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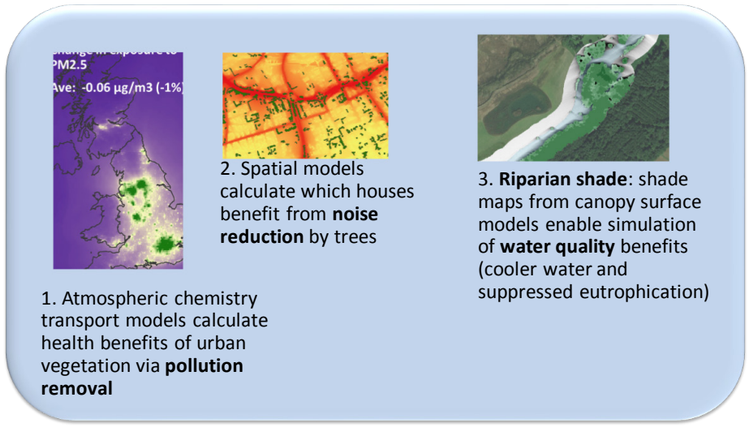
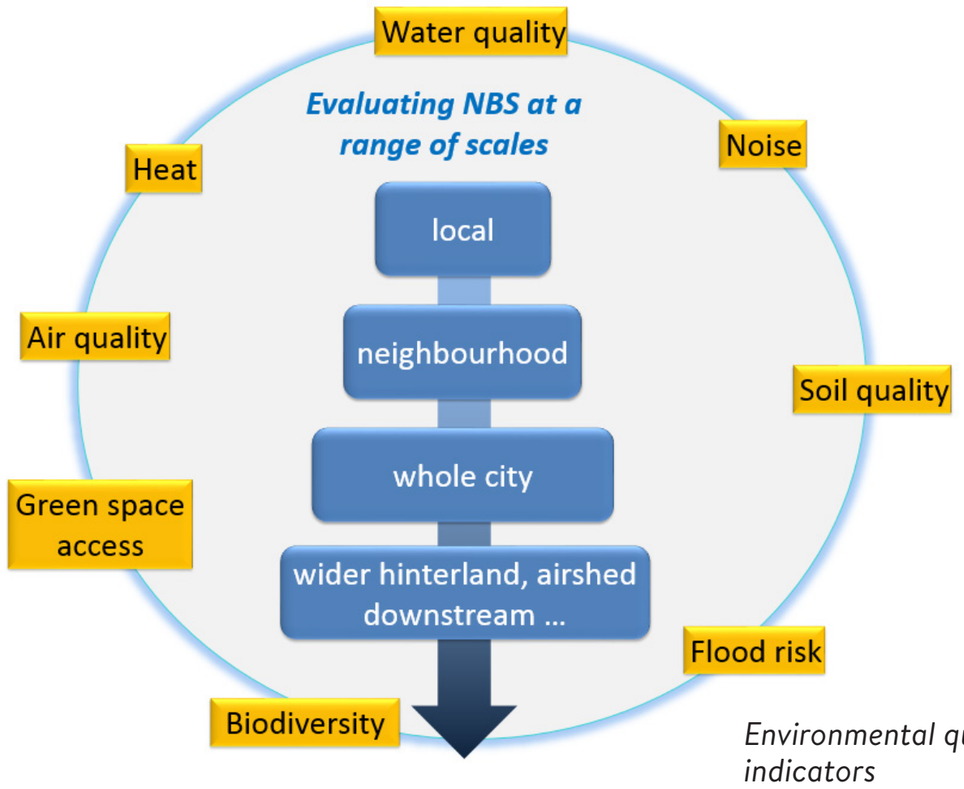
Global ambitions for sustainable urban planning and management will likely be undermined under future climate. Nature Based Solutions (NBS) (e.g. for urban flood mitigation), have demonstrated effectiveness in particular domains and spatial scales. However, under increasing threats, we need to consider their ability to deliver multiple benefits across a range of environmental quality indicators in urban and peri-urban contexts.

In this regard We focus on Sponge Cities, where co-benefits may arise through people's daily activities as well as the flows of air and water through urban landscapes. Understanding scale and context of both social and natural systems is essential to realising liveable cities.



Ecosystem services e.g. vegetation benefits



Environmental quality indicators

Aim/objective

(1) How do changes in climate and societal drivers affect the co-benefits and trade-offs between a range of environmental quality indicators that arise from implementing NBS?

(2) How can business, technology, science, planning and governance learn from each other and work together to co-design novel solutions for liveable sustainable cities that reflect differing cultural and climatic contexts?

Approaches/methods

- New and existing case studies will provide the evidence base.
- Novel modelling techniques will assess multiple benefits.
- Big data, social media and participatory citizen science will help identify how to improve equitable access to urban green space.
- Engagement with key stakeholders will identify how business innovation can contribute to NBS.

Expected results and impacts

- A multi-domain framework for co-benefits and trade-offs arising from NBS implementation, formulated as an assessment tool
- Defining how environmental impacts at larger scales inform the choice of solutions adopted in urban areas
- Evidence-based recommendations on design criteria and management strategies to be applied in developing NBS to optimise co-benefits

DeSCIPHER - Designing Sponge Cities for multiple benefits

Duration: Starting in 2019, ending in 2022 at the latest
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Budget: €1,003,747
Partners: UKRI Centre for Ecology and Hydrology, Tsinghua University – Department of Hydraulic Engineering, Norwegian Institute of Water Research, Institute of Urban Environment, Chinese Academy of Sciences, University of Surrey – Department of Civil and Environmental Engineering, University of Oslo – Geosciences.

Involved countries

- China
- Norway
- The United Kingdom

The Sustainable and Liveable Cities and Urban Areas call

The pilot call Sustainable and Liveable Cities and Urban Areas organized by JPI Urban Europe and the National Natural Science Foundation of China (NSFC), inviting interdisciplinary Sino-European consortia opened on January 31st, 2018.

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