

# **AQUARES Activity**

## **A3.2:**

### **“Interregional workshop on water reuse technology and standards”**

**INPUT STUDY WITH THEMATIC  
AND ORGANISATIONAL  
GUIDELINES FOR WORKSHOP ON  
HOW TO APPLY APPROPRIATE  
STANDARDS TO WATER REUSE**

Prepared by the Water Board of Oldenburg and East  
Frisia (OOWV)



**OOWV**

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## 1 Introduction

AQUARES is an Interreg Europe project aiming to improve water efficiency policies by supporting public authorities in initiating efforts and sharing experiences so as to a) identify viable strategies to utilise water reuse to confront inefficient uses of water, b) make the most of EU financing tools, and c) promote public dialogue to address conflicting interests. AQUARES is expected to achieve its goals by a) increasing the capacity of public administrations to effectively support water reuse, b) assisting to unlock financial resources to support the development of projects related to water efficiency and the improvement of water management bodies, and c) increasing awareness and consensus building among water providers, the workforce, and citizens to support measures for water reuse.

AQUARES Activity A3.2 “Interregional workshop on water reuse technology and standards” comprises the realisation of two interregional workshops. FLA has organised a workshop on the application of appropriate water reuse technologies in Italy.

This input paper provides background information in support of the interregional workshop on water reuse standards, to be organised by the Water Board of Oldenburg and East Frisia (OOWV) and be held in Brake (Unterweser), Germany, on March 3-4, 2020.

The main objective of the workshop is to bring together representatives of regional and local public administrations and members of stakeholder groups to exchange experiences on how to apply the appropriate water reuse standards across the agricultural, industrial, urban and recreational sectors of each region.

The input paper is outlined as follows: Section 2 presents the added value of the project’s interregional workshops and the workshop on water reuse standards in particular. Section 3 offers the thematic background for the interregional workshop. Section 4 outlines indicative thematic areas to be covered by the workshop along with topics for discussion. Section 5 focuses on organisational aspects of the workshop. Finally, Section 6 provides instructions for drafting the workshop’s summary report.

## 2 Added value of AQUARES workshops

Exchange of experience through workshops is an interregional learning process that contributes greatly to generating the expected policy change in the participating regions. The generation of new knowledge at territorial level relies on multi-actor networks/communities, in which key stakeholders and policy makers come together to find solutions and answers to various problems associated with policy development.

The Interreg Europe programme suggests that knowledge and expertise sharing should be an indispensable component of the efforts of regional authorities to build capacity and drive sustainable policy development. The co-production of knowledge and mutual understanding constitutes a co-created and sustained process, where various partners bring different knowledge, information and ideas to the table. The consultation process ends up yielding added value for all parties involved; preventing inter alia the duplication of efforts and waste of resources.

During interregional workshops, project partners are provided with the opportunity to:

- Gain insights and understanding of the political priorities and initiatives in the field,
- Identify challenges and needs to be addressed at the action plans implementation phase,
- Harmonize their perceptions regarding specific themes related to the project,
- Ensure the participation of key stakeholders in the development and facilitation of action plans.

## 2.1 AQUARES interregional workshops

The AQUARES project foresees the organisation of four (4) interregional workshops to promote interregional learning and capacity building, as presented in the following table:

Table 1: AQUARES workshops

Activity	Title	Host	Country	Semester
A3.1	Interregional workshop on how to plan and unlock public and private investments	EWA	Malta	Semester 2
A3.2	Interregional workshop on water reuse technologies	FLA	Italy	Semester 2
A3.2	Interregional workshop on water reuse standards	OOWV	Germany	Semester 4
A3.5	Interregional EU-level workshop for public authorities on water reuse policy and practices transfer	MURCIA-GDW	Spain	Semester 6

The interactions and discussion to take place during interregional workshops will enable project partners to a) assess the effectiveness of regulation and practices with regards to monitoring, assessing and ensuring compliance with water reuse standards currently in place in their respective regions, b) discuss the application of water reuse standards in a comparative manner taking into consideration regulatory and geographical contexts, c) harmonize their perceptions regarding specific themes related to the project, and d) contribute to policy development taking into account regional specificities.

## 2.2 Interregional workshop on water reuse standards

The Water Board of Oldenburg and East Frisia (OOWV) will organise and host a two-day workshop for relevant stakeholders and representatives of regional authorities to be held in Brake (Unterweser), Germany, on March 3-4, 2020 (Semester 4). The workshop will focus on the application of appropriate water reuse standards and managing water quality across the agricultural, industrial, urban and recreational sector in the project’s regions and beyond.

Following the organisation of the interregional workshop, OOWV will draft a summary paper presenting the main findings and conclusions of the event. Each project partner will organise an internal debriefing meeting to disseminate the activity’s results and diffuse the knowledge acquired during the workshop. Furthermore, the summary paper will be used to provide input for the development of the partners’ action plans aiming to improve the policy instruments addressed by the project (AQUARES activity A5.1).

Table 2: Structure of AQUARES workshops



### 3 Thematic background

#### 3.1 About water reuse standards

Water reuse is defined as the planned use of treated wastewater **meeting specific water quality criteria for a beneficial purpose**. Water reclamation entails treatment or processing of wastewater taking place individually or combined to make it reusable with definable treatment reliability and meeting appropriate water quality criteria. **The intended use of reclaimed water is key in order to determine the quality criteria, or standards, the water needs to meet upon treatment**. Table 3 presents the main applications of reclaimed water on a global level.

Table 3: Main categories of water reuse applications

CATEGORY	EXAMPLES
<b>URBAN USES</b>	Irrigation of public parks, sporting facilities, private gardens, roadsides Street sweeping Fire fighting
<b>AGRICULTURAL USES</b>	Irrigation of food crops commercially & not commercially processed Irrigation of pasture for milking animals and ornamental flowers Aquaculture
<b>INDUSTRIAL USES</b>	Processing and boiler feed water Cooling water Recirculating cooling towers Washdown water
<b>RECREATIONAL USES</b>	Golf course irrigation Recreational impoundments Aesthetic impoundments
<b>ENVIRONMENTAL USES</b>	Aquifer recharge Wetlands Stream augmentation Wildlife habitat
<b>POTABLE USES</b>	Aquifer recharge for drinking water augmentation Augmentation of reservoir and stream supplies

Source: NRMCC-EPHC-AHMC, 2006; USEPA, 2012 in Alcalde-Sanz & Gawlik, 2014

Each reclaimed water use corresponds to appropriate water quality standards which are further defined by specific criteria<sup>1</sup> which are required to be measured in the finished water. Given the number of individual constituents that are potentially present in reclaimed water, water quality criteria are tailored to demonstrate the microbial and chemical safety of the reclaimed water (Merrett, 2004).

Water quality standards for various water reuse practices have been developed and adopted by various countries or states. These differ depending on regional conditions and in the way how specific reuse practices are executed. General reference guidelines for water reuse have been developed by various international organisations including:

- the World Health Organization (WHO, 2006)<sup>2</sup>,
- the United Nations Environment Programme (UNEP, 2011)<sup>3</sup>,
- the International Organization for Standardization (ISO)<sup>4</sup>, and
- the Food and Agriculture Organization (FAO, 1994)<sup>5</sup>.

The guidelines available are very well structured and offer information on several aspects of water reuse. The main requirements are elaborated in Table 4.

Table 4: Main requirements of water reuse specified in international guidelines

ASPECTS	DESCRIPTION
<b>Water reuse applications</b>	Specific categories of potential water reuse applications, such as urban reuse (restricted and non-restricted), agricultural reuse (food crops, non-food crops), aquifer recharge for drinking water augmentation, landscape irrigation, environmental enhancement, and other non-potable uses.
<b>Treatment processes</b>	Establishment of the required treatment methods for each reuse application in order to comply with the water quality standards. These methods can be secondary treatment processes (e.g., activated sludge including

<sup>1</sup> Namely the individual organic and inorganic constituents present in a water sample, the microbiological content of the samples, and other bulk measures (e.g., biochemical oxygen demand, total suspended solids, total dissolved solids, pH).

<sup>2</sup> See: [https://www.who.int/water\\_sanitation\\_health/sanitation-waste/wastewater/wastewater-guidelines/en/](https://www.who.int/water_sanitation_health/sanitation-waste/wastewater/wastewater-guidelines/en/)

<sup>3</sup> See:

[http://wedocs.unep.org/bitstream/handle/20.500.11822/6623/11wg357\\_inf9\\_eng.pdf?sequence=1](http://wedocs.unep.org/bitstream/handle/20.500.11822/6623/11wg357_inf9_eng.pdf?sequence=1)

<sup>4</sup> See: <https://www.iso.org/committee/4856734.html>

<sup>5</sup> See: <http://www.fao.org/3/T0234E/T0234E00.htm>

ASPECTS	DESCRIPTION
	biological nutrient removal), filtration (e.g. sand filtration), disinfection (e.g., chlorination, UV irradiation), and advanced treatment processes (e.g. activated carbon adsorption, membrane filtration).
<b>Water quality criteria</b>	Establishment of standards for microbiological (e.g., bacteria, protozoa, viruses, helminths), chemical (e.g., BOD, total organic carbon, minimum chlorine residual), and physical parameters (e.g. pH, turbidity). For potable reuse applications, also drinking water standards have to be met. These quality standards usually apply at the point of discharge of the reclamation facility.
<b>Water quality monitoring</b>	Specifying water quality parameters and frequency to be monitored, depending on the use of the water (e.g., pH: weekly; turbidity and residual chlorine: continuously; <i>E. coli</i> : daily).
<b>On-site preventive measures</b>	Implementation of preventive measures to be established at the point of use to reduce health and environmental risks in combination with the treatment processes, according to the multiple barrier approach (e.g., drip vs. spray irrigation; set-back to drinking water sources; restricting public access during irrigation).
<b>Environmental monitoring</b>	Monitoring the state of environmental matrices potentially affected by the use of reclaimed water (e.g., soil, groundwater, biota).
<b>Communication strategies</b>	Establishment of effective consultation and communication strategies to promote stakeholders' understanding and acceptance of water reuse practices (e.g., policymakers, end-users, the public).

Source: Alcalde-Sanz & Gawlik, 2014

### 3.2 The regulatory framework on water reuse standards

Despite a large number of water reuse projects and their long-term track record of successful operation in various parts of the world, including the United States, Australia, or Israel, water reuse practices have not been as widespread in the EU, where only 2.4 % of treated wastewater effluents are reused. This is mainly due to the lack of a supportive and coherent policy framework and misperceptions regarding the safety of reclaimed water.

The ‘Proposal for a Regulation of the European Parliament and of the Council on minimum requirements for water reuse’<sup>6</sup>, adopted in May 2018 and revised in February 2019, aspires to contribute to the mitigation of water scarcity while maintaining “a high level of protection for consumers, workers and any other exposed public as well as for the environment” and building confidence in water reuse practices. However, several EU member have their own standards for water reuse established through their national legislation, including uses beyond agricultural irrigation (see Table 4).

Table 4: Water reuse regulations proposed by the EU and legislation adopted in selected EU member states

REGULATORY DOCUMENT	USES FORESEEN
<b>EU PROPOSAL FOR A REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON MINIMUM REQUIREMENTS FOR WATER REUSE - COM(2018)337</b>	<b>Agricultural irrigation</b> including: i) food crops intended for raw or unprocessed human consumption ii) processed food crops (crops which are intended for human consumption not to be eaten raw but after a treatment process) iii) non-food crops (industrial, energy, and seeded crops)
<b>ITALY MINISTRY DECREE 185/2003</b>	(a) <b>Agricultural irrigation</b> of crops (food and non-food); <b>landscape irrigation</b> (green areas, parks, and sport fields) (b) <b>Urban non-potable uses</b> (including street sweeping, heating or cooling systems, dual networks, and toilet flushing) (c) <b>Industrial uses</b> (including processing, washing, and thermal cycling as well as firefighting; contact between the recycled water and food or pharmaceutical products and cosmetics is not permitted)

<sup>6</sup> [https://ec.europa.eu/info/law/better-regulation/initiatives/com-2018-337\\_en](https://ec.europa.eu/info/law/better-regulation/initiatives/com-2018-337_en)

REGULATORY DOCUMENT	USES FORESEEN
<p><b>SPAIN</b> <b>ROYAL DECREE 1620/2007</b></p>	<p>(a) <b>Urban uses</b> (including garden irrigation, street sweeping, firefighting, and internal uses such as toilet flushing)            (b) <b>Irrigation of agricultural crops</b> (with or without restrictions) and <b>use in aquaculture</b>            (c) <b>Industrial uses</b> (including cooling towers, evaporative condensers and as process and cleaning water in food industry)            (d) <b>Leisure</b>            (e) <b>Environmental applications</b> (including aquifer recharge, forest irrigation and wetlands maintenance)</p>
<p><b>GREECE</b> <b>JOINT MINISTERIAL DECISION</b> <b>145116/2011</b></p>	<p>(a) <b>Urban uses</b> (including landscape irrigation, recreational uses, car washing, and firefighting)            (b) <b>Irrigation of crops</b> and commercial nurseries (with or without restrictions)            (c) <b>Industrial uses</b> (including cooling, boiler feeding, and processing)            (d) <b>Aquifer recharge</b> of aquifers not used for potable supply</p>

Apart from allowable uses, EU member state regulations exhibit significant differences regarding chemical quality requirements, types and chosen thresholds of indicator organisms, treatment requirements, and on-site measures.

In addition to criteria regarding microbiological and chemical constituents in wastewater, national regulations may include sampling frequency and analyses and measures to be taken in the occurrence of a hazardous event or process failure.

### 3.3 Risk management framework

Water reuse projects can be managed following the risk management framework. This framework comprises a systematic evaluation of the reclaimed water system, the identification of hazards and hazardous events, the assessment of risks, and the development and implementation of preventive strategies to properly manage the risks. A risk management framework is “a systematic management tool that consistently ensures the safety and acceptability of water reuse practices” (Alcalde-Sanz & Gawlik, 2017). The framework ought to be “sufficiently flexible” in order to be applicable to every type of water reuse system, regardless of their size or complexity.

The risk management framework combines a number of interrelated elements summarized in Table 5.

Table 5: Elements of risk management frameworks for water reuse

ELEMENT	DEFINITION
ASSEMBLY OF A RISK MANAGEMENT* TEAM	<b>Risk management:</b> The systematic evaluation of the reclaimed water system, the identification of hazards and hazardous events, the assessment of risks, and the development and implementation of preventive strategies to properly manage the risks. This systematic evaluation is performed by a team of qualified experts that are capable of assessing the various elements of the entire water reuse system and its health implications.
DESCRIPTION OF THE WATER REUSE SYSTEM	The aim of this element is to provide a detailed understanding of the entire water reuse system from source to end use.
IDENTIFICATION OF HAZARDS* AND HAZARDOUS EVENTS, AND RISK ASSESSMENT	<b>Hazard:</b> A biological, chemical, physical or radiological agent that has the potential to cause harm.

ELEMENT	DEFINITION
DETERMINATION OF PREVENTIVE MEASURES TO LIMIT RISKS*	<b>Risk:</b> The likelihood of a hazard causing harm in exposed populations in a specified time frame, including the magnitude of that harm.
DEVELOPMENT OF OPERATIONAL PROCEDURES	<b>Operational monitoring:</b> The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a control measure is operating within design specifications (e.g., meeting effluent turbidity standards). Emphasis is given to monitoring parameters that can be measured quickly and easily and that can indicate if a process is functioning properly. Operational monitoring data should help managers to make corrections that can prevent hazard to occur.
VERIFICATION* OF THE WATER QUALITY AND THE RECEIVING ENVIRONMENT	<b>Verification:</b> The application of methods, procedures, tests and other evaluations, in addition to those used in operational monitoring, to determine compliance with the system design parameters and/or whether the system meets specified requirements (e.g., microbial water quality standards such as <i>E. coli</i> or helminth eggs in the effluent; microbial or chemical analysis of irrigated crops).
VALIDATION* OF PROCESSES AND PROCEDURES	<b>Validation:</b> Testing the system and its individual components to prove that it is capable of meeting the specified targets (i.e., microbial reduction targets). Should take place when a new system is developed or new processes are added.

<b>ELEMENT</b>	<b>DEFINITION</b>
MANAGEMENT OF INCIDENTS AND EMERGENCIAS	This element deals with developing response plans to incidents or emergencies that can compromise the quality of reclaimed water.

Source: Alcalde-Sanz & Gawlik, 2017 & WHO, 2006<sup>7</sup>

Monitoring and data assessment are central for various elements of water reuse risk management frameworks and critical for meeting the specific water reuse standards. It should be pointed out that the application of water reuse in different sectors (e.g., irrigation, industrial, urban) calls for the development of an appropriate and tailored risk management framework. Furthermore, the risk management frameworks should cover the entire spectrum of any water reuse system, including the storage and distribution systems (Alcalde-Sanz & Gawlik, 2017). For instance, the Spanish Royal Decree foresees monitoring reclaimed water not only upon its exit from the treatment facilities but also at every point of delivery to the end-user (Paranychianakis et al., 2014).

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<sup>7</sup> Fields containing asterisks (\*) refer to definitions by WHO.

## 4 Suggested thematic areas and discussion topics

This section offers an initial suggestion on the topics to be presented and discussed during the AQUARES interregional workshop on water reuse standards, based on the thematic background presented in Section 3 as well as other activities developed by the AQUARES project.

The term ‘thematic areas’ refers to a broad theme and the term ‘topics’ refers to the sub-themes in which the core theme can be divided.

Three distinct thematic areas have been identified for the interregional workshop, namely:

- The regulatory framework for water reuse standards
- The risk management framework for water reuse applications
- Best practices for monitoring, quality control, and ensuring compliance with water reuse standards

This list should be considered a suggestion. It is subject to changes and/or updates (if necessary), upon review and feedback from the host organisation (OOWV).

Overall, the presentations and discussions should cover the entire spectrum of water reuse standards and risk management approaches, providing information and creating room for discussion with added value for the optimisation of monitoring and ensuring compliance with the appropriate water reuse standards across different sectors of the project’s regions and beyond. Within this context, the opportunity exist to go beyond a descriptive approach and embrace during the workshop the interconnection between the identified thematic areas.

#### 4.1 Thematic area 1: The Regulatory framework for water reuse

The opening session will present recent EU and national policy developments, and convene participants to debate emerging policy issues regarding water reuse standards and risk management frameworks to assure water quality and to harmonize monitoring requirements across various sectors (i.e., agricultural, industrial, urban and recreational).

The primary purpose will be to stress the need for coordinated action on establishing adequate water quality standards and criteria for water reuse applications.

Suggested topics to be discussed:

1. The regulatory frameworks in place.
2. The sectors of water reuse regulated.
3. The recent developments with regards to water reuse regulation.
4. The need for improvement of the regulatory framework.

## 4.2 Thematic area 2: The Risk management framework for water reuse

The second session will provide an overview of the key elements of the risk management framework for a given water reuse project that must be in place to assure both reliable operation and safe water quality as well as ensuring compliance with regulatory requirements.

A discussion will follow in which participants will be able to share their own experiences with implementing risk management frameworks. The primary purpose of this session will be to offer the workshop participants the opportunity to develop a good understanding on the best available methods to establish effective risk management of a water reuse project.

### Suggested topics to be discussed:

1. Risk management frameworks for water reuse in place in the partnership regions per intended use (e.g., agricultural, urban, and industrial).
2. The challenges in different regions related to the establishment of risk management frameworks for water reuse.
3. Best practices and approaches to establish risk management frameworks

### 4.3 Thematic area 3: Best practices for monitoring, quality control, and ensuring compliance with water reuse standards

The third session will provide an overview of best practices for monitoring, quality control, and ensuring compliance with water reuse standards. The session will include the findings of AQUARES activity A1.4, which aims to identify and assess existing practices in place.

The assessment will be based upon several criteria pertaining to the monitoring framework (e.g., integration with other water reuse regulations, stakeholders' involvement in the development of the standard), the quality and elements of monitoring (e.g., effectiveness of implementation, data transparency and administrative efficiency) and the supporting elements (i.e., trained personnel; adequate lab equipment).

This activity will extend to water reuse in all sectors in the regions of the partnership. The activity will result in an evaluation report, to be authored by OOWV, based upon desktop research conducted by all project partners.

An open discussion will follow the presentation of the activity's main findings aiming to facilitate an exchange of experience with regards to successful water reuse monitoring practices among the workshop participants.

#### Suggested topics to be discussed:

1. A detailed description of identified best practice case studies.
2. The main challenges associated with monitoring, quality control, and ensuring compliance with water reuse standards.
3. Suggestions for the improvement of monitoring, quality control, and ensuring compliance with water reuse standards.

## 5 About the interregional workshop on water reuse standards

### 5.1 Organisational issues

The Water Board of Oldenburg and East Frisia (OOWV) will host the interregional thematic workshop on water reuse standards in Brake (Unterweser), Germany on March 3-4, 2020. The workshop will last two days and all AQUARES partners will participate, with members of their stakeholder groups and external experts.

The working language of the workshop will be English, participants will, thus, be expected to have a sufficient knowledge of the language to be able to fully participate in discussions.

A Steering Group meeting will take place in the same venue before the start of the interregional workshop or following the completion of the workshop proceedings.

Table 5: Interregional workshop details

#### AQUARES Interregional workshop on water reuse standards

<b>Thematic focus</b>	Water reuse standards
<b>Host organisation</b>	Water Board of Oldenburg and East Frisia (OOWV)
<b>Date</b>	March 3-4, 2020
<b>Location</b>	Oldenburg, Germany
<b>Language</b>	English
<b>Number of participants</b>	30 – 40 participants
<b>Type of participants</b>	Regional authorities' officials, stakeholders, external experts
<b>Format</b>	Oral presentations, round-table discussions, interactive exercises
<b>Contact details</b>	<p>Kerstin Krömer  OOWV  Georgstraße 4  26919 Brake  Tel.: 04401 916-3834  E-Mail: <a href="mailto:kroemer@oowv.de">kroemer@oowv.de</a></p> <p>Silke Mollenhauer  Tel.: 04401 916-3302  Mob.: 0171-910 17 22  E-Mail: <a href="mailto:mollenhauer@oowv.de">mollenhauer@oowv.de</a></p>



## 5.2 Participation

According to the AQUARES Application Form two (2) representatives of each project partner, accompanied by approximately two (2) regional stakeholders are expected to attend the interregional thematic workshop to be held in Brake (Unterweser), Germany.

The target audience includes individuals, organisations and bodies that can be impacted by the project outcomes and are interested in utilising project outputs to support the application of appropriate water reuse requirements. ANNEX I provides a list of key regional stakeholders per project partner as they appear in the project's Application Form. Project partners are expected to update the list by including other stakeholders identified.

This is only an tentative pool of regional stakeholders identified at an initial stage (i.e. project development phase). During the project lifecycle, partners have managed to expand their network of contacts, adding new stakeholders and interested institutions across Europe such as regional development agencies, higher education institutes and research centres, chambers of commerce, professional associations, and public authorities.

In any case, AQUARES partners are advised to invite any other organisation or bodies involved in the decision making process and/or interested in the application of the appropriate water reuse requirements across the agricultural, industrial, urban and recreational sector of each region.

### 5.3 Format

The interregional workshop may include three different types of activities to facilitate the transfer/exchange of knowledge and capacity building among regional authorities' representatives, namely: a) presentations, b) roundtable discussions, and c) interactive exercises.

Presentations will provide an opportunity for participants to develop a better understanding on requirements of water reuse to ensure safe water qualities, regulations that govern water reuse, and monitoring frameworks that need to be in place in order to safeguard their compliance. The presentations will be delivered by guest speakers invited by the hosting organisation (OOWV). The guest speakers should be field experts from various professional backgrounds (e.g., academics, policy makers, business executives, and researchers) conveying both theoretical and empirical knowledge on the topics under examination in order to cover all the aspects affecting policy making for water reuse.

Round table discussions among the workshop participants will follow the completion of each presentation. This will allow participants to discuss the issues under examination in-depth and interact with each other, promoting networking and equal participation/contribution, triggering spontaneous conversations and allowing for faster decisions.

Finally, it is recommended that the workshop should include a structured set of facilitated activities (in the form of exercises) to stimulate participants' creativity and knowledge sharing through collaborative working. These exercises will enable regional authorities' participants to come up with new ideas for policy measures to set appropriate water reuse requirements for each intended use (e.g., irrigation, industrial, urban etc.), monitor their application and ensure compliance.

## 5.4 Indicative Agenda



**OOVV**



### **AQUARES A3.2: Interregional workshop on water reuse standards**

Oldenburg, Germany

<b>14:30-18:30</b>	<b>DAY 1</b>
14:30 – 15:00	Arrivals and registration
15:00 - 15:15	Opening speech
15.15 – 15.30	Objectives of the workshop / Overview of the agenda
15:30 – 16:30	Thematic area 1: The regulatory framework of water reuse - Presentation of topic - Questions and answers
16:30 – 16:45	Coffee break
16:45 – 18.00	Thematic area 1: The regulatory framework for water reuse standards - Interactive session (roundtable discussion or interactive exercises) - Wrap up of thematic area 1: Presentation of the main conclusions and findings of the interactive session
18:00 – 18:30	Conclusions from Day 1
<b>09:30-17:00</b>	<b>DAY 2</b>
09:30 – 11:30	Thematic area 2: The risk management framework for water reuse - Presentation of topic - Questions and answers - Interactive session (roundtable discussion or interactive exercises) - Wrap up of thematic area 2: Presentation of the main conclusions and findings of the interactive session

11:30 – 11:45	Coffee break
11:45 – 13:00	<p>Thematic area 3: Best practices</p> <ul style="list-style-type: none"> <li>- Presentation on best practices for monitoring, quality control, and ensuring compliance with water reuse standards</li> <li>- Policy and practices suggestions</li> <li>- Questions and answers</li> </ul>
13:00-14:15	Networking lunch
14:15 – 15:30	<p>Thematic area 3: Best practices</p> <ul style="list-style-type: none"> <li>- Interactive session (roundtable discussion and/or interactive exercises)</li> </ul>
15:30-15:45	Coffee break
15:45-16:15	- Wrap Up of thematic area 3: Presentation of the main conclusions and findings of the interactive session
16:15-17:00	<ul style="list-style-type: none"> <li>- Conclusions from Day 2</li> <li>- End of the Interregional workshop.</li> </ul>

## 6 Guidelines for the summary report

The final stage of Activity A3.2 entails the preparation of a summary report by the hosting partner (OOWV). The summary report is considered the key output of activity A3.2. The summary report will present the final outcomes of the workshop and will be used by project partners as the main input for diffusing the lessons learned within their organisations.

Summary reports are short written communication documents, which aim to convey information related to the discussions and activities that took place during the workshop.

The summary report should:

- Document the interventions of participants and the overall discussion within each session of the interregional thematic workshop.
- Draw conclusions from debate and interactive exercises in each session of the workshop.
- Briefly present policy recommendations for the development of action plans based on the interventions of the participants and the conclusions drawn from the discussion.
- Present an evaluation of the workshop based on the comments and feedback from participants (Feedback Form).
- Present the metrics of the workshop (number of registered participants, number of completed evaluation questionnaires, and number of participants from each category of the target groups).

The following guidelines have been developed to provide assistance and guidance to the host organisation on how to summarise and present the main conclusions drawn from the workshop (in the format of a summary paper), in order to facilitate the integration of key policy recommendations into regional action plans. In particular, the summary report should be drafted as follows:

**Step 1:** Develop short summaries for each session of the workshop. The summaries should include a) the context and objectives of the session, b) the main points from oral presentations/keynote speeches, c) key argumentation from the interventions of participants, and d) conclusions and findings extracted from the overall discussion and interactive exercises.

**Step 2:** Review the Feedback Forms. The author should summarise the key ideas (as drawn from the forms completed by workshop participants), with regards to the themes / topics of the workshop. It is highly recommended that any idea (i.e. policy advice) that could contribute to the improvement of regional policies in the field should be integrated into regional action plans.

**Step 3:** Present the main conclusions with regards to the interregional workshop's main themes, namely:

- The regulatory framework for water reuse standards
- The risk management framework for water reuse
- Best practices for monitoring, quality control, and ensuring compliance with water reuse standards

**Step 4:** Juxtapose the key arguments / conclusions drawn from the workshop with any relevant results and findings from AQUARES thematic studies and guides on similar policy aspects. Identify convergences and divergences between findings.

**Step 5:** Provide guidelines (in the form of policy recommendations) on how to utilise the key conclusions drawn to design policy measures and action plans to promote the appropriate monitoring, quality control and compliance with water reuse standards. The guidelines on how to integrate the lessons learnt in the AQUARES action plans, including any policy advice that may derive from the analysis of Feedback Forms, should be described in a way that is simple, brief, and easy to follow.

**Step 6:** Draft the summary report. The workshop summary report should be drafted in a clear and concise way, focusing on the conclusions drawn from knowledge sharing and consultation processes that took place during the workshop sessions.

## References

- Alcalde-Sanz, L., Gawlik, B. M. (2014) Water Reuse in Europe Relevant guidelines, needs for and barriers to innovation - A synoptic overview. European Commission, Joint Research Centre Institute for Environment and Sustainability. ISBN 978-92-79-44399-2, doi: 10.2788/29234. Available at: <http://publications.jrc.ec.europa.eu/repository/handle/JRC92582>
- Alcalde-Sanz, L. & Gawlik, B.M. (2017) Minimum quality requirements for water reuse in agricultural irrigation and aquifer recharge - Towards a legal instrument on water reuse at EU level. European Commission, Joint Research Centre Institute for Environment and Sustainability. ISBN 978-92-79-77175-0, ISSN 1831-9424, doi:10.2760/804116. Available at: [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC109291/jrc109291\\_online\\_08022018.pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC109291/jrc109291_online_08022018.pdf)
- Merrett, S. (2004). Integrated Water Resources Management and the Hydrosocial Balance, *Water International*, 29:2, 148-157, DOI: 10.1080/02508060408691764
- Paranychianakis, N. V., Salgot, M., Snyder, S. A., & Angelakis, A. N. (2014). Water Reuse in EU States: Necessity for Uniform Criteria to Mitigate Human and Environmental Risks. *Critical Reviews in Environmental Science and Technology*, 45(13), 1409–1468. doi:10.1080/10643389.2014.955629
- WHO (2006). Guidelines for the safe use of wastewater, excreta and greywater - Volume 1. Policy and regulatory aspects. ISBN: 92 4 154682 4. Available at: [https://www.who.int/water\\_sanitation\\_health/publications/gsuweg1/en/](https://www.who.int/water_sanitation_health/publications/gsuweg1/en/)

## Annex I

The following table includes the key regional stakeholders per project partner as included in the Application Form.

Project partners are expected to update the table with other stakeholders identified.

Key regional stakeholders per project partner

PARTNER	COUNTRY	KEY STAKEHOLDERS
<b>MURCIA-GDW</b>	 ES	<p>Regional Entity of Sanitation and Wastewater Treatment-ESAMUR</p> <p>Territorial Information System of the Region of Murcia-SITMURCIA</p> <p>Municipal Company for Water and Sanitation-EMUASA</p> <p>Ecological Agriculture Council of the Region of Murcia-CAERM</p> <p>Murcia Federation of Agricultural Cooperatives-FECOAM</p> <p>Murcia Federation of Municipalities-FMRM</p>
<b>SSW</b>	 EL	<p>Ministry of Economy and Development-MED</p> <p>Athens Water Supply and Sewerage Company-EYDAP</p> <p>Central Union of Municipalities of Greece-KEDE</p> <p>Managing Authority of Operational Programme Transport Infrastructure, Environment and Sustainable Development - EPYMEPERAA</p> <p>University of Crete-UoC</p>
<b>LODZKIE</b>	 PL	<p>Technology Transfer Center University of Łódź-UoLTTC</p> <p>Technology Transfer Center Technical University in Łódź-TUoLTTC</p> <p>Łódź Regional Development Agency-LRDA</p>

	Association of Polish Cities-APC	
<b>RRAPK</b>		<p>CZ Ministry of the Environment of the Czech Republic-MECZ</p> <p>Region of Pardubice-RoP</p> <p>University of Pardubice-UoP</p> <p>Water and Sewerage Company of Pardubice-WSCP</p> <p>Agrarian Chamber of the Pardubice Region-ACPR</p>
<b>EWA</b>		<p>MT Department for Local Government-DLG</p> <p>University of Malta – Department of Earth Systems-UMDES</p> <p>Malta Chamber of Commerce-MCoC</p> <p>Water Services Corporation-WSC</p> <p>Malta Water Association-MWA</p> <p>Malta Enterprise-ME</p>
<b>FLA</b>		<p>IT Lombardy Region-RoL</p> <p>Italian Ministry of the Environment-IME</p> <p>Italian Institute for Environmental Protection and Research-ISPRA</p> <p>Interregional Agency for the Po river-AIPO</p> <p>Regional Agency for the Environmental Protection-ARPA</p> <p>Regional Agency for Agricultural and Forest Services-ERSAF</p>
<b>OWV</b>		<p>DE Lower Saxon State Chancellery-LSSC</p> <p>Lower Saxony Ministry for Environment, Energy and Climate Protection-LSMEECP</p> <p>University of Osnabrück-UoO</p>

	<p>Jade University for Applied Science-JUAS</p> <p>Metropolregion Nordwest-MRNW</p> <p>Weser-Ems Regional Development Agency-WERDA</p> <p>Lower Saxony Chambers of Commerce and Industry-LSCoC</p> <p>Innovation Network Lower Saxony-INLS</p>
<p><b>BALTIC COASTS</b></p>	<p> LV</p> <p>Ministry of Environmental Protection and Regional Development - MEPRD</p> <p>Investment and Development Agency of Latvia - IDAL</p> <p>University of Latvia - UoL</p> <p>Baltic Environmental Forum Group - BEFG</p> <p>Latvian Chamber of Commerce and Industry - LCCI</p> <p>Investment and Development Agency of Latvia Business Incubators - IDALBI</p> <p>Ventspils High Technology Park - VHTP</p> <p>CLEANTECH LATVIA - CTL</p> <p>ALTUM</p>
<p><b>TREBNJE</b></p>	<p> SI</p> <p>Ministry of the Environment and Spatial Planning (MESP)</p> <p>Inter-municipal Development Centre of the Municipalities of Grosuplje, Ivančna Gorica and Trebnje (IDC-GIGT)</p> <p>Institute for Water of the Republic of Slovenia (IWRS)</p> <p>National Institute of Chemistry (NIC)</p> <p>Development Centre Novo Mesto - Regional Development Agency for the South East Slovenia Statistical Region (DCNM)</p> <p>Communal Company Trebnje (CCT)</p>

## Annex II

### Interregional Workshop Feedback Form

At the end of the workshop, if deemed useful, the organiser may use the template below to obtain additional feedback and policy learning input from attendees.

Country of Origin:

Organisation & position:

Days of attendance (1<sup>st</sup>, 2<sup>nd</sup>, both):

#### Part I: Evaluation of the Workshop

- Please answer the following questions, relevant to different aspects of the interregional workshop, by rating on a 1 to 5 scale with 1 corresponding to “Poor” or the lowest, most negative impression, 2 to “Satisfactory”, 3 to “Good”, 4 to “Very Good” and 5 to “Excellent” or the highest impression.

Statements	Rating
How would you rate this workshop with regards to relevance to your work/position?	
How would you rate the quality of the speakers?	
How would you rate the quality of the discussions held during each session?	
How would you rate this workshop as an opportunity to expand your knowledge and view with regards to the application of appropriate water reuse standards?	
How would you rate the organisation of the workshop (location, facilities, support from organisers, etc.)?	

- Do you expect that the information and analysis obtained through this workshop are of relevance to policymakers in your region/country?

Yes

No

#### Part II: Input on the application of appropriate water reuse standards

- Is there a need for improvement of the regulatory framework pertaining to water reuse standards in your region/country?

Yes

No

4. If so, what are the needs to be addressed?

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5. What do you consider the main challenges associated with monitoring, quality control and ensuring compliance with water reuse standards?

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6. What measures would you propose for the improvement of monitoring appropriate water reuse standards in your region/country?

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## Annex III

List of Attendees Template

*AQUARES A3.2 - Interregional workshop water reuse standards  
Water Board of Oldenburg and East Frisia (OOWV)*

### *List of participants*

#	Full Name	E-mail address	Organisation/Affiliation	Country
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