



**ZERO BRINE**

# **WP 9 Framework conditions for innovation**

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## Partners Involved



REVOLVE



National  
Technical  
University of  
Athens



UNIVERSITÀ  
DEGLI STUDI  
DI PALERMO



UNIVERSITY OF  
ABERDEEN



# OBJECTIVES

- To address potential **legislative barriers** for the market uptake of the ZERO BRINE products and processes developed (including End-of-waste criteria)
- To examine the **relevant BREFs** and provide **suggestions** for the update of the Best Available Technology to the European Commission
- To develop **minimum quality standards** (requirements) for salt reuse in different applications (end-markets).
- To **assess the environmental impacts** associated with brine discharge through field surveys of environmental quality
- The above information will be used to draft a proposal for an **Innovation Deal**

# Tasks of WP9

## **Task 9.1: Policy review and assessment – Assessment of the possibility to apply for Innovation Deal**

*(Lead Partner: NTUA, Partners Involved: TU DELFT, WssTP, SEALEAU) (Start Month: M1, End Month: 42)*

- Sub-task 9.1.1: Policy review - Transfer of experience from waste management to wastewater management sector (Lead Partner: NTUA, Partners involved: TU DELFT, SEALEAU)
- Sub-task 9.1.2: Assessment of the possibility to apply for an Innovation Deal to the European Commission (Lead Partner: TU DELFT, Partners Involved: NTUA, WssTP, SEALEAU)

## **Task 9.2: Development of quality standards – Field surveys for environmental impacts quantification**

*(Lead partner: TU DELFT, Partners Involved: UNIABD) (Start Month: M1, End Month: 48)*

- Subtask 9.2.1: Development of quality standards (Lead Partner: TU DEFLT)
- Subtask 9.2.2: Assessment of environmental impacts associated with brine discharge (Lead Partner: UNIABD)

# Gantt Chart for WP 9 (years: 2017 and 2018)

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19
	2017							2018											
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>Task 9.1</b>																			
Sub-task 9.1.1																			
Sub-task 9.1.2																			
<b>Task 9.2</b>																			
Sub-task 9.2.1																			
Sub-task 9.2.2																			

- ✓ During the first administrative period (M1 – M18) all the tasks of WP9 must start.
- ✓ No Deliverables are scheduled during 2018.
- ✓ No Milestones are foreseen during 2018.



# Deliverables

## D9.1: Report on environmental impacts from brine discharge [Month 45] **UNIABDN**

This report will include the results of subtask 9.2.2, where the environmental impacts associated with brine discharge will be assessed.

## D9.2 : Report on policy review and assessment / suggestions for BREF update [Month 42] **NTUA**

This report will include a mapping of relevant legislation, as well as recommendation for the update of relevant BREFs.

## D9.3 : Quality standards [Month 48] **TU DELFT**

This report will include quality standards for salt reuse in different applications/end-markets





# Task 9.1: Policy review and assessment – Assessment of the possibility to apply for Innovation Deal

Sub-task 9.1.1: Policy review - Transfer of experience from waste management to wastewater management sector (Lead Partner: NTUA)

## Up to now

1) Review of several industrial sectors - BREF documents has started

- *Food, Drink and Milk Industries*
- *Iron and Steel Production*
- *Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers Industries*
- *Production of Chlor-alkali*
- *Production of Pulp, Paper and Board*
- *Textiles Industry*
- *Non-ferrous Metals Industries*

2) Review of relevant regulation (such as REACH (**R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **C**hemicals) and **W**ater **F**ramework **D**irective) has already started → Initial Identification of regulatory barriers



# Task 9.1: Policy review and assessment – Assessment of the possibility to apply for Innovation Deal

Sub-task 9.1.1: Policy review - Transfer of experience from waste management to wastewater management sector M1-42 (Lead Partner: NTUA)

## Next months:

Review of the relevant existing legal and policy framework regulating the application of the developed innovative products and processes for the Netherlands, Spain, Poland, Greece and Turkey.



Starting the identification of **regulatory barriers** so as to allow the future wide application of ZERO BRINE products and processes.

*Important input from the partners from Netherlands, Spain, Poland and Turkey*



# Task 9.1: Policy review and assessment – Assessment of the possibility to apply for Innovation Deal

Sub-task 9.1.2: Assessment of the possibility to apply for an Innovation Deal to the European Commission M12-M42 (Lead Partner: TU Delft)

- Data from sub-task 9.1.1 and from task 9.2 will be used to draft a proposal for an Innovation Deal
- TU Delft has already prepared a short introduction about the Innovation Deal
- End-of-Waste criteria and quality protocols will be developed.

## Innovation deal

Societies will have to face two major challenges in the coming decades: the economic and social adaptation to climate change and an economic and social development with more expensive energy resources. Therefore, the expected economic and social costs will be significant, and the development of new technologies will be a focal part of the solution. In addition, in Europe innovative research is performed but at the time of implementing innovation, regulatory barriers are often identified. As a result, in order for European Commission to foster this change within the circular economy package, the Innovation Deal was developed.

The concept of Innovation Deal was based on the successful platform of Green Deal implemented by the Dutch central government. The Green Deal approach is an accessible way for all relevant stakeholder organizations, such as companies, local and regional government and interest groups, to work with the central government on green growth and social issues. The aim of the approach is the removal of barriers in order to help sustainable initiatives get off the ground and accelerate this process. Central government plays a key role in this area. So far Green Deals have been reached in several industrial sectors, such as food, pharma, mobility, events organization, etc.

So far two Innovation Deals have been signed. One concerns a sustainable waste water treatment and another is about recycling electric vehicles. The Innovation deal of the wastewater treatment concerned overcoming legislative barriers. This deal focused not only on addressing the impact of water scarcity, but on recovering nutrients from the waste water as well. The second Innovation Deal concerned the waste management of electric vehicles batteries.

In Zero Brine project aiming for an Innovation Deal should be a prerequisite. The reason for this is that the project is not only in direct alignment with the circular economy principles, but its aim is to modify the treatment trains of the process industry in order to reduce the water consumption and recover valuable materials for the chemical industry. In addition, some of these material are already classified as critical raw materials and European Commission regards them as crucial for Europe's economy.



## Task 9.2: Development of quality standards – Field surveys for environmental impacts quantification

Task 9.2.1: Development of quality standards: Starting month: M13 (June 2018), Lead Partner: **TU Delft**

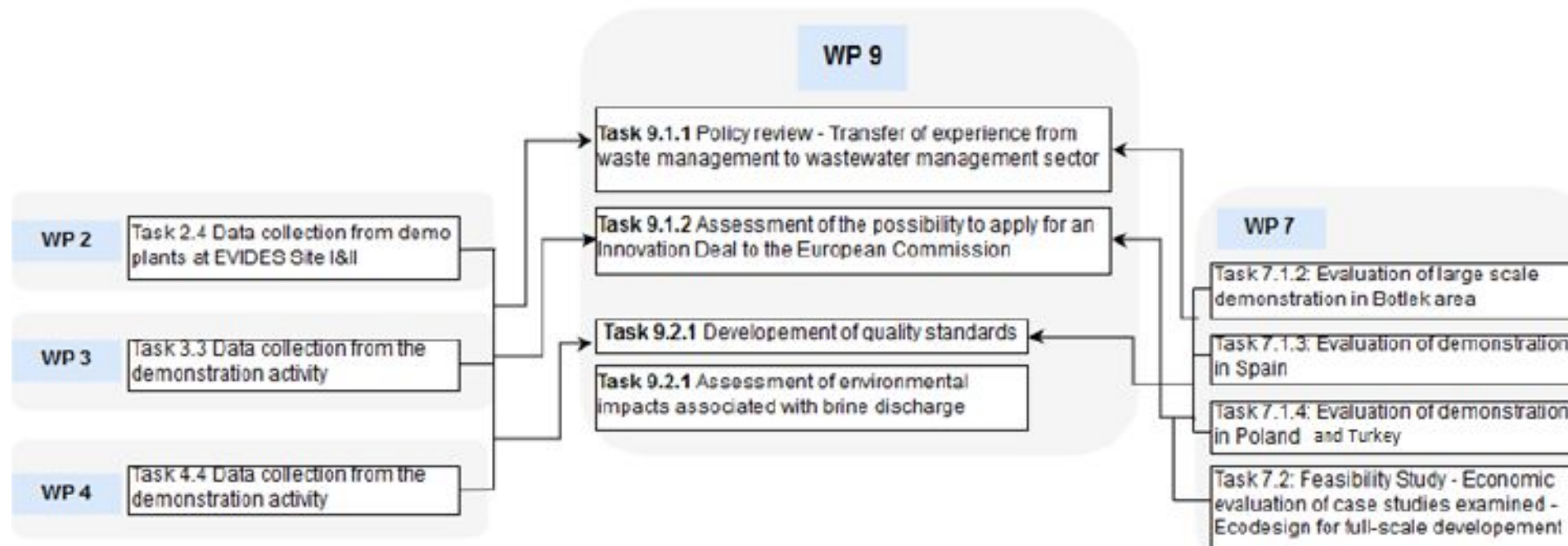
Task 9.2.2: Assessment of environmental impacts associated with brine discharge, Starting month: M12 (May 2018), Lead Partner: **UNIABD**

### **Next months:**

- Review of data from previous years about the hydrological conditions at / around the study site.
- Determine prevailing current conditions: Collection of 3 replicates of benthic samples from at least 3 different locations (upstream and downstream of outfall). Where appropriate, use a portable device to obtain basic oceanographic data at these locations.
- Laboratory analysis of samples.

*Pending to decide the first sampling date before the operation of ZERO BRINE system (in collaboration with TU Delft).*

# Dependencies from other WPs



- ✓ Major dependencies from the outputs of other WPs
- ✓ For the implementation of WP9 no delays are foreseen.
- ✓ The due date of the deliverables will be as originally planned and presented in the GA.

# Thank you for your attention!

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