

CASE STUDY

REPORT

How are UIA projects contributing to building resilient cities, adapting to the climate emergency?

PROJECT

RESILIO - Resilience nEtwork of Smart Innovative cLIimate-adapative rOoftops  
📍 Amsterdam, The Netherlands

TOPIC

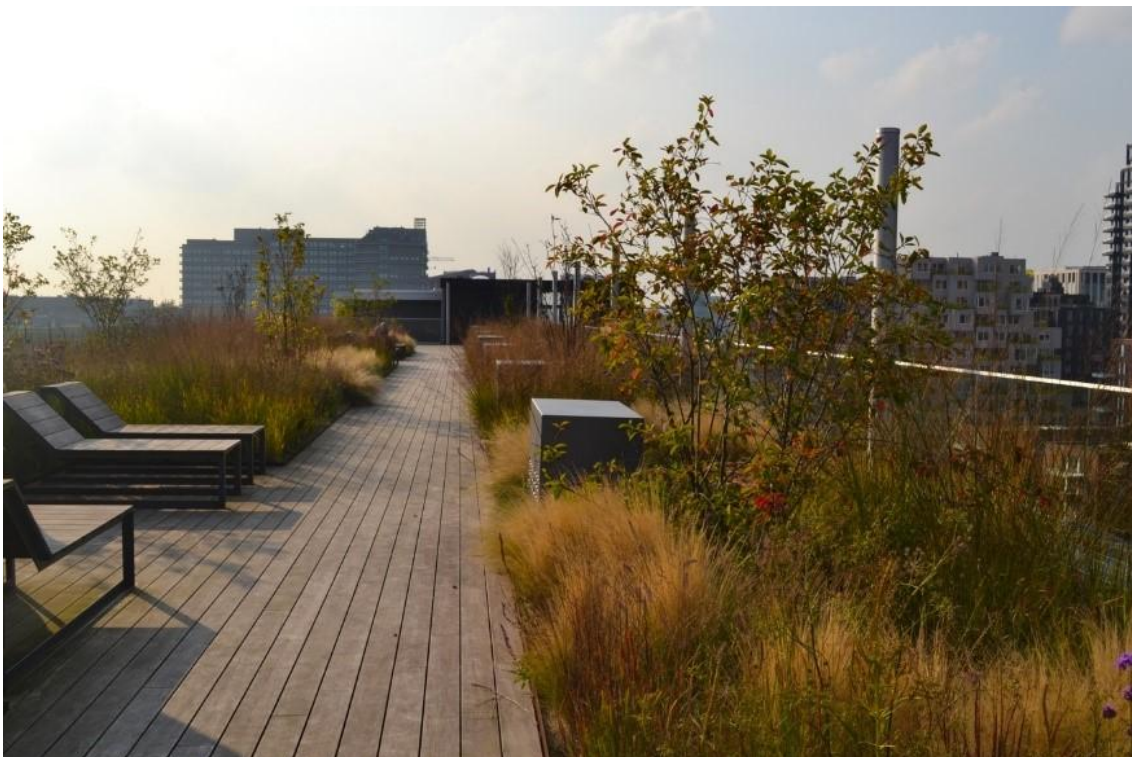
Climate adaptation

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## RESILIO

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# Resilience nEtwork of Smart Innovative cLIimate-adapative rOoftops



Adapted rooftops from the RESILIO project in Amsterdam

Amsterdam is experiencing the effects of climate change: flash floods due to heavy rainfall, higher temperatures, and increased droughts. Already the current climate conditions regularly confront the city with sewerage malfunction due to runoff volumes. The RESILIO project aimed to address critical urban climate challenges related to flooding, heat, water supply, energy consumption and urban liveability by establishing smart blue green roofs. The roofs have an additional water layer underneath the green layer to temporarily store rainwater that can be used to water the roofs in drier periods. At the same time, the roofs can mitigate heat stress by increased evapotranspiration (the sum of evaporation from the land surface and transpiration from plants) and a higher albedo effect (the ability of surfaces to reflect sunlight).

RESILIO's idea was to set up a project which would predominantly focus on existing property in Amsterdam, as the city's climate stress tests identify this as most vulnerable to climate change. Most bottleneck areas are in the inner

city, mainly because public space is scarce here. There is limited space for incorporating climate adaptation measures on the ground. Going up on rooftops and collaborating with private building owners such as housing companies has been the way to go. As a result, RESILIO created a living laboratory with 10,000 m<sup>2</sup> of blue green roofs on existing social housing and privately owned real estate. The roofs have a 'Smart Flow Control' which anticipates heavy rain or drought, releasing or retaining water accordingly. The roofs are connected in a network, enabling remote regulation of rooftop water levels, based on weather forecasts and water management settings.

The implementation has been complex due to the involvement and engagement of various stakeholders. Many actions and activities needed to be aligned to achieve the aims and objectives of the project. These included the selection, preparation and construction of the rooftops; the installation of the roof systems based on further development and innovation of its components (e.g., the intelligent valve); the development of a water platform with a Decision Support System (DSS), a dashboard and user interfaces to enable coordinated steering of the neighbourhood grids of RESILIO roofs; and communication and participation with tenants and neighbourhood communities. All these activities together created a 'living lab', which serve as a source of inspiration and learning for investors and other national and European cities.

### **Partnership:**

- City of Amsterdam
- Hogeschool van Amsterdam - higher education and research institute
- Vrije Universiteit - higher education and research institute
- Waternet - public water management company
- MetroPolder Company - SME
- Consolidated - SME
- Stadgenoot - social housing company
- De Key - social housing company
- De Alliantie - social housing company
- Rooftop Revolution - foundation

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