

Webinar Report on Wastewater Reuse
Reimaging Wastewater: Approaches to Circular Economy and Energy Efficiency

May 22, 2025

9:00-10:30 AM CET | 4:00-5:30 PM PST

Summary

A total of 82 participants attended the webinar, including four representatives from WaterLinks, three from Aqua Publica Europea, and the three speakers. The majority of participants were from Europe, followed by attendees from Asia and Africa. The audience was highly engaged, raising questions during the discussion and actively participating in both polls, which were designed to gauge participants' backgrounds and gather feedback.

Participants

No. of Participants Registered	No. of Participants Attended	% Attendance Rate
135	82	61%

The webinar garnered an attendance rate of 61%. In terms of country representation, most participants were from the Philippines, followed by Italy, Greece, and Belgium.

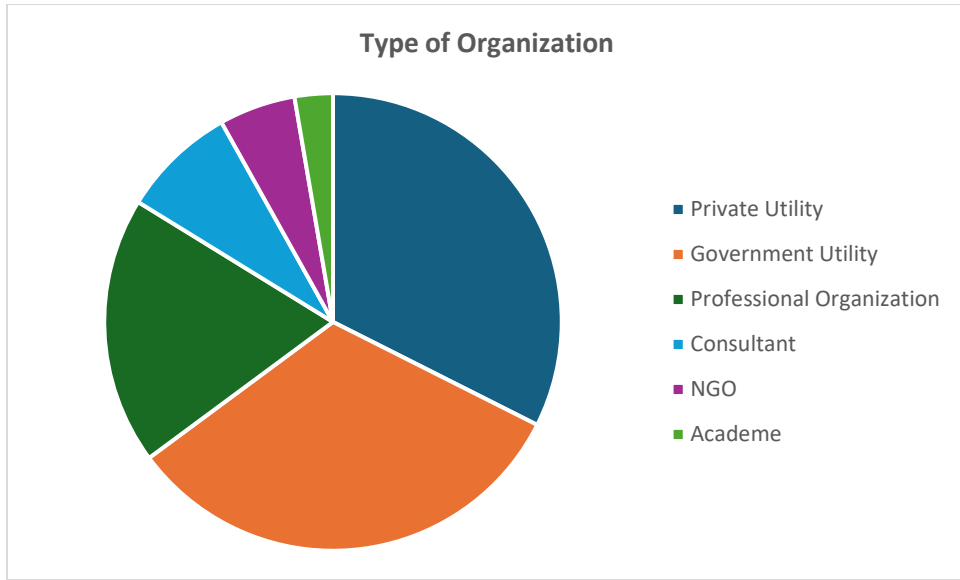
While the turnout was lower compared to the previous two webinars, it is worth noting that most of the participants were from Europe, where utilities are generally more advanced in implementing wastewater reuse programs. One possible reason for the lower participation from Asian utilities is that many are still focused on expanding their water and sanitation services, making the topic of wastewater reuse more of a long-term aspiration than an immediate priority.

Polling

Two polls were conducted during the webinar to gather insights on participant backgrounds and preferences for future topics. Participation varied slightly across questions, as not all attendees responded to every poll. The first poll was conducted before the start of the webinar to understand the audience profile. The second poll, conducted at the end of the webinar, aimed to solicit areas of interest for future sessions.

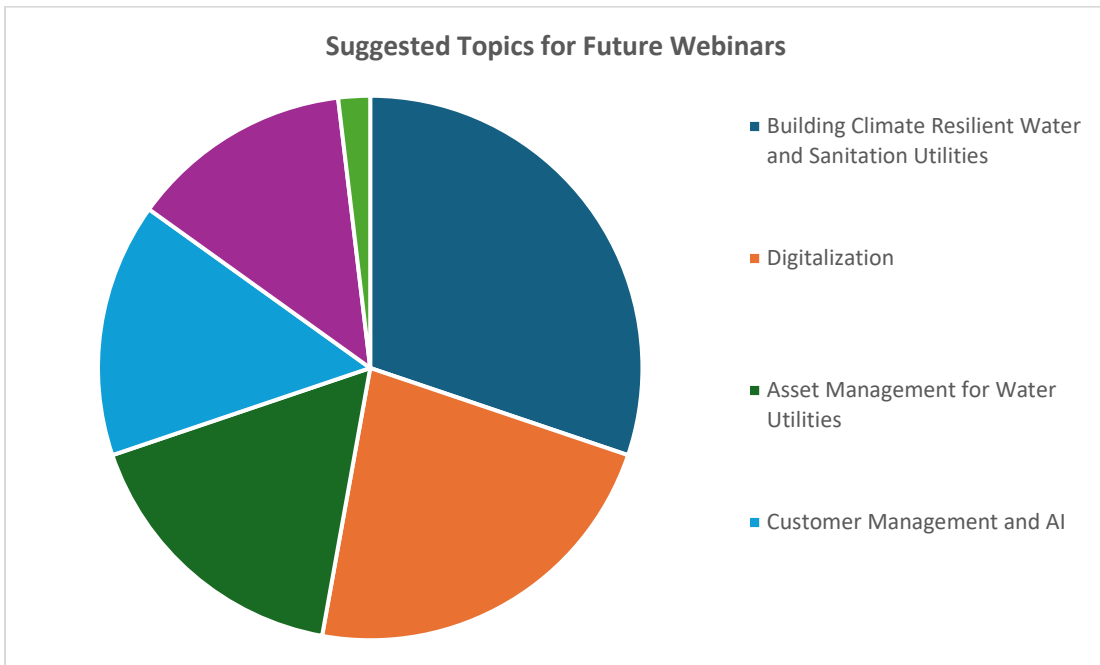
First Poll

The first poll aimed to assess and identify the participants to help speakers tailor their presentations. Participants were asked about the type of organization they represented and their roles within those organizations. Most participants came from government and private utilities, followed by professional organizations, consultants, and NGOs. In terms of roles, more than half of the participants were technical staff, followed by executives. Figure 1 presents the types of organizations participants belong to.



Second Poll

The second poll explored participants' interests for future webinars. Notably, a large number of participants expressed interest in climate-resilient utilities, followed by digitalization, asset management, customer management and AI, and sanitation. The results offer valuable direction for planning knowledge-sharing activities. Figure 2 presents the participants' preferred topics for future webinars.



Summary of Presentations

Aoife Kyne, Bioresources Manager at Uisce Éireann (Irish Water), presented Ireland's National Wastewater Sludge Management Plan and the evolving National Bioresource Strategy. Uisce Éireann operates over 1,000 wastewater treatment plants, with 100% of biosolids reused in agriculture. The approach combines centralized dewatering centers with satellite sludge hubs and incorporates advanced anaerobic digestion and phosphorus recovery. In rural areas, nature-based drying reed beds are used. A key innovation is the deployment of a digital twin model that supports decision-making across asset investment, energy optimization, and carbon reduction.

Andrés Dávila, Regional Manager of Wastewater Treatment Plants of Veolia in Andalusia under Empresa Metropolitana de Abastecimiento y Saneamiento de Aguas de Sevilla (EMASESA), presented the transformation of Seville's wastewater treatment plant into a fully integrated eco-factory. The facility employs anaerobic co-digestion with industrial organics and thermal hydrolysis to maximize biogas output and energy efficiency, achieving 85% energy self-sufficiency. All sludge is sanitized and reused in agriculture. Digitalization plays a critical role in real-time performance tracking, regulatory compliance, and operational transparency. The site also features a composting plant, biofiltration systems, and a photovoltaic installation, making it a benchmark for circular economy implementation.

Brent Cauton, Senior Process Engineer and Water Treatment Plant Head of Maynilad Water Services Inc. (Maynilad), shared their pioneering work on direct potable reuse in Metro Manila, making it one of the first in Asia to explore this advanced form of water reuse. Driven by growing demand and limited freshwater supply, Maynilad designed a multi-barrier treatment system using membrane filtration and disinfection to produce potable-quality water from treated wastewater effluent. Public consultation played a critical role, with acceptance rates reaching 60% among residential users and 75% among commercial users. Maynilad aligns with the Philippine National Standards for Drinking Water (PNSDW) and plans to expand capacity to serve over 600,000 customers by 2029.

Annex A contains copies of the speakers' presentations.

Discussion

During the discussion portion of the webinar, several questions were raised to each of the speakers.

One participant asked Uisce Éireann whether treated sludge is used exclusively in agriculture or if the other sectors, such as construction or energy, are also being considered. They explained that while the primary use of biosolids in Ireland is for agricultural land application, energy recovery is already being achieved through anaerobic digestion, and alternative uses, such as for the cement industry or soil manufacturing, are currently being explored. When asked how Uisce Éireann's digital twin supports decision-making, they elaborated that the system allows them to optimize unit treatment costs, simulate investment scenarios, assess carbon and energy impacts,

centralize asset and operations data, and prioritize projects that deliver the highest environmental and economic value.

EMASESA was asked to clarify the role of digitalization in their wastewater operations. EMASESA emphasized that digitalization is critical for real-time performance monitoring, ensuring regulatory compliance, and enhancing operational transparency. They also noted that the cost of instrumentation and sensors has significantly decreased, making these tools more accessible. In response to a follow-up question on whether their operations align with the European Union's new nutrient recovery and energy neutrality regulations, EMASESA confirmed that their current systems largely comply. However, they noted that full nutrient removal is only essential when water is discharged into natural bodies like rivers. In contrast, when wastewater is reused for agriculture, retaining certain nutrients can actually be beneficial.

Maynilad received several questions concerning their direct potable reuse program. When asked about public acceptance, they shared that market research indicated approximately 60% acceptance among households and 75% among commercial establishments in the targeted areas where the reuse water will be supplied. They added that extensive public consultations helped build awareness and trust. Regarding standards, Maynilad is currently aligned with US EPA guidelines while ensuring compliance with the PNSDW. Another question focused on whether there were any particularly difficult parameters to meet. They stated that while they have not encountered any, the most significant operational challenge has been membrane fouling caused by silica and water hardness. In terms of emerging contaminants like PFAS and Bisphenol A, Maynilad confirmed that monitoring is in place for compounds such as BPA, although none have been detected to date. Finally, when asked whether ultrafiltration results in high energy consumption and what measures are being taken to minimize it, they responded that although energy use is indeed high, effective pre-treatment helps lower energy demand by reducing fouling. Currently, their focus is on ensuring compliance with energy optimization to follow in subsequent phases of development.

Conclusion

The webinar highlighted how wastewater can be transformed into a valuable resource through well-designed, context-specific strategies. Each case study demonstrated the potential of circular economy approaches in water management, from Ireland's national bioresource planning to Spain's integrated eco-factory model, and the Philippines' direct potable reuse initiative.

Discussions with the speakers also reinforced that utilities across different countries face common challenges including energy efficiency and regulatory compliance, but also share a strong commitment to innovation and sustainability. Digital tools, cross-sector collaboration, and stakeholder engagement are also important for advancing wastewater reuse and recovery.