H2020 NICE PROJECT

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101003765

Innovative and enhanced nature-based solutions for sustainable urban water cycle

Project Description

The main goal of NICE project is to demonstrate the feasibility of using nature-based solutions (NBS) in European cities by integrating them into the Integral Water Cycle. These goals are aligned with SDG 6 (Clean Water and Sanitation) and SDG 11 (Sustainable Cities and Communities) within the 2030 Agenda on Sustainable Development.

The NICE project will provide key knowledge and tools for the design and implementation of innovative NBS. In this context, NICE solutions will provide reusable water for different purposes, as well as mitigating pollution and water run-off and being an attractive and integral part of the urban landscape

NICE's strategy will be based on the exhaustive study of existing NBS and their optimization through research and the implementation of innovative pilots covering the entire urban water cycle: wastewater treatment plants (WWTP) effluents, greywater, polluted river basins, stormwater and combined sewer overflow. It will explore nature-based solutions such as green walls, vegetated rooftops, rain gardens and hybrid subsurface wetlands, which will be further enhanced with tailored strategies such as: bioaugmentation, reactive materials and other innovative filling media, vegetation selection and novel design. The project will implement 11 demonstration pilots (Urban Real Labs - URL) in 7 different countries: Spain, France, Italy, Poland, Poland, Denmark, Colombia and Egypt.

With the aim of achieving sustainable circular urban water loops, the project will integrate research, private sector, citizens, policies and economy to:

- Enable the scaling up and revision of existing NBS across Europe through development of standards, guidelines and methodologies, supported and justified by research results and the development of innovative nature-based solutions at lab and URL scales.
- Create new business and investment models for cost-effective solutions that benefit the economy, environment and society.

- Identify obstacles, barriers and opportunities in current regulatory frameworks.
- Raise awareness among the general public, by involving local stakeholders in co-creation in Urban Real Labs.

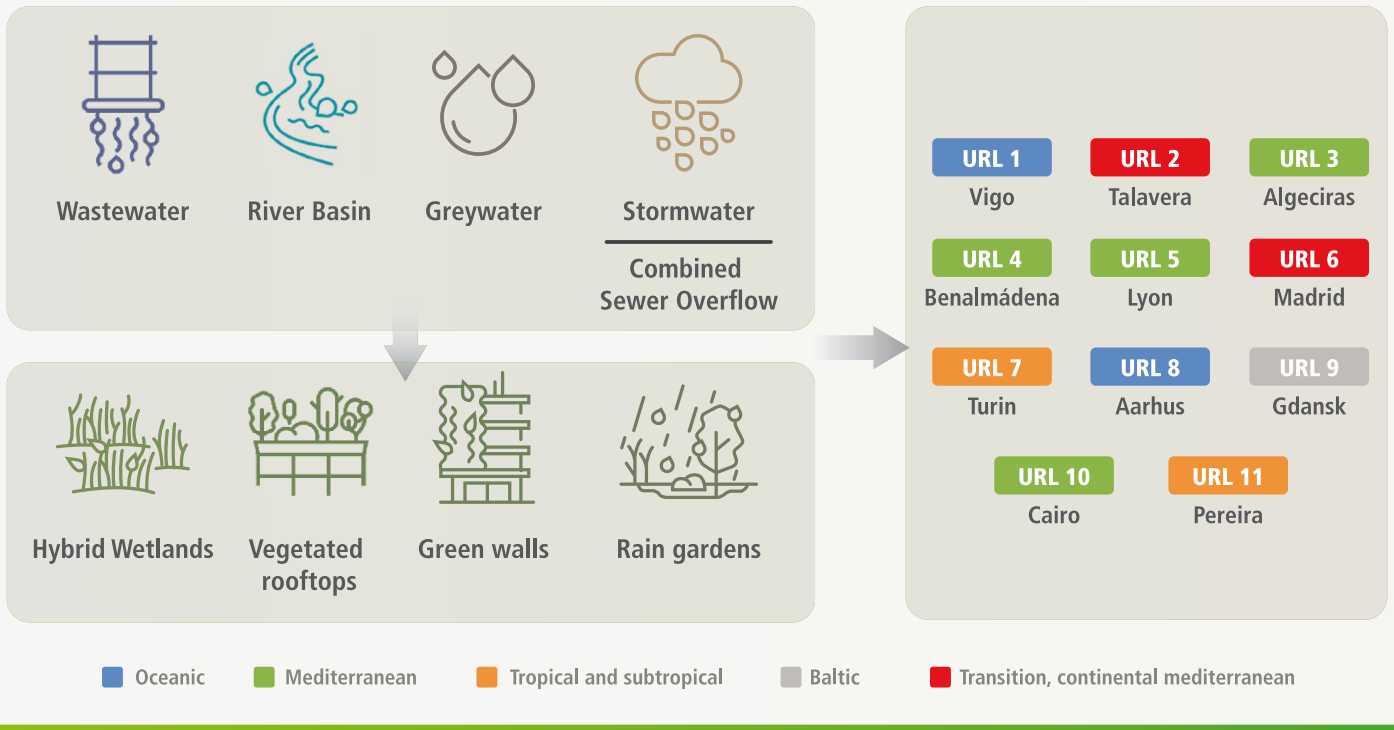
aqualia

Location: Talavera de la Reina, Algeciras, Benalmádena, Lyon, Cairo, Pereira, Torino, Madrid, Vigo, Aarhus, Gdansk

Duration: From the 1st of June 2021 to the 31st of May 2025

Total Budget in Euro: 4,996,342 € **Aqualia:** Aqualia: 1,072,250 €

FLOW CHART PROJECT



AQUALIA collaborates in the design and is responsible for the construction and validation of five of the URLs that will be built and validated in Spain:

URL 1: Vigo ➞ Located in the H building of the Vigo Free Trade Zone, the URL will collect rainwater and it will be treated in a 30 m² green filter. The treated water will be stored to irrigate a section (25-50 m²) of green wall. Greywater will also be collected from nearby offices for treatment and reuse.

URL 2: Talavera ➞ Located in the Talavera de la Reina WWTP. Three constructed wetlands with innovative aspects such as low-energy forced aeration and recirculation will treat wastewater for comparison with the variety of nature-based solutions and technologies on the INTEXT platform.

URL 3: Algeciras ➞ Located on the promenade of the bay of Algeciras. The application of a 70 m² vertical flow constructed wetland will be studied to prevent pollution caused in the Bay by the overflow of the sewage system in rainy episodes. In addition, gray water from the nearby Torrealmirante High School will be captured and treated to maintain humid conditions during the summer drought.

URL 4: Benalmádena ➞ A green wall will be installed for the treatment of grey water that will allow its effectiveness to be compared with other grey water treatment systems integrated into the residential urban environment.

URL 6: Madrid ➞ Located in the Aqualia headquarters. The collection of grey water for its treatment will be studied in a 22.5 m² constructed wetland and the treated water will be used for irrigation of the surrounding112 m² grass plot. This URL will be representative of the future replication of NBS technologies to close the water cycle in the urban center of large cities in the EU.

PROJECT PARTICIPANTS

- CETIM (leader)
- AQUALIA
- ICLEI
- GDANSK UNIV. OF TECHNOLOGY
- AARHUS UNIVERSITY
- INRAE
- ECOBIRD
- POLITECNICO DE TORINO
- IRIDRA
- SLU
- LISODE
- G2G GATE TO GROWTH
- DESERT RESEARCH CENTRE
- AGUAS DE PEREIRA

DETAILS OF FUNDING

Funding: Horizon H2020 research and innovation programme.

Organism: European Comission (CE).

Project: 101003765.

Grant: Subsidy of 100% of budget.

This publication only reflects the author's view. The funding organizations are not responsible for any use that may be made of the information it contains.

Funding Received

Total: 4,996,342 €

Aqualia: 1,072,250 €

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www.nice-nbs.eu