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Towards a full-scale green infrastructure demonstration facility

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The UK's National Green Infrastructure Facility is a full-scale suite of experiments and demonstrations that provides a unique opportunity to gather data as one form of the evidence needed by decision makers to implement green infrastructure as sustainable drainage systems to fulfil attenuation, infiltration, flow control and water treatment, in urban areas. We aim to generate insights into sustainable drainage systems, develop novel approaches and technologies for improved surface water management, and increase our understanding of the interaction between the climate and the urban landscape.

Empirical data collected from the experiments is being used to parameterise models to improve their performance of flood simulations enabling the effectiveness of Green Infrastructure (GI) in mitigating flood risk to be evaluated at the city-scale. Evidence from the design and building of the experiments also contributes to knowledge gaps on upfront investment for interventions and how they need to be maintained over time and the cost of doing so. There is also an opportunity to gather evidence on necessary maintenance regimes of the vegetation to preserve performance, or necessary treatments to the soil.

Furthermore, a full-scale demonstration constructed in an urban area facilitates engagement with a range of stakeholders from the public to local government decision makers. As such, the value of urban GI has been explored; and a methodological approach developed that captures the multiple values and derives different business models that better reflect who pays versus who benefits and identifies interdependencies and opportunities where value is shared between infrastructure sectors. In additional an awareness and understanding of the value network highlights alternative governance arrangements to support, deliver and manage GI within different communities and at different spatial scales.