



OILSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



HPRC
Health Promotion Research Centre



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UNIVERSITY OF GALWAY

Institiúid Uí Riain
Ryan Institute



Fáilte
Ireland



Comhairle Cathrach
na Gaillimhe
Galway City Council

Title: Urban Raingarden Project: Examining co-benefits of a nature-based urban intervention.

Principal Investigator: Dr Mary Josephine Lavelle

Funded by:

This research project is led by academics and researchers at the Health Promotion Research Centre and Ryan Institute at the University of Galway, in partnership with Galway City Council. This project has is supported by **Fáilte Ireland** and **LAWPro**, and the **CSE SDG Support Fund** (University of Galway).

Background:

Urbanisation and climate change have compounded environmental and health challenges in cities and urban zones globally (WHO, 2025). Increasing impervious urban surfaces have disrupted natural water cycles (resulting in urban flooding, surface water contamination and poor water quality), heat islands, and reduced biodiversity in urban spaces (Cacciatore *et al.*, 2025). Urban populations face escalating risks of chronic diseases, mental health issues, and social disconnection due to a lack of accessible, healthy green and blue spaces (WHO, 2025). Urbanisation driven factors such as obesogenic environments, sedentary lifestyles, and air pollution exacerbate cardiovascular and metabolic risks, as well as compound urban health inequities (Chaudhry, 2024).

Effective mitigation requires multi-sectoral policies that prioritise health-promoting infrastructure, reduce environmental pollutants, and address systemic barriers affecting marginalised groups (Cacciatore *et al.*, 2025). By adopting an integrated approach that prioritises social equity and sustainability, cities can mitigate health disparities and create healthier, more inclusive urban environments that support the well-being of all residents.

Nature-based infrastructure, such as urban raingardens, represent one solution for the promotion of environmental and human health outcomes in cities. Raingardens are landscaped depressions that uses soil, native plants, and hydrological engineering to manage storm water runoff naturally. Raingardens provide several co-benefits to the community including habitat restoration, microclimate cooling, and opportunities for health-promoting human interaction with nature.

Aim:

The **Urban Raingarden Project** explores a nature-based solution to reduce surface rainwater runoff through a community-based intervention. By diverting urban rainwater into purpose built rain gardens, the development aims to diminish the overflow into storm drains that leads to the pollution of our watercourses. This study aims to:

- i. Examine the multi-dimensional impact of an urban raingarden as a nature-based solution for ecological restoration, flood mitigation, and community health enhancement in urban spaces.

- ii. Explore how interdisciplinary collaboration can optimise nature-based infrastructure for environmental and human health outcomes.

Methods:

The project adopts a mixed-methods research design, emphasising interdisciplinary collaboration and real-world applications of an urban raingarden as a real-time living lab to generate baseline data, engage communities, and pilot interdisciplinary methods that will support health, ecological, and engineering outcomes.

What the work is expected to establish:

The study utilises an urban raingarden as a real-time 'living lab' to generate baseline data, engage communities, and pilot interdisciplinary methods that will support health, ecological, and engineering outcomes. This pilot initiative will function as both a prototype and a living lab to inform the upscaling of rain garden infrastructure across the island of Ireland. The project seeks to generate measurable improvements in urban water management, biodiversity, and overall environmental quality. The Raingarden pilot will demonstrate the efficacy of citizen-led, place-based climate interventions in addressing systemic urban environmental issues. It aims to illustrate how collaborative partnerships between communities and natural systems can facilitate the transition toward more sustainable, resilient, and liveable urban environments.

This research activity plan aligns with the 13th Global Work Programme strategic priority of Promoting Healthier Populations, and supports the WHO's implementation of the Shanghai Declaration (WHO, 2016) for health and wellbeing. The study aligns with several United Nations Sustainable Development Goals (SDGs): SDG 3, 6, 11, 13, 15.