

Project area:  
Intended readership:

Communications and Uncertainty  
Local Authorities, practitioners, academics, interest groups

Widespread implementation of SuDS and Blue-Green infrastructure (BGI) is currently hampered by barriers that impede uptake and innovation. We investigate the barriers to implementation of BGI in Newcastle, UK, through a series of semi-structured interviews with professional stakeholders. We identify and categorise 17 types of barrier and identify targeted strategies to overcome the dominant barriers. We recommend promotion of BGI's multifunctionality and capacity to meet the objectives of multiple organisations and Local Authority departments, in addition to managing urban water. We conclude that strong business cases, supported by monetised benefits, and collaborative, inter-agency working could advance implementation of BGI within current flood risk management legislation.



Fig 1. SuDS ponds in Newcastle Great Park

## Barriers to Blue-Green infrastructure and SuDS

A wide range of barriers, including scientific, technological/technical, institutional, legal, managerial, political, monetary and social, currently hamper widespread implementation of Blue-Green sustainable water management. The social-institutional barriers typically pose the greatest hindrance to SuDS and BGI schemes, and exert a greater influence on the chosen solution when compared with purely hydrological considerations. Many of the barriers are difficult to overcome because they are systemic and embedded within organisational cultures, practices and processes. General strategies such as improving education and raising awareness, while essential to the understanding of BGI among publics, lack specificity and may require greater refinement to overcome the myriad barriers in practice.

## Case study: Newcastle, UK

We use the outcomes of semi-structured interviews with a multidisciplinary group of 19 well-informed stakeholders from institutions and industry in Newcastle to identify the biophysical and socio-political barriers. We develop specific strategies to overcome these barriers, highlighting those that have been demonstrated to succeed. Recent strategic planning frameworks, e.g. the [Core Strategy and Urban Core Plan for Gateshead and Newcastle upon Tyne 2010-2030](#), support BGI, stating that new developments are expected to prioritise SuDS for surface water management 'given the multifunctional benefits to water quality, green space and habitat enhancement' (Newcastle City Council & Gateshead Council, 2015).



## Newcastle barriers to widespread implementation of BGI and SuDS

184 references from the 19 interviews specifically mentioned barriers. These were identified, separated into 17 categories, and defined as *socio-political*, *biophysical* or *both*. The five most prevalent barriers are socio-political (Fig 2), with most respondents citing a reluctance (from the public and decision makers) to support new approaches that are perceived as novel, or to change practices from business as usual.

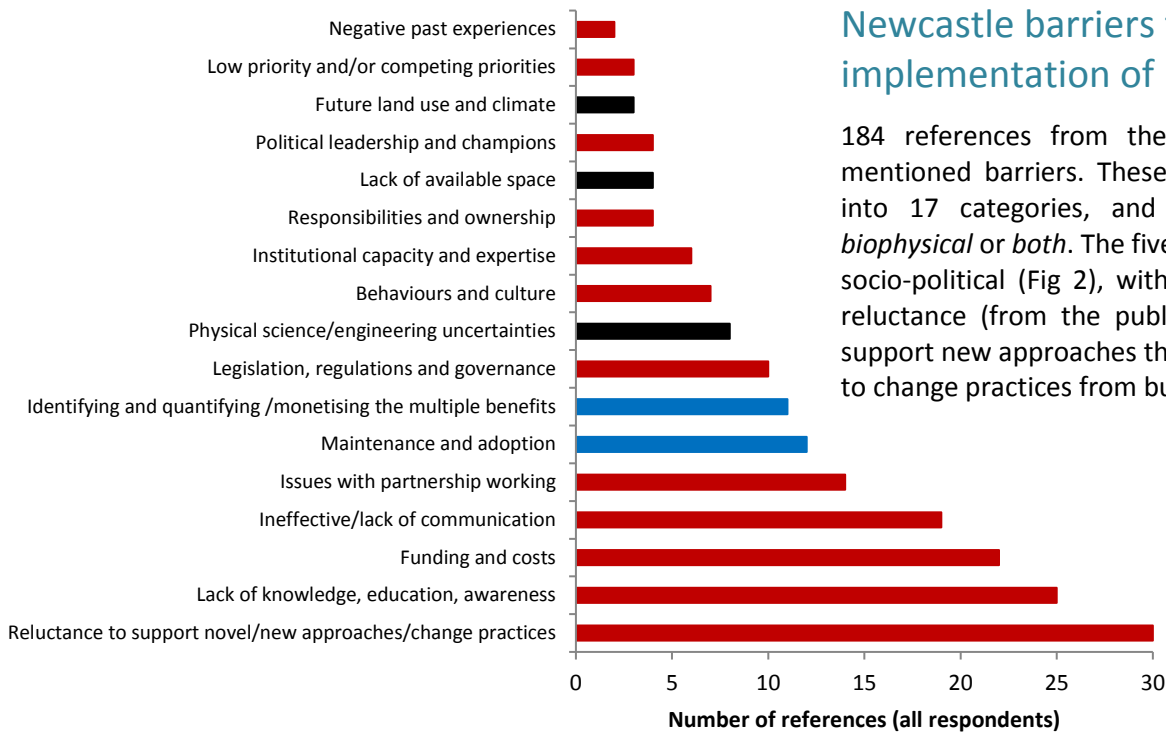


Fig 2. Barriers to the implementation of BGI in Newcastle. Red = socio-political barriers, black = biophysical barriers, blue = both.

## Overcoming the barriers

The strategies to overcome the barriers to BGI were sub-divided into 12 distinct categories: the top five are listed below. A key strategy highlighted by most respondents is the **promotion of multifunctional space** and **identification and evaluation of the multiple benefits**. The interview respondents acknowledge that BGI has greater value beyond flood and water management and believe that highlighting the multiple benefits will increase the scope of stakeholders involved in BGI schemes. Respondents also generally perceive that decision makers will be more likely to support a BGI scheme that will provide benefits to meet the objectives of their organisation/department. Identification of the beneficiaries was suggested as a mechanism to highlight organisations and departments that could work together to deliver (and potentially co-fund) multifunctional BGI.



### Accompanying research paper:

O'Donnell, E., Lamond, J., Thorne, C., (accepted). Recognising barriers to implementation of Blue-Green infrastructure: a Newcastle case study. *Urban Water Journal*.

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