From Wastewater to Water Security for Prosperity: Accelerating Safe Reuse through Innovation, Community Action and Citizen Engagement

International Ozone Association; Water Europe; Club de Madrid

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ABSTRACT

Water scarcity, climate change, pollution, and growing demands from agriculture are placing unprecedented pressure on water resources worldwide. Safe and sustainable wastewater reuse is increasingly recognized as a strategic solution to strengthen water security, improve resilience, and support economic prosperity. Yet achieving water security requires not only large-scale infrastructure investments and regulatory frameworks, but also community-driven initiatives capable of addressing local needs while larger projects are being planned and implemented.

This side event will explore how advanced water treatment and reuse can transform wastewater from an environmental challenge into a valuable resource. Particular attention will be given to emerging contaminants and antimicrobial resistance (AMR), two critical issues increasingly influencing public health, environmental protection, and trust in water reuse schemes.

Bringing together representatives from the **International Ozone Association**, **European Commission, Water Europe** research institutions, utilities, technology providers, and innovation organizations such as Eurecat, the discussion will highlight how innovation, regulation, scientific evidence, and citizen participation can accelerate the safe deployment of water reuse practices in agriculture and local communities.

The event will showcase recent European experiences, including the implementation of the EU Water Reuse Regulation, advances in oxidation and ozone-based technologies, risk-based approaches for monitoring contaminants of emerging concern, and strategies for mitigating AMR dissemination through water systems.

Special attention will be devoted to the role of the **Cassandra Project**, which demonstrates how small-scale, community-led water initiatives can complement large water infrastructure investments. Through citizen engagement and innovative crowdfunding mechanisms, local communities can directly support practical solutions that address immediate water challenges, strengthen resilience, and create tangible benefits while waiting for larger public investments to materialize.

Participants will explore how bottom-up initiatives originating from the needs of local communities can become catalysts for innovation, social acceptance, and trust in water reuse. By empowering citizens not only as beneficiaries but also as contributors and co-investors, projects such as Cassandra Project illustrate a replicable pathway for accelerating water security actions across Europe and beyond.

The session will address policy frameworks, technological solutions, financing models, and collaborative actions needed to scale both large strategic investments and smaller community-driven interventions, supporting the transition towards a water-smart, pollution-free, and socially inclusive society.

The event aims to generate practical recommendations for integrating water reuse into broader water security, public health, climate resilience, and sustainable development agendas, demonstrating that achieving SDG 6 requires action at every scale, from major regional infrastructure projects to citizen-supported local initiatives that emerge directly from community needs

Agenda

Opening Remarks

Welcome and Introduction
Speakers:
- Cristian Carboni (President, International Ozone Association)
- Durk Krol (Executive Director at Water Europe)
- Moussa Mara (Former Prime Minister of Mali, Club de Madrid)

Key messages:
- Water security requires action at multiple scales.
- Large infrastructure projects and community-led initiatives are complementary, not alternative approaches.
- The role of citizens in accelerating water transition.

Global and Policy Perspective
Water Reuse as a Strategic Pillar for Water Security
Speakers:
- Bernd Gawlik (JRC Water Unit - European Commission)
- Tanja Miskova (Slovenian special envoy to the UN for Water)

Topics:
- Global water scarcity and climate adaptation.
- SDG 6 implementation.
- Lessons from the EU Water Reuse Regulation.
- Building trust and acceptance in reclaimed water.

Scientific and Technical Challenges
Emerging Contaminants and AMR: Ensuring Safe Water Reuse and advanced Treatment Technologies Enabling Safe Reuse
Speakers:
- Cristian Carboni (Leader Expert Group Zero Pollution & Health of Water Europe and International Ozone Association President)
- Prof. Saad Jasim (professor at University of Windsor - Canada; President SJ Environmental Consultants Windsor - Canada; Editor-in-Chief of Ozone News - International Ozone Association)

Topics:
- Climate Change Impacts on Water Source
- PFAS and pharmaceuticals.
- Antimicrobial resistance pathways.
- Cyanotoxins from Harmful Algal Blooms
- Monitoring and risk assessment.
- Implications for public health and agriculture.
- Ozone and Advanced Oxidation Processes.
- Removal of contaminants of emerging concern.
- Operational case studies.
- Technology readiness for large-scale deployment.

Community Innovation Session
From Citizens to Water Stewards: The Cassandra Project Experience
Speakers:

- Richard Elelman (Head of Politics, Eurecat - Centro Tecnológico de Catalunya – Spain; leader of the Cassandra Programme. Co-Leader of the Renaissance Approach to Science-Culture Diplomacy) and Anham Salyani (UNEP - India)

Topics:

- How local communities identify water challenges from the ground up.
- Citizen engagement and participatory innovation.
- Crowdfunding and citizen financing mechanisms.
- Examples of small-scale water projects generating immediate local impact.
- Building social acceptance and ownership of water solutions.

Key message: Citizens are not only users of water services; they can become active investors, innovators, and partners in achieving water security.

High-Level Panel Discussion
How Can We Scale Both Large and Small Water Reuse Solutions?
Panelists:

- Bernd Gawlik (JRC Water Unit – European Commission)
- Tanja Miskova (Slovenian special envoy to UN for Water)
- Durk Krol (Executive Director at Water Europe)
- Eric Wert (Water Quality Research and Development Manager at Southern Nevada Water Authority, USA; Past President of the International Ozone Association)
- Prof. Jaqui Goldin (Extra-Ordinary Associate Professor Anthropology and Water Sciences, Centre for UNESCO Groundwater Western Cape University, South Africa)
- Moussa Mara (Former Prime Minister of Mali, Club de Madrid)

Guiding questions:

- What balance is needed between infrastructure investments and community-led actions?
- How can citizens contribute to financing and implementing water solutions?
- Which technologies are ready for deployment today?
- How do we build trust in water reuse?
- How can local projects become scalable and replicable?

Closing and Call to Action
Speakers: Cristian Carboni (International Ozone Association President)
Towards a Multi-Level Water Security Agenda
Key recommendations:

- Accelerate implementation of safe water reuse projects.
- Support innovation addressing emerging contaminants and AMR.
- Enable citizen participation and community ownership.
- Promote crowdfunding and blended financing for local water initiatives.
- Strengthen cooperation among policymakers, researchers, industry, and citizens.

Final Takeaway
Water security will not be achieved by infrastructure alone. While major investments remain essential, community-driven initiatives such as the Cassandra Project, supported by Eurecat, demonstrate that citizens can help deliver practical, locally relevant solutions today, creating resilience, trust, and impact while larger water projects are being developed