



WATER SMART INDUSTRIAL SYMBIOSIS

Policy Brief

9 Examples to achieve a Water-Smart Industrial Emissions Directive

Author(s): Water Europe

Date: 31 May 2022

Contents

Executive Summary	3
1. Introduction	4
2. Why Should We make Water-Smart the Industrial Emissions Directive?	4
3. Which Benefits Can We Expect?	5
4. Which Barriers Need to be Overcome into the Industrial Emissions Directive?	6
5. Conclusion	7
Endnotes	7

Disclaimer

This publication reflects only the author's views and the European Union is not liable for any use that may be made of the information contained therein.



Executive Summary

This policy brief aims to provide some inputs from the EU Project ULTIMATE to European Policy makers in the context of the upcoming revision of the Industrial Emissions Directive (IED). Within a short and simplified content, the document summarises the main outcomes of the different activities ran by the project partners on the 9 industrial demo cases across Europe.

The project is particularly relevant for its scope for water industrial symbiosis. The evaluation of the IED released in March 2020 highlights the weaknesses of the directive for reducing emissions into water. Consequently, the legislative proposal of the European Commission aims to fill in this gap by supporting reduction of emissions into water, particularly through benchmarking and a better integration of water-reuse provision into the new directive.

The document is mainly based on the discussion ran during a workshop on legal risks assessment for two demo cases, the white paper - Ethical Drivers & Societal Expectations for the Circular Economy – and the participation of projects partners in a policy-oriented workshop for the MEP Water Group at the European Parliament.

The main recommendations are:

- Encourage reclaimed water use through the industrial Emissions Directive.
- Encourage financial incentive for circular economy systems.
- Familiarize citizens with circular economy systems.
- Companies may provide a more transparent overview also of their non-circular activities.
- Do not support more restrictive water quality requirements for reclaimed water reuse.

1. Introduction

ULTIMATE is an EU funding project which aims to create economic value and increase sustainability by valorising resources within the water cycle, the so-called “value in water”. ULTIMATE project is working hand in hand with the NextGen project which is running activities to deploy this holistic approach into urban areas. Drawing on “Water Smart Industrial Symbiosis” (WSIS) Ultimate promotes wastewater recycling in various industrial settings. The project focuses on the four most important industrial sectors in Europe in term of water use¹:

- Agro-food processing
- Beverages
- Biotech industry
- Heavy chemical / Petro chemical

The evaluation of the IED released in March 2020² highlights the weaknesses of the directive for reducing emissions into water. However, the Industrial Emissions Directive (IED) is the main tool in Europe to regulate emissions from industrial installations into air and water. The legislative proposal³ of the European Commission aims to fill in this gap by supporting reduction of emissions into water, particularly through benchmarking and a better integration of water-reuse provision into the new directive.

In this context, ULTIMATE project stresses 9 examples⁴ to build a water-smart industrial emissions directive to better understand the opportunities to foster the exploitation of the value in water. This objective is one of the main objective of ULTIMATE project⁵. It also contributes to identify legal risks for the deployment of this innovative solutions.

2. Why Should We make Water-Smart the Industrial Emissions Directive?

There is a clear need for a holistic approach going beyond the energy efficiency perspective as stressed during the MEP Water Group in May 2021⁶ based on some mid-term perspective of the demo-case in Tain, UK. Water also plays a key role in achieving the Green Deal objectives and emissions reduction into water are key.

The survey conducted in the context of the white paper⁷ - Ethical Drivers & Societal Expectations for the Circular Economy - stressed three main conclusions:

1. Not all citizens may be familiar with the term Circular Economy, however, they are likely to value its key concepts of reducing environmental impact through reuse, recycling, and efficiency improvements.
2. Governments should play a more active role in the transition to a CE

“**ULTIMATE will give examples of how water-smart industrial symbiosis will work in practice.**”

Gerard van den Berg,
4 June 2021

either by encouraging companies to adopt CE systems, providing financial incentives or legally requiring companies to adopt CE systems.

3. To minimise the risk of greenwashing, companies may provide a more transparent overview also in relation to their non-circular activities. In line with the proposal benchmarking obligation in the legislative proposal, companies should be able to disclose data on water reuse and resources efficiency.

A proactive role from public authorities to enhance corporate circular economy practices is key to fill the gap between people intentions and actual behaviour. Within this framework the industrial emissions directive must support effective water-reuse, the exploitation of the value in water.

“The sooner we start, the lower the cost.”

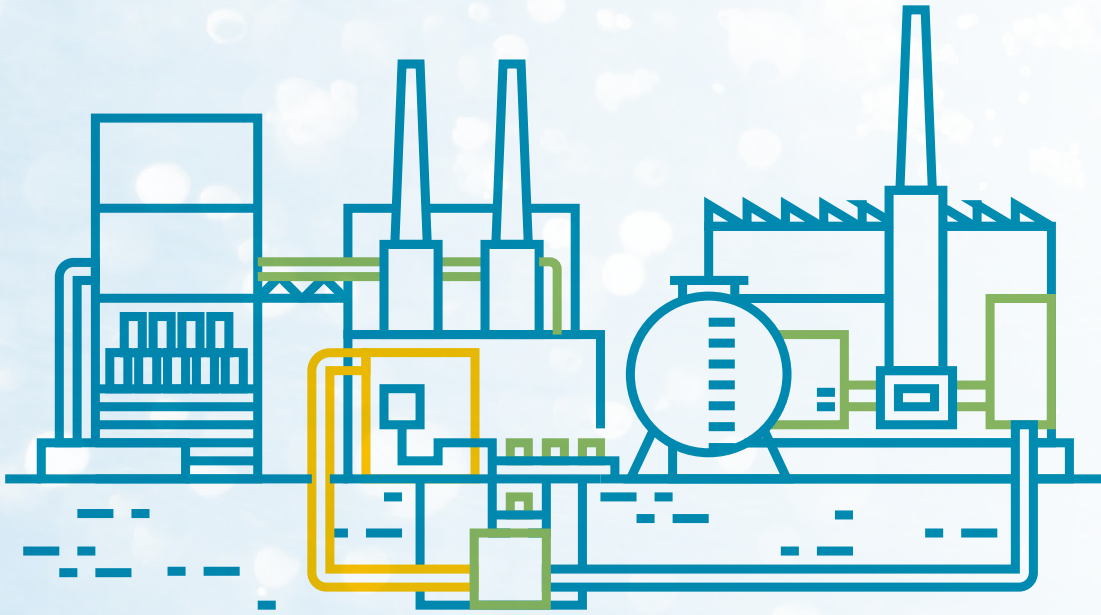
Frans Timmermans,
7 October 2021,
European Parliament

3. Which Benefits Can We Expect?

A water-smart industrial Emissions directive is key to secure European competitiveness, improve our environmental legacy for the future generations and also strengthening European strategic autonomy⁸. The costs of non-action are already high for tackling climate change, but existing technics can offer several benefits in term of energy saving, water saving and material recovery.

Table 1 - Examples for a Water-Smart Industrial Emissions Directive

	Objectives	Water-related solutions	Material Recovery
Case Study 3 – Rosignano (IT)	<ul style="list-style-type: none"> Decrease the groundwater withdrawal for industrial purposes Increase in the availability of water for drinking water use Decrease in effluents discharged into the sea Reducing the impact to surface and seawater. 	<ul style="list-style-type: none"> Digital Water – Early warning system for salinity and chloride management Treatment for water-reuse with low salinity and very low COD 	<ul style="list-style-type: none"> Recovery of mineral by-products as alternative coagulants and /or absorbent Re-use the chemical (alum/ferric) sludge from coagulation/flocculation in the WWRP will be analysed
Case Study 1 – Tarragona (ES)	<ul style="list-style-type: none"> Increase reclaimed water availability for the complex by 20% 	<ul style="list-style-type: none"> Defining a novel tertiary treatment to obtain regenerated water (membrane technologies) Ammonium removal via zeolite adsorption 	



4. Which Barriers Need to be Overcome into the Industrial Emissions Directive?

ULTIMATE identifies some recommendations related to the industrial emissions directive during a workshop organised on 18 May 2022 to assess the legal risks. The workshop focused on 2 of the 9 demo cases (demo cases 1 and 3).

- The highest legal risk that was identified is the risk for not being able to use reclaimed water. In the context of water scarcity risks in Europe, the EU legislation should strongly support reuse of water through obligation to reuse part of the reclaimed water in final use, for instance.
- Water reuse schemes will be impeded if the EU would impose more stringent water quality requirements for the reuse of reclaimed water. More restrictive limits to reuse water will impact the deployment of water-smart industrial symbiosis and will have counterproductive effects in Europe. There is a strong risk to have a lack of certainties to base long-term binding contract between urban utilities and industry.

5. Conclusion

The EU project ULTIMATE promotes wastewater recycling in various industrial settings.

With the upcoming revision of the industrial emissions directive, the mid-term conclusions from the different activities ran by Ultimate partners can provide some clarification for the policy makers.

It highlights 9 different innovative deployment of water-smart tools in the context on industrial activities which contribute to demonstrates the opportunities of a water-smart industrial emissions directive in Europe. The recommendations are summarised in the list below.

- Encourage reclaimed water use through the Industrial Emissions Directive.
- Encourage financial incentive for circular economy systems.
- Familiarize citizens with circular economy systems.
- Companies may provide a more transparent overview also of their non-circular activities.
- Do not support more restrictive water quality requirements for reclaimed water reuse.

Endnotes

- 1 European Environmental Agency: water use in Europe; 08/2018
- 2 <https://circabc.europa.eu/rest/download/589a486c-1732-4e9d-abbc-a515ddf0aca0?ticket=>
- 3 https://ec.europa.eu/environment/publications/proposal-revision-industrial-emissions-directive_en
- 4 <https://ultimatewater.eu/demonstration-cases/>
- 5 <https://ultimatewater.eu/2021/06/04/the-answer-to-water-scarcity-extract-it-recycle-and-reuse-it/#more-1354>
- 6 <https://mepwatergroup.eu/mep-water-group-online-webinar-energy-neutrality-in-water-management-a-water-smart-objective-31-may-2021/>
- 7 <https://ultimatewater.eu/wp-content/uploads/file-manager/public-folder/Public%20Deliverables/D4.1%20White%20paper%20Ultimate.pdf>
- 8 <https://watereurope.eu/wp-content/uploads/WE-Position-Paper-Industrial-Emissions-Directive-1-1.pdf>

FOLLOW US

TO DISCOVER OUR BUSINESS
MODEL INNOVATION JOURNEY

 [ultimate-water-eu](https://www.linkedin.com/company/ultimate-water-eu) 

 [@ULTIMATEWaterEU](https://twitter.com/ULTIMATEWaterEU)

 [ULTIMATE-Water-Smart-Industrial-Symbiosis](https://www.researchgate.net/publication/354444444) 

 zenodo.org/communities/ultimate_water



ultimatewater.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 869318.