

Rotterdam factsheet

Foto: Emma, stockadobe.com

Rotterdam, located in the southwestern Netherlands, covers 200 km² and has a population of 670,610. The city is shaped by the River Nieuwe Maas, a distributary of the Rhine, which flows into the North Sea. Home to one of the world's largest ports, Rotterdam faces significant water management challenges, as 80% of its densely populated area lies below sea level. The city depends on dykes for protection, but river flooding, influenced by upstream rainfall and rising sea levels, remains a persistent threat. Urban surface water quality is further degraded by combined sewer overflows (CSOs), salt water intrusions and high nutrient inputs from upstream agricultural lands. Much of the city's sewer infrastructure dates back to the post-war reconstruction era, with about 70% of annual runoff still entering wastewater treatment plants. Groundwater leakage adds to the strain, while pressurized pumped overflows (POs) provide limited relief during extreme rainfall events.

URBAN WATER MANAGEMENT


Rotterdam's governance is guided by the Environmental Act, the Water Framework Directive, and the Delta Program on Spatial Adaptation. The Environmental Act, effective in 2024, aims to simplify and integrate spatial planning regulations through a unified digital platform, promoting vertical coordination across governance levels. The new Environmental Desk provides a comprehensive regulatory overview, improving policy communication and accessibility for stakeholders. The Waterkracht Alliantie exemplifies both vertical and horizontal coordination, uniting municipal governments, water boards, and private-sector actors to enhance water management and


climate adaptation efforts. Local initiatives, such as Rotterdam WeerWoord, align with national strategies to foster climate resilience through collaborative, multi-stakeholder engagement.

Rotterdam increasingly integrates nature-based solutions (NBS) into urban water management. Policies like the Rotterdam Subsurface Management Regulation (VBOR) and the Rotterdam Rainwater Regulation mandate on-site rainwater management to reduce CSOs and mitigate flood risks. For instance, VBOR requires new construction projects to incorporate rainwater storage systems with a minimum capacity of 50 mm. The responsibility for rainwater management is divided between public and private entities, with property owners expected to handle water on-site unless connection to public infrastructure is necessary.


The city's approach blends top-down infrastructure investments with bottom-up citizen-driven initiatives. The Delta Plan on Water Safety prioritizes large-scale grey infrastructure improvements, such as dike reinforcements, while grassroots movements like De Urbanisten and campaigns such as Tegelwippen promote decentralized NBS, including sponge gardens and rainwater infiltration projects. However, Rotterdam's policies often frame NBS as long-term solutions, delaying their immediate implementation and limiting their impact on CSO mitigation. Existing frameworks, such as the Municipal Sewerage Plan (2021-2025), do not explicitly prioritize NBS, restricting their formal adoption in urban planning. Additionally, with 60% of the city's land privately owned, the absence of financial incentives for landowners to implement NBS poses a barrier to widespread adoption.

NICHES IN SHEFFIELD

 NICHES contributes to a shift in thinking on values based asset management, including a broad range of nature values through a workshop on positive nature futures.

 Together with water management and the municipality we explore potential impacts of CSOs on aquatic ecosystem quality and ecosystem service delivery.

 Interviews with experts in the cityscape help to quantify the effectiveness of NBS in mitigating hydrological and ecological issues for the city.

 Governance structures are mapped to better understand how the adoption and implementation of nature-based and technological solutions take shape in the city.

OPPORTUNITIES TO GET INVOLVED IN NICHES

We will promote interactive multi-stakeholder arenas for developing, testing and monitoring most of the tasks that will be developed in NICHES. If you want to get involved, send an email to Sven Teurlincx at S.Teurlincx@nioo.knaw.nl



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