on site monitoring, and modelling) to quantify the impact of the irrigation application at a small scale.

• EYDAP was actively involved in the scientific and administrative management of the project and was also involved in the participation and organization of workshops and dissemination events.

#### **Benefits of EYDAP from the project:**

In the DESSIN project, the operation of a decentralized pilot plant for the treatment of waste water from untreated urban effluent taken directly from the main wastewater network was thoroughly investigated. This innovative technology was thoroughly tested, evaluating every social, economic and environmental impact. Furthermore, EYDAP participated in relevant actions to explore sustainable water management solutions to improve safety against water scarcity and increase future water availability. The economic and environmental sustainability of the new technological solutions is under consideration by EYDAP for further development and implementation to ensure water supply in intermittent and peak-demand areas. Additionally through this project EYDAP gained recognition on a research and development level and built strong collaborations sharing expertise and know-how with prominent stakeholders in the water industry. In the context of recognition, EYDAP participated in the National European Business Awards for the Environment – EBAE Competition, presenting the company’s activities in the project DESSIN, and has been awarded in the «Product & Services» and «Business & Biodiversity» categories demonstrating the company’s eco-innovation and respect for the environment at the very core of its business principles.

#### **List of Participants:**

<b>No</b>	<b>Name</b>	<b>Short name</b>	<b>Country</b>
1	IWW Rheinisch-Westfälisches Institut für Wasser Beratungs – und Entwicklungsgesellschaft AFT MBH	IWW	Germany
2	AMPHOS 21 Consulting SL	A21	Spain
3	ADELPHI Research GGmbH	ADELPHI	Germany
4	Technisch Bureau W. M. Bruine de Bruin BV	BdB	Netherlands
5	Chemital Technology P. Dimopoulou – P. Tazes & Co OE	Chemitec	Greece
6	Ecologic Institut gemeinnützige GmbH	ECOLOGIC	Germany
7	INRIGO Water AS	INRIGO	Norway
8	LEIF Kolner Ingeniofirma AS	LKI	Norway
9	SEGNO Industrie Automation GmbH	SEGNO	Germany
10	TELINT RTD Consultancy Services LTD	TELINT	United Kingdom
11	UFT- Umwelt-und fluid-technik Dr H Brombach Gesellschaft mbH	UFT	Germany
12	Emschergenossenschaft	EG	Germany
<b>13</b>	<b>Etairia Ydreyses Kai Apochetefseos Proteyousis Anonimi Etairia</b>	<b>EYDAP</b>	<b>Greece</b>
14	Oslo Kommune	VAV	Norway
15	CETAqua, Centro Tecnológico del Agua, Fundación Privada	CETAqua	Spain
16	DHI	DHI	Denmark
17	KWR Water B.V.	KWR	Netherlands
18	National Technical University of Athens	NTUA	Greece
19	Siftelsen SINTEF	SINTEF	Norway
20	Universität Duisburg-Essen	UDE	Germany

