

# Promoting High Quality and Multifunctional Green Infrastructure: A Proposed Methodology

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**Introduction:** Green Infrastructure (GI) can be defined as an interconnected network of greenspace that provides multiple benefits.

- GI offers opportunities for climate change adaption
- GI face the very same challenges that they are designed to solve
- Urbanisation and Population Growth constrains GI
- GI must therefore provide multiple benefits within a limited space and be resilient to threats.



**Resilience:** In order to assess the resilience of Green Infrastructure itself, experiments to monitor the response of vegetation to periods of artificial flooding or dryness will be carried out.

- Experiments will occur within a greenhouse using surface irrigation to replicate rainfall and runoff.
- To measure resilience of vegetation to withstand climate stressors, measures of plant physiology will be used.
- Stomatal Conductance and Leaf Temperature provide measures of stress

**Multifunctionality:** Consideration of edible Sustainable Drainage Systems (SuDS) will be carried out through an assessment of stormwater retention.

- Grass, raingarden planting and edible herbs from the *Lamiaceae* family will be compared under natural weather within three bioretention areas.
- Sensors measure electrical conductivity, soil moisture content and soil temperature.
- Anticipated that the best performing ensemble will have reduced throughflow due to increased losses by the vegetation through evapotranspiration and interception.



**High-Quality:** A SuDS proposal will be developed for the Lover's Lane area of Newcastle; an area of known flood risk.

- Assessment of GI quantity, quality, accessibility and connectivity
- Consideration will be given into how to be encompass small-scale changes to benefit estimation tools.
- Commentary will be provided on the decision-making process, barriers experienced and stakeholder engagement.

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