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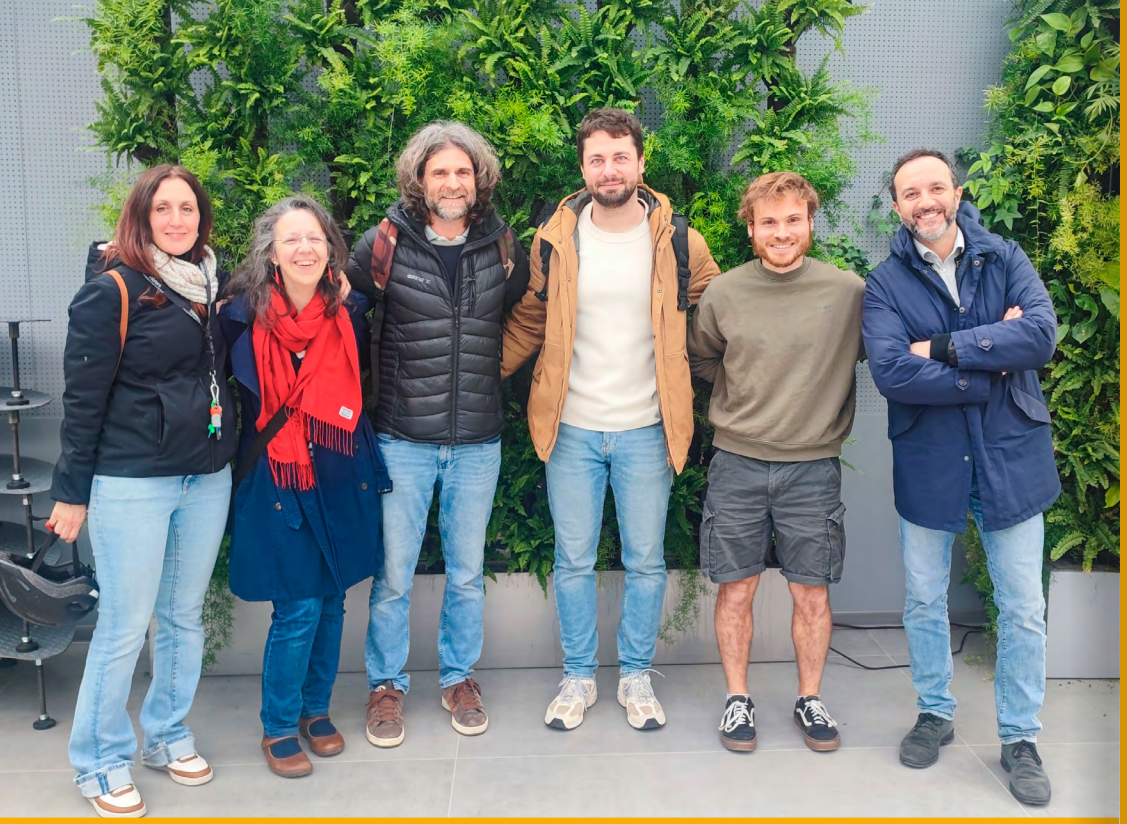
Testing circular water management solutions

The pilot run in Bologna in between June 2024 and June 2025.



PEREX

"Acqua in circolo" (in English, water in circulation) is the Italian pilot project realized in Bologna by ENEA, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development, as part of the European Interreg Central Europe NiCE project. Supported by the Municipality of Bologna, its goal was to promote the reuse and saving of water among residents.

Three groups of citizens have designed, built, and tested three solutions to use less tap water for urban farming, while classes of elementary and middle school students identified, implemented, and monitored daily actions to reduce water consumption in their homes.

The pilot's success was not only in engaging citizens in practical ways on the reuse and saving of water but also in bringing them together and discussing, starting with this specific topic, how they can act individually and as a group to make their city more circular and sustainable.

THE PILOT IDEA

The reuse and saving of water by citizens can have global effects, such as combating water scarcity and degraded water quality, but also repercussions on the quality and resilience of the local urban context, for example as a contribution to the realization of the “sponge city” model, i.e., a city that uses green and natural infrastructure to absorb, store, and reuse rainwater.

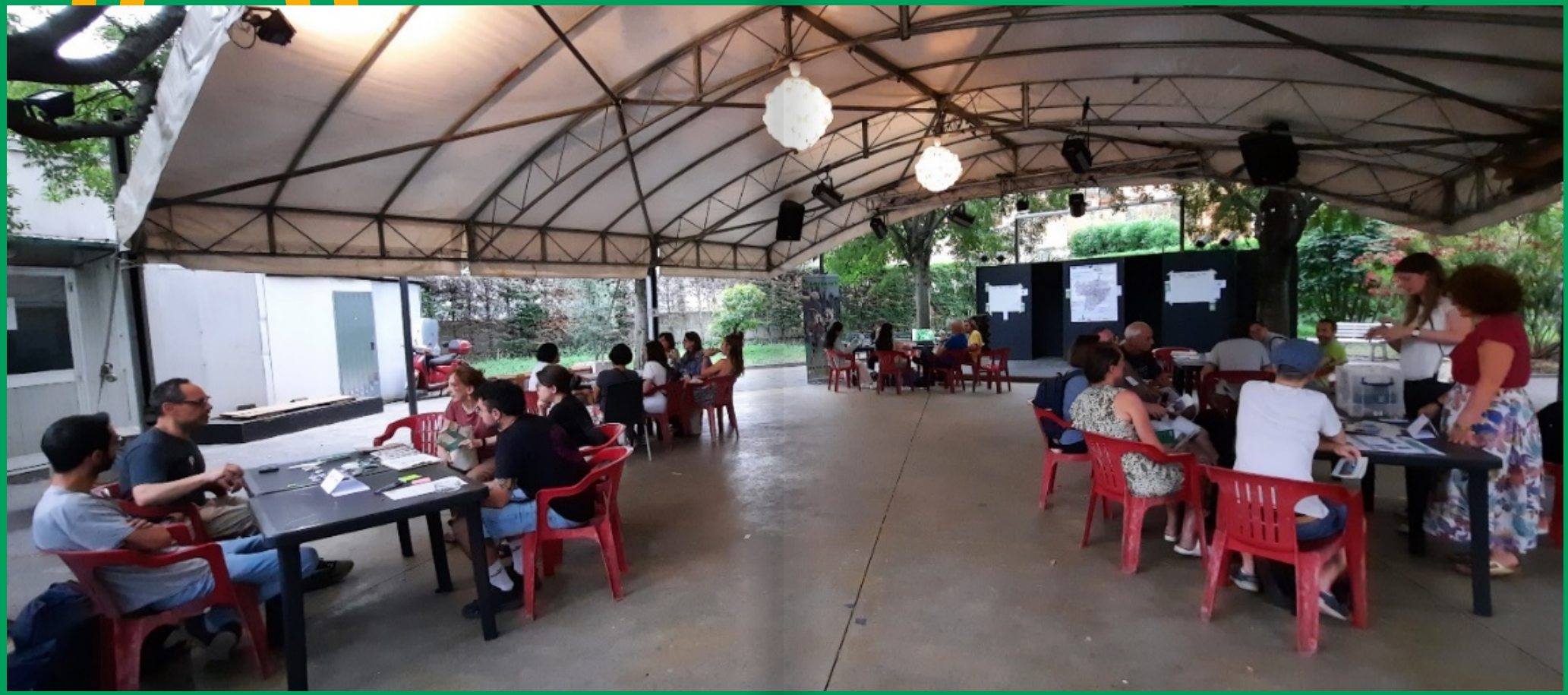
The pilot run in Bologna in between June 2024 and June 2025. During this year, the support of the local Stakeholder Board, including Bologna‘s water management company, local NGOs and foundations working on social and environmental issues, a neighbouring municipality, and a department of the University of Bologna, was fundamental.

The pilot project applied the Living Lab methodology and was divided into two main areas of intervention: **the Urban Living Lab and the School Living Lab.**

How it started

The pilot project began planning in early 2024 with initial contacts with stakeholders, an activity that also allowed for the discovery and analysis of city best practices on the topic of circular and sustainable urban lifestyles. The launch event was organized in June 2024 (Figure 1).

Figure 1 – "Acqua in circolo" launch event.

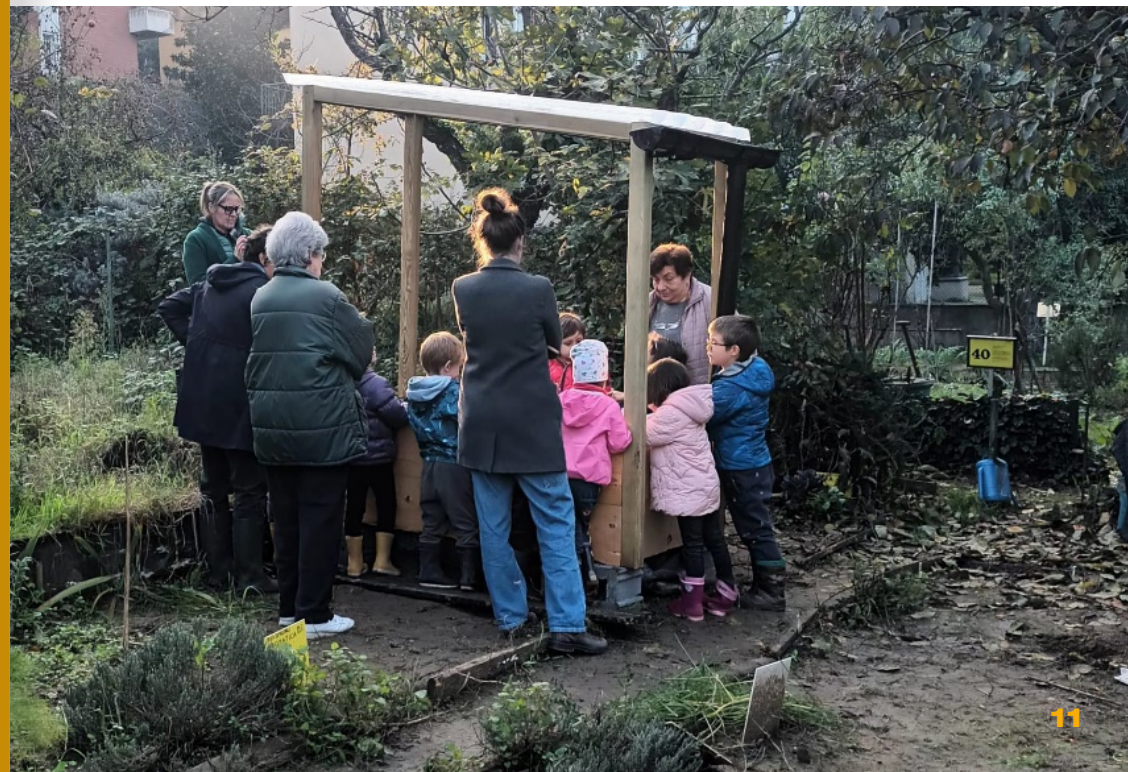


Implementation PHASE

For the Urban Living Lab, in September-November 2024 meetings were held where Bologna residents, with the support of experts, could discuss the topic of water conservation and reuse. The involved citizens then experienced firsthand the design and implementation of solutions to use as little tap water as possible for indoor and outdoor urban farming. These solutions were then entrusted to three groups of Bologna residents for testing during the winter and spring months:

- a group of growers in the Porta Saragozza municipal gardens shared the use of a wicking bed, i.e. a raised garden with an underground rainwater reservoir (Figure 2);

Figure 2 – The wicking bed installed at the Porta Saragozza municipal gardens.

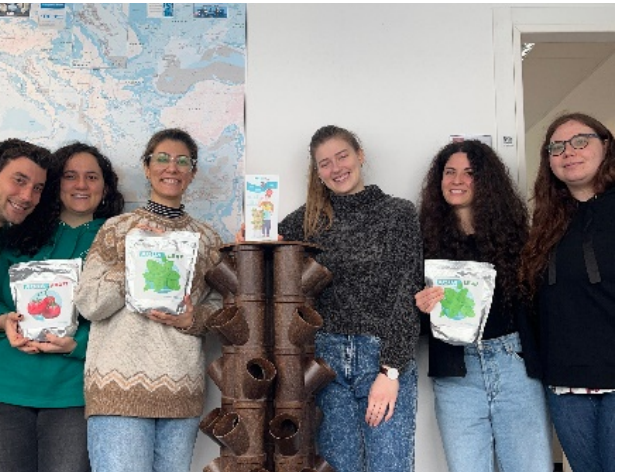


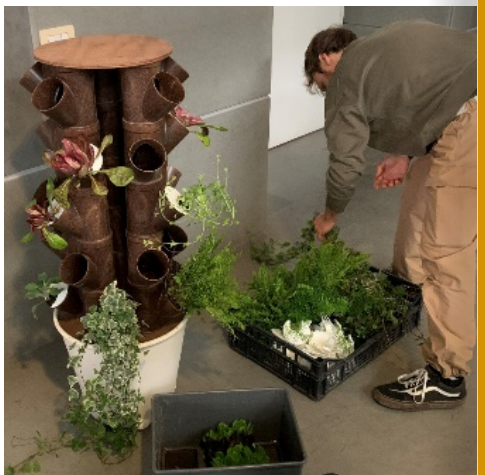
- the residents of the co-housing Porto15 installed a rainwater cistern with phytoremediation in the courtyard of their building to be used for watering potted plants (Figure 3);

Figure 3 – Installation of the rainwater collection tank in the courtyard of Porto15 co-housing.

- a hydroponic cultivation tower was entrusted to a group of students and researchers from the Department of Civil, Chemical, Environmental, and Materials Engineering (DICAM) at the University of Bologna, who installed it in an indoor passageway on the university premises (Figure 4).

Figure 4 – DICAM students and researchers with the hydroponic cultivation tower.



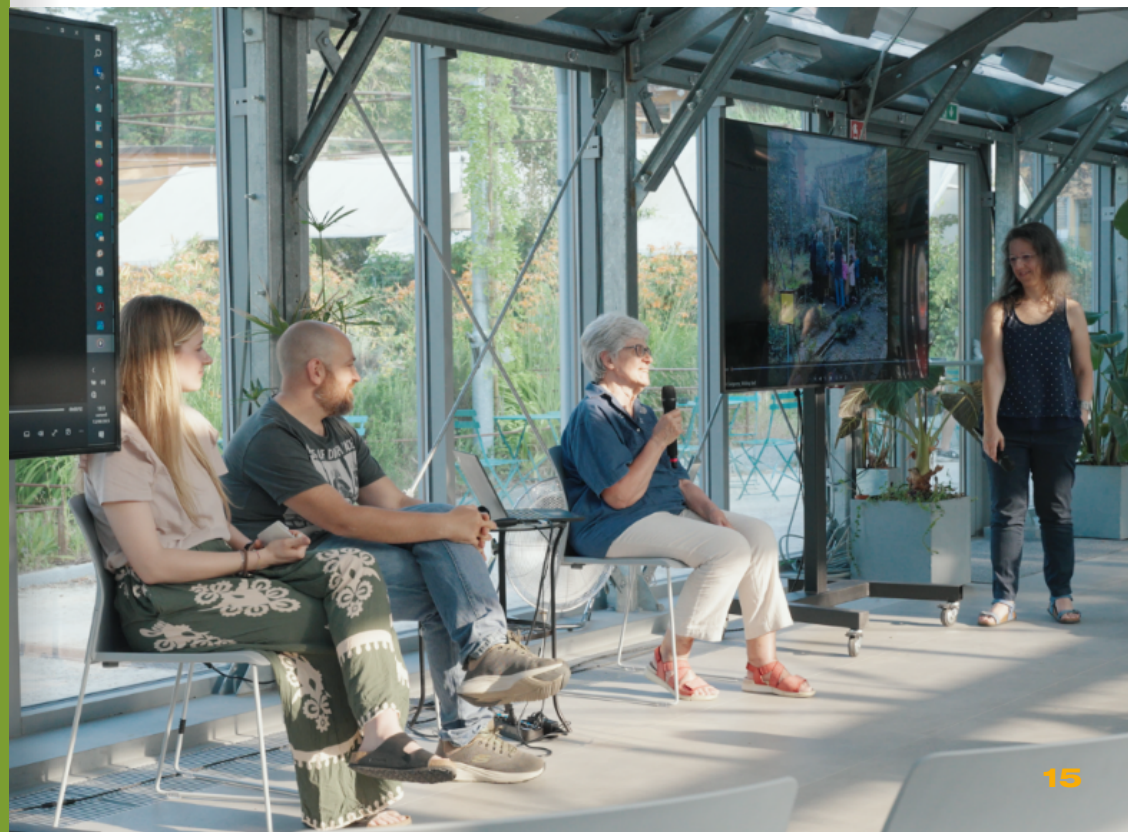


For the School Living Lab, In February-April 2025 ENEA involved elementary and middle school students in identifying, implementing, and monitoring daily actions to reduce water consumption in their homes.

Outcomes and learnings

The Bologna pilot experience formally concluded in June 2025 with a public event to share the journey and the results achieved with all citizens (Figure 5 – Figure 7).

Figure 6 – Representatives of the three citizen groups involved in the Urban Living Lab test shared their experiences during the final event in June 2025.



Nevertheless, the solutions created and tested during the initiative remain available to citizens. For example, the wicking bed is used as an educational tool in the Porta Saragozza municipal gardens, specifically to explain plant life cycles to preschoolers and more generally to introduce urban children to natural processes.

Figure 7 – During the final event in June 2025, participants built a wicking bed together, using also recycled materials.

Further Information

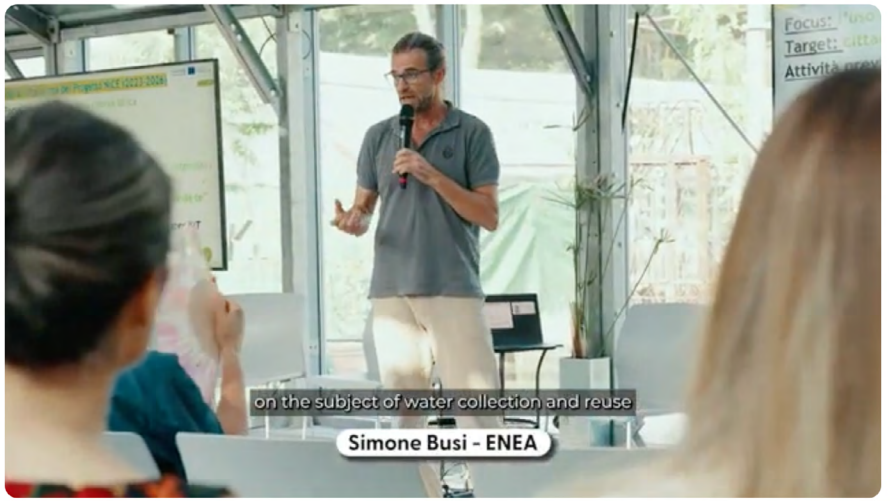
NiCE Project Websites

Interreg: https://www.interreg-central.eu/projects/nice/

NiCE Online Seminar: https://www.youtube.com/watch?v=sptIkS3-oFE&t=161s

Knowledge Platform: https://circularlifestyle.eu/

Pilot video: https://www.youtube.com/watch?v=98G2LM3LVw0&t=5s



Acqua in circolo – Citizens take action to reuse and save water in Bologna, Italy

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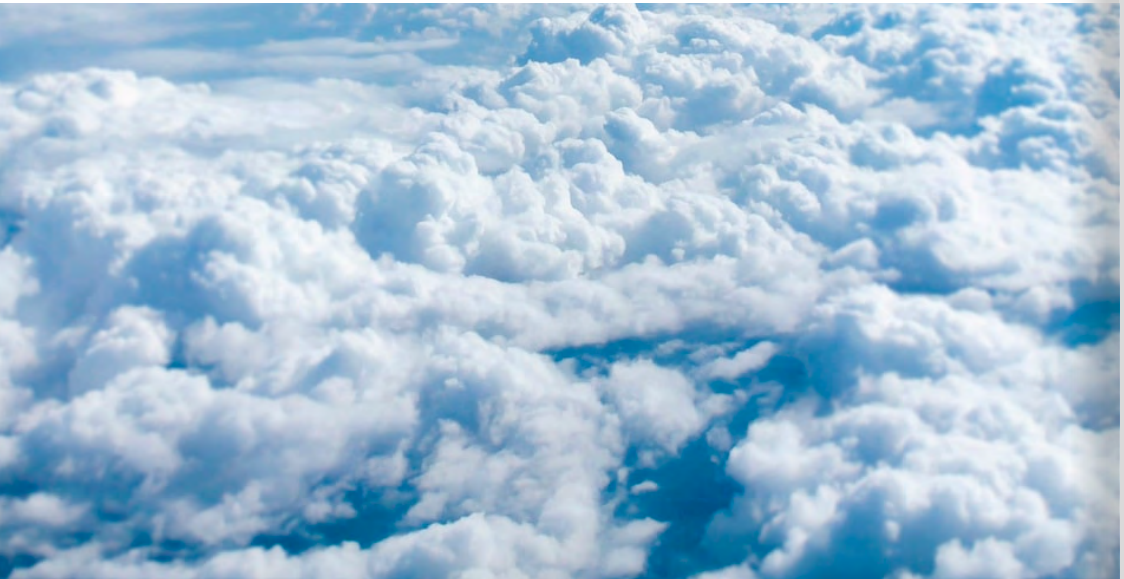

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