

Name of Project: WINE 3	
ToR Reference No.: 2022-VI/01	
Version: <input type="checkbox"/> Draft <input type="checkbox"/> Final <input checked="" type="checkbox"/> Adopted	Date: 10-Mar-22
<b>TERMS OF REFERENCE FOR WORK UNDER THE AUSPICES OF IMPEL</b>	

## 1. Work type and title

<b>1.1 Identify which Expert Team this needs to go to for initial consideration</b>	
Industry and air	<input type="checkbox"/>
Waste and TFS	<input type="checkbox"/>
Water and land	<input checked="" type="checkbox"/>
Nature protection	<input type="checkbox"/>
Cross-cutting tools and approaches	<input type="checkbox"/>
<b>1.2 Type of work you need funding for</b>	
Exchange visits	<input checked="" type="checkbox"/>
Peer reviews (e.g. IRI)	<input type="checkbox"/>
Conference	<input checked="" type="checkbox"/>
Development of tools/guidance	<input checked="" type="checkbox"/>
Comparison studies	<input type="checkbox"/>
Assessing legislation (checklist)	<input type="checkbox"/>
Other, (please describe):	<input type="checkbox"/>
<b>1.3 Full name of work (enough to fully describe what the work area is)</b>	
Wastewater In Natural Environment – Phase 3	
<b>1.4 Abbreviated name of work or project</b>	
WINE 3	

## 2. Outline business case (why this piece of work?)

<b>2.1 Name the legislative driver(s) where they exist</b>
<ul style="list-style-type: none"> <li>• Water Framework Directive (2000/60/EC)</li> <li>• Regulation on minimum requirements for water reuse (2020/741/EU)</li> <li>• Circular Economy Action Plan</li> </ul>



- The European Green Deal
- Urban Waste Water Treatment Directive (91/271/EEC)
- Groundwater Directive (2006/118/EC)
- Environmental Quality Standards Directives (2008/105/EC and 2013/39/EU)
- Industrial Emissions Directive (2010/75/EU)
- Sludge Directive (86/278/EEC)
- Waste Framework Directive (2008/98/EC)
- Action Plan on Improving Environmental Compliance and Governance (COM (2018) 10)

## 2.2 Link to IMPEL MASP priority work areas

- |   |                                     |
|---|-------------------------------------|
| 1. Assist members to implement new legislation.   | <input checked="" type="checkbox"/> |
| 2. Build capacity in member organisations through the IMPEL Review Initiatives.               | <input checked="" type="checkbox"/> |
| 3. Work on 'problem areas' of implementation identified by IMPEL and the European Commission. | <input checked="" type="checkbox"/> |
| 4. Other, (please specify):<br>Promote the Action Plan for Circular Economy                   | <input checked="" type="checkbox"/> |

## 2.3 Why is this work needed?

According to the outcomes of the previous project "Integrated Water Approach" (year 2018), it was noticed that water reuse cannot be seen as a single quantitative measure to reduce water abstraction. In the whole water use cycle, at industrial and urban level, quality must be linked with quantity to ensure safety and increasing of value through the chain of use, by the promotion of the natural values and activities directly connected with the emissions receiving environment.

Also, when recycling projects are presented as a solution for circular economy transition, water use is only considered as a quantitative indicator, with no link to quality assessment and therefore without considering the possible impacts on the achievement of the WFD goals.

Therefore, a more integrated and holistic vision for water reuse at industrial, urban and food production level is needed to promote practices that contribute to a real transition for a circular economy, also taking into consideration a possible market for secondary raw materials.

Furthermore, the use of urban wastewater for irrigation purpose can also be an important tool to ensure that farmers and other land managers comply with environmental rules under EU nature and water laws, as one of the 9-point Action Plan adopted by the European Commission to increase compliance with and improve governance on EU environmental rules on activities.

This work intends to help Member States on the transition to the Circular Economy within the water cycle. Through the share of good practices in urban, industrial and food production water management, in terms of water use and reuse is intended to identify and improve solutions in terms of water use efficiency that may contribute to zero pollution solutions and, whenever possible, linked with the nexus water-food-energy-ecosystems.

The use of the Water Circularity Index developed during the projects "Integrated Water Approach and Water Reuse" (year 2019) and "Wastewater in Natural Environment" (year 2020), intends to identify the water use areas that are strongly interlinked and therefore, needed to be mutually



reinforced paying attention to the potential trade-offs between economic, environmental and social objectives. And so, the goals of this project are in line with the European Green Deal. On another hand, the above mentioned Index (that can be improved during this work) can also be used for training and capacity building in water use management.

#### 2.4 Desired outcome of the work

In the previous project (year 2021) the Water Circularity Index was applied to specific industrial installations namely oil refinery, pulp and paper factory, WWTP, etc., and it was intended to find the suitability of the Index for local/regional activities.

This project (years 2022-2023) intends to improve the Water Circularity Index and its application to identify and link best practices in terms of water use within process or activity and reuse (use of treated wastewaters as an alternative water source), water quality management, sludge management, water resources uses and energy balance.

From the application of The Water Circularity Index is, therefore, envisioned to find the best solutions in facilities, activities and final products to promote “reuse/circular markets” that will not only result from a better water efficient (quantity and quality) use, but also contributes to zero pollution solutions and, whenever possible, within the nexus water-food-energy-ecosystems.

Another related outcome of the work will be improving professional training, spreading knowledge and provide compliance assurance in rural areas as required for the implementation of the ECA 9-point Action Plan.

#### 2.5 Does this project link to any previous or current IMPEL projects?

This project links with previous IMPEL projects, namely “Integrated Water Approach”, “Integrated Water Approach and Water Reuse” and “Wastewater in Natural Environment”. It also aims to build on the experience of other water-related IMPEL projects such as “Water & Land Conference” and “Supporting IED Implementation”, for sharing best practices to implement the Water Framework Directive. The project will also contribute to the training activities for permit writers and inspectors of the IMPEL project “Training and Capacity Building”, with web meeting and working session on reuse of wastewater as well as joint inspection in wastewater treatment plant located within a IED installation.

### 3. Structure of the proposed activity

#### 3.1 Describe the activities of the proposal

During phase 2 of the project “Wastewater in Natural Environment” (year 2021) literature revision, a dedicated questionnaire to the Member States and virtual meetings have been performed to identify gaps and collects new information on:

1. Critical activities/facilities with high pressure over water bodies;



2. Regional/local activities with significant impact in terms of water use (e.g., high water consumption, high discharge loads, seasonal activities, etc.);

3. Food production activities that uses or intended to use treated wastewaters and/or biosolids or sludge.

The most appropriate activities, facilities and products to apply the Water Circularity Index have been identified. With the collected results an improved index has been proposed. Also, appropriate indexes can be developed namely for regional/local and food production activities.

During phase 3 of this project (years 2022-2023) should be held three site-visits (one of each type of activity above identified) to achieve the real conditions for a better comprehension of the interlinkage of all water uses aspects in the target activities. This will allow to collect the most appropriate information for the index calculation. These site-visits will be also used for training and capacity building (e.g. how to improve discharge permits taking into account real condition and according the several applicable directives, such as IED and WFD or how to promote environmental compliance through circularity or how to contribute for zero pollution solutions). Additionally, could be held virtual meetings to prepare site visits and/or discuss whenever justified the results of the project.

If needed the algorithms and input factors (Index) should be improved according all the information collected through the project lifetime.

To increase the visibility of the work, is proposed a final live Conference to present the Water Circularity Index and its benefits to the Member States, European Commission and other stakeholders, such as, research institutions, representatives of activities or NGO.

### 3.2 Describe the products of the proposal

The final product will be a report on the application of the Water Circularity Index to several activities/facilities and products with identification of best practices to promote the transition to the circular economy, including solutions to promote zero pollution and integrated practices within the nexus water-food-energy-ecosystems.

An immediate outcome will be the transfer of knowledge on current best practice with respect to integrated water use at industrial, urban and food production level. The Water Circularity Index could also work as tool for industries and services to help them to improve the water use and demonstrate its transition to a more circular process contributing to zero pollution solutions.

The Water Circularity Index can work as a tool to promote key principles of circular economy, namely:

- the design out waste externalities (e.g. optimization of energy consumption in water systems and/or water consumption within sub-basin in relation adjacent sub-basins),
- to keep resources in use (e.g., optimise value generated in the interfaces of water system with other systems, namely by the recovery of materials from treated wastewaters),
- to regenerate natural capital (e.g., by improving environmental flows by reducing consumptive and non-consumptive uses of water and/or ensuring minimum disruption to natural water systems from human interactions and use).

