



Gdansk

Site: Medium-size city with ~462,000 inhabitants on the Baltic coast of northern Poland. Its metropolitan area, including the cities of Gdynia and Sopot and minor towns in their vicinity, has a population of ~1.5 M inhabitants. As a part of the WP7 of NICE Project, an innovative research facility was built at the Gdansk University of Technology campus in Gdansk.

Situation: The construction of the facility was completed in July 2023. Currently, the **UrbanRealLab (URL) [pilot 9](#)** is working. Also the samples are collected to determine the effectiveness of the facility's operation.

Solution: **URL 9 retention facility** is able to collect rainfall from local catchment area in an estimated amount of approximately of 11.4 m³. The facility includes rainwater and snowmelt flow route, that consists of:

2. **sedimentation tank (ST)** sealed with bentonite mat, with planted slopes. The sedimentation tank consists of two parts: ST1.1 with depth of 0.35 m and ST1.2. with depth of 0.55 m. The runoff is directed to the sedimentation tank through open channel, reinforced with granite cubes (placed on a 10 cm layer of a lean concrete). The bottom of the sedimentation tank and part of the slopes were also paved with granite cubes;
3. **three filtration segments (FS)** with gravity flow, where FS 1 is filled with washed gravel with a grain size of 2-8 mm, FS 2 is filled with biochar with a grain size of 2-8 mm and FS 3 is filled with substrate provided by Funke. The filtration segments were positioned with a slope of 2% towards the rain garden (RG). In case of overflow of the settling tank ST1.2, the water will flow through the emergency overflow (in the form of reinforced channel) to the rain garden (RG1). Filter materials separators will be specially designed and made of oak wood to ensure tightness.
4. **basins planted with water-loving greenery**, ensuring water retention and natural infiltration. The construction did not interfere with the existing layers of soil below the plant vegetation zone;
5. **drainage of excess rain and snowmelt water** to the adjacent green area.



The NICE Urban Real Labs are ideal test beds for nature-based solutions for circular urban water solutions, as they have varied geographical, environmental and socioeconomic characteristics.

The Urban Real Labs cover a wide range of climate zones: tropical and subtropical (Pereira and Turin), Mediterranean (Talavera, Algeciras, Benalmádena, Lyon, Cairo), transition climate with extreme temperatures (Madrid), oceanic (Vigo, Aarhus), and Baltic (Gdansk).

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

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