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## EDITORIAL

Dear readers,

DESSIN is soon coming to an end. It is a pleasure for us to present the last newsletter of this project, which will finalize at the end of the year. In this final stage, the five demo sites are working hard to obtain their main results.

Recently, representatives of DESSIN partners and each demo site met in Utrecht to discuss the application of the Decision Support System (DSS) tool on Ecosystem Services. The tool is now being applied at the five demo sites to value the impact of innovations to the ecosystem services.

We are proud to announce that on November 28<sup>th</sup> the final event of DESSIN will be held in Brussels. In this event, organized jointly by DESSIN and the WsTP working groups “Ecosystem services” and “Green Infrastructure”, we will present and discuss examples of how Ecosystem Services (ESS), Nature-Based Solutions (NBS) and Hybrid Grey-Green Infrastructure (HGGI) can contribute to innovation in the water sector and help tackle water-related challenges.

We will exchange experience about implementation of approaches and technologies, success stories and success factors, barriers for implementation and how they can be overcome. Together we want to identify possible ways forward, actions to be taken and implications for future European innovation activities in this field.

In the last section of this newsletter you will find all the information about this event.

We hope you enjoy reading the last DESSIN newsletter.

Best regards,

The DESSIN Team

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## OUR DEMO SITES WHAT'S HAPPENING?

### HOFFSELVA (NORWAY)

From its source the Hoffselva river, located in Oslo, Norway, flows into an increasingly populated and urbanized area further downstream. As an important natural element in the urbanized environment of the lower catchment part, **Hoffselva provides recreational services which are affected by the water quality.**

The main challenge to be faced in this catchment is **poor water quality caused by discharges from Combined Sewer Overflows (CSOs)**. Mitigation measures are required by the Water Framework Directive (WFD). Hence, the utility operating the sewer system has prepared a four year mitigation plan based on increasing the hydraulic capacity of the system. However, concerns remain regarding cost efficiency and overall effect.

**DESSIN has demonstrated local treatment solutions for overflow from CSOs**, combining technologies acting at local and system level to enable cost-efficient implementation of the WFD. At Hoffselva, **three technologies have been demonstrated:**

1. A modular cross-flow lamella settling unit for the local treatment of combined sewer overflows from detention tanks. This solution was also demonstrated at the Emscher river in Germany before being moved to Hoffselva.
2. A high rate filter solution that can be installed on the CSO outlet pipe for smaller structures without a detention tank.
3. An integrated instrumentation and data communication package for monitoring performance and operation of local treatment units.

Either of the treatment technologies combined with the instrumentation and data communication constitute solutions for local treatment of CSO, and have been evaluated in the Hoffselva demonstration case using the Ecosystem Service (ESS) methodology developed in DESSIN.



The modular cross-flow lamella settling unit



Recreational activity in the Hoffselva lower catchment part

## INTERVIEW// HERMAN HELNESS - HOFFSELVA PROJECT LEADER



"The results will show that there are feasible solutions to mitigate some water quality problems caused by CSOs"

**Dr. Herman Helness is a Senior Scientist at SINTEF Building and Infrastructure, Water and Environment. He received his M.Sc. degree in Chemical Engineering at the Norwegian University of Science and Technology (NTNU) in 1989, and has a PhD in enhanced biological phosphorus removal. He has been working with SINTEF since 1991, both in scientific positions and as Research Manager from 2007 to 2015. His scientific expertise covers treatment processes and solutions for drinking water, industrial water and wastewater, sustainability assessments and Integrated Water Management.**

### DESSIN is about to end. How do you face the last months of the project?

Reporting the results from the demo site at Hoffselva requires that SMEs, researchers and the site owner all contribute with their results. A main task is to coordinate this effort, and I also take part in the ESS and sustainability evaluations so my days are full of interesting DESSIN activities.

### Which are the biggest achievements made at the Hoffselva Demo Site?

We have demonstrated technologies for water treatment that, together with online monitoring, can be a solution for distributed treatment of CSOs. This has not been available before. We have also included local stakeholders by involving them through an observation study, and we believe their perspectives give added value to the evaluation of the solutions.

### The DESSIN demo sites are obtaining their final results. What can we expect from Hoffselva?

The results will show that there are feasible solutions to mitigate some water quality problems caused by CSOs. The evaluation is still ongoing, but I believe this can be a cost-efficient alternative to increasing the hydraulic capacity of a sewer system. However, there is not one solution that fits all cases so local adaptation is required.

### The ESS Tool was presented to the demo sites' Project Leaders. Which was your first impression of the tool?

The tool gives a systematic way of conducting an ESS assessment according to the methodology developed in DESSIN, and has the potential to be included in the modelling of a system. I believe this last quality is an asset. However, this requires more comprehensive modeling than we are doing in the Hoffselva demo site.

### What do you expect DESSIN will provide to ESS management?

Using ESS and sustainability in addition to evaluations of technical issues and costs gives a better understanding of the consequences -positive and negative- of implementing a technology. A challenge is to link technical performance, e.g. a treatment efficiency, to the ESS and further to quantify this effect. Also, quantifying the different evaluation criteria in a sustainability assessment may be challenging. DESSIN has contributed to this through the developed methodology and by examples from the different cases.

## SUCCESS STORY

### DESSIN PRESENTED AT THE EIP WATER CONFERENCE IN PORTO

An outstanding event for the European water sector in 2017 was the EIP water conference in Portugal. From 24<sup>th</sup>-30<sup>th</sup> September **more than 1.200 water innovators from all over Europe** convened at the banks of the Douro River in Porto to discuss about "Water Innovation : Bridging Gaps, Creating Opportunities".

The DESSIN team used the opportunity to **present key results and success stories from the project** on several occasions during this event.



A poster of the DESSIN project was presented at the EIP Water Conference in Porto

Based on a survey of more than 60 EC funded projects, **DESSIN was one of eight projects selected to host a roundtable discussion** in a side event organised by the European Commission on 29<sup>th</sup> September about "Boosting Research & Innovation in the Water Sector: The Impact of EU funded actions".

At the DESSIN roundtable, coordinator David Schwesig (IWW) had the opportunity to discuss key success factors for result exploitation and market uptake with representatives of the EC and participants from other projects.

Participants were particularly interested in the ESS evaluation approach as a booster for market uptake, in the efforts taken to develop business models and plans, and in the usefulness of DESSIN's animated videos to communicate about key results.

DESSIN was also presented by Ronjon Chakrabarti (adelphi) in "The Innovation HUB in the exhibition area", which was a mixture of a speakers' corner and an interview studio open to the public.

The session focused on the practical application of the innovative water technologies in the Dessin project and the relevance of their impacts on ESS. Last but not least, a **DESSIN poster was presented in the EC booth of the exhibition area.**

## SUCCESS STORY

### ESS EVALUATION TOOL PRESENTED TO PARTNERS

On September 21<sup>st</sup> and 22<sup>nd</sup>, partners from KWR, Emschergenossenschaft, Cetaqua, NTUA, SINTEF and representatives of every demonstration case met in the KWR facilities in Utrecht (The Netherlands) **to discuss the application of the Decision Support System (DSS) on Ecosystem Services.** The ESS Evaluation Tool, abbreviated ESS Tool, is an extension of the MIKE Workbench software, developed by DHI, which allows the valuation of the impact of the application of policies or innovative solutions on ecosystems.

During the meeting, the developers explained the operation of the ESS tool and collected feedback from the different partners in order to improve it. Currently, the tool is in a test phase and is undergoing a continuous review. Also, **it was decided to apply the tool to the various demonstration cases of DESSIN** at the Llobregat area in Spain, Athens in Greece, Westland in Holland, Hoffselva in Norway and the Emscher region in Germany.

So far, the ESS tool has only been applied within the DESSIN project. The final version of the tool will include an automatic monetization system of the Ecosystem Services, which **will allow to evaluate the economic impact of the application of an innovative solution to ecosystems.**

Finally, the attendees held an informal talk in which they presented the status of the different demo sites in the last months of the project and discussed the main challenges and difficulties in obtaining results. Also, the representatives of the partners assessed the possibility of publishing two papers on the results obtained from the evaluation of the ESS, focusing on aspects of water quality and quantity.



Representatives of the DESSIN partners and the demo sites during the meeting

## ESS SECTION

### THE ESS EVALUATION TOOL: ASSESS YOUR ECOSYSTEM SERVICES

The free Ecosystem Services (ESS) evaluation software tool by DESSIN **helps decision-makers to make the best choice by evaluating the effects that innovative solutions have on freshwater ecosystems and their services.** The tool identifies and measures the ecosystem services that are provided to humans by nature. While this may sound simple, many different ecosystem services may be present at a particular location, and the tool helps to make sure that all of them are considered. It suggests indicators for measures of ESS provision and use, as well as economic valuation methods.

It also is capable of **measuring changes in ESS resulting from new policies or solutions**, which makes the tool useful for cost-benefit analyses or other assessment exercises. Furthermore, the tool provides guidance for implementing the

DESSIN sustainability assessment, which gives a broader perspective on proposed policies, projects and solutions.

The main target audience for the tool are scientists and planners who provide information and advice to decision makers. Technological service providers may also be interested in using the tool for marketing if their services are thought to have positive impacts on ESS.

The ESS tool requires basic familiarity with Windows software. No specialized software skills are required. However, the tool can be extended to estimate indicator values, including economic values, by scientists and engineers familiar with modelling and programming.

The software tool is part of the MIKE Workbench software, which is used to work with simulation models, data, and maps. To use the DESSIN tool, you need to install this software first. Some optional features of MIKE Workbench can be used to extend the tool to link to model results. These are not available for free though and require a license, but the basic tool is free of charge.

[Click here to access download links and instructions for the Ecosystem Services Evaluation software tool and the user guide](#)

## DESSIN MARKETPLACE

### ECOSYSTEM SERVICES VALUATION FOR INNOVATION PROMOTION: PERSPECTIVES FROM EUROPE

New innovations for protecting Ecosystem Services (ESS) in the urban water sector are needed in order to ensure continued quantity and quality of water. However, product and service innovations are often stuck in the development phase or market uptake is slow. Challenges for new innovations are rooted in a range of institutional, technological and market barriers. Current conditions in Europe are not favourable for ESS relevant innovations in the water sector, creating innovation inertia. Specific issues are:

- Weak implementation of environmental regulations – this disincentives investment into “green” technology innovation and hinders demand.
- Fragmentation of the European market – while framework conditions are converging, decision-making processes, stakeholders and the value of ESS differ from country to country and even regionally.
- Risk-averseness of water managers/decision-makers towards innovations – due in part to lack of compelling arguments of innovators to demonstrate the added value of their ecosystem-relevant solutions.
- Access to finance at various stages of the innovation process, particularly for SMEs. This is even more difficult for nature-based or “green” solutions, as their business case is often more complex and necessitates technical understanding.



Hoffselsva, one of the sites where the ecosystem services are being valued

More generally, water technology purchase decisions are often only cost-focused; only if environmental and socio-economic criteria and stakeholder interests are integrated into decision-making, ESS relevant innovations can thrive.

The DESSIN project answers these challenges with a new ESS valuation methodology developed and tested in five demonstration sites across Europe. The ESS framework is explored as a means to dismantle barriers for the uptake of ecosystem-based innovation for urban water systems. DESSIN thereby supports the idea that it is necessary to incorporate the value of the earth’s life-support systems – ecosystems – into decision-making. The uptake of innovative ecosystem-based solutions for urban water systems can be supported in three ways:

#### 1. Demonstrate solutions with the strongest long-term outcomes, including ESS relevance.

This can be done by promoting a more systematical perspective on water management decisions regarding the urban water cycle, e.g. by identifying win-win solutions that maximize ecosystem benefits for a greater number of beneficiaries and that reduce hidden or external costs, particularly for ESS.

#### 2. Support innovation through inclusive decision-making.

Inclusion of multiple stakeholders with different perspectives and values can lead to improved information exchange, collaboration and social learning that are important drivers for innovation. ESS relevance can be demonstrated by an ESS valuation methodology, which can be integrated into existing processes.

#### 3. Promote ecological solutions convincingly.

Using language and concepts that are meaningful also to non-experts facilitates the communication with decision-makers. By offering a common metric to compare different solutions, investments into ecosystem-relevant solutions can be justified.

ESS valuation, as developed by DESSIN, can act as an enabler for all three activities. If integrated into water management decision-making processes, ESS valuation can drive sustainable change in urban water systems, assuring the long-term benefits derived from the ecosystem and continued water quality and quantity.

## DESSIN ACHIEVEMENTS

### UPCOMING DESSIN FINAL EVENT

DESSIN will organise its final event as a half-day workshop on **“Water innovation through ecosystem services, nature-based solutions and hybrid grey-green infrastructure”**.

The workshop will be jointly organised with the Water Supply and Sanitation Plattform (WssTP), in particular with its working groups on “Ecosystem services” and “Green Infrastructure”. It will present key results from DESSIN and other advanced projects working on the same topic.

At this workshop we want to present and discuss examples how Ecosystem Services (ESS), Nature-Based Solutions (NBS) and Hybrid Grey-Green Infrastructure (HGGI) can foster innovation in the water sector and help tackle water-related challenges.

We will exchange experience about implementation of new approaches and technologies, share success stories and success factors, barriers for implementation and how they can be overcome. Together we want to identify possible ways forward, actions to be taken and implications for future European innovation activities in this field.

We will have a panel discussion involving EU representatives responsible for the European R&D strategy for nature-based solutions, and key staff of other projects working on the workshop topics.

Target audience are water supply and sanitation services suppliers, water boards, water technology providers, policy and decision makers, innovation enablers and scientific experts working in this field.

**The event is free of charge and open for registration.** It will take place at the **Crowne Plaza Hotel in Brussels on 28<sup>th</sup> November afternoon**, just prior to the WssTP brokerage event on 29<sup>th</sup>-30<sup>th</sup> November.

## DESSIN FINAL EVENT

### DETAILED AGENDA

14.00-15.00h

#### Session 1 - The value of ecosystem services – success stories from DESSIN

Chair: David Schwesig, IWW/DESSIN

- David Schwesig (IWW): Welcome, introduction to workshop & DESSIN project
- Gerardo Anzuldua (Ecologic): Talk to the user: running assessments that actually say something to the locals
- DESSIN case study leaders: ESS success stories
- Wrap-up

15.30 - 16.30h

#### Session 2 – Benefits of nature-based solutions and hybrid grey-green infrastructure

Chair: Victor Beumer, Deltares, Leader WssTP WG Green Infrastructure

- Joanna Zawadzka (AquaNES): Understanding the ecosystem services provided by combined natural and engineered treatment systems
- McKenna Davis (RECREATE): Making the case for sustainable urban drainage systems as a nature-based solution to urban flooding
- Per Møller-Pedersen (KLIMA2050): Detention roof gardens – a hybrid grey-green infrastructure innovation from Norway
- Gerard van den Berg (SUBSOL): Subsurface Water Solutions as answers for freshwater challenges in coastal regions

17.00-18.00h

#### Session 3 – Implementing and scaling up ESS, NBS, HGGI: driver for innovation in the water sector?

Chair: Andrea Rubini, WssTP

- Recap from sessions 1 and 2
- Discussion with EC, WssTP and project representatives
- Conclusion and outlook

Participation is free of charge. Registration by 18th November is required.  
For further information, please click [here](#) or contact Andrea Rubini (andrea.rubini@wssstp.eu)

[Register now](#)

## DESSIN PARTNERS

