Public Perceptions and Behaviours

Investigating community preferences around Blue-Green Infrastructure

FACTSHEET

Project area: *Community Perceptions, Behavioural Responses of Publics*
Intended readership: *Local Authorities / Environment Agency / Water Companies*

Developing flood risk approaches away from hard infrastructure will require the engagement of local communities and residents who will live alongside Blue-Green approaches.

Understanding Community Perceptions and Preferences

The opinions of professional bodies and authorities will be central to whether and how Blue-Green Infrastructure (BGI) is implemented; what is less well understood is how installations are perceived by local communities. This will be centrally important because perceptions will influence 'felt' benefits and costs, willingness to contribute towards maintenance and how people interact with installations. These factors and behaviours may affect BGI performance and functional life expectancy and, therefore, how 'sustainable' they are likely to be.

From a community perspective, there are a number of possible advantages to BGI that may be felt in and around the installations. As well as water quality and flood mitigation benefits, studies have shown that BGI may also provide multiple further benefits, such as leisure and recreation opportunities, cooling, improving air-quality, biodiversity and aesthetics, which in turn have been argued to improve physical and mental health and well-being. Individuals' perceptions and behaviour might also be shaped by more widespread benefits such as carbon sequestration and reduced stormwater treatment costs.

Aesthetics and Amenity

Very little research has thus far been conducted around residents' perceptions of BGI in the UK. A couple of studies have observed preferences for grey over blue-green, however more have observed preferences for blue-green over grey infrastructure, principally for reasons of aesthetics and amenity provision, where suitable consultation and awareness-raising has taken place beforehand.

Some of these studies also found varying levels of awareness regarding BGI functionality. However, appreciation of devices does not necessarily relate to primary functionality – **people tended to rate installations positively more for the sake of aesthetics and amenity**. In Portland, Oregon USA, studies have evaluated public perceptions of 'bioswales' (highly engineered, modular rain-gardens), finding good appreciation of the devices, and also found that residents walked and talked with their neighbours more in areas with such BGI.

In the Blue-Green Cities study, where semi-structured interviews with residents living locally to installations were conducted, it was found that understanding of BGI functions was frequently lacking. Many respondents in UK locations did not realise the flood functions of devices, a significant number in Portland, Oregon, did not understand the water cleaning functions of bioswales, and many did not connect BGI with improved wildlife corridors, improving air quality or countering urban heat island effects. Understanding is important to appreciation, awareness of appropriate behaviour and willingness to engage with low-level maintenance such as clearing.

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EP/K013661/1
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Communities Want to Have a Voice

Residents can be positive about BGI generally, but the facilities closest to them may be a separate issue. The choice or height of plants, and placement of trees, can provoke strong opinions.

There is no universal measure for 'amenity'; gaining the greatest approval from local communities will require co-developing solutions that take into account their understandings and preferences.

'I don't hate nothin' about them, I like the beauty of them. The trees, they put really nice trees in them, they could've been putting some ugly trees in!'

'I really can't maintain another the tree, I can't take care of it … I love trees, but not in my yard!'

'That tree is blocking the light from my trees. So my trees are going to die for their tree.'

[Portland residents on trees in bioswales]

Maintenance is a Key Issue

'I put sand and cement in there to stop the weeds going through.'
[Bristol Dings resident]

Maintenance will be a concern for Local Authorities and residents; flood functions and amenity benefits will depend upon appropriate maintenance and behaviour.

Engagement and discussion with local residents could help shape behaviour and improve willingness to engage with clearing and maintenance.

'People dig soil out of their yard and dump it in the swale.' [Portland resident]

Engagement needs to be longer-term

Willingness to help maintain facilities was found to be variable and dependent upon multiple factors, including appreciation, understanding, ease of maintenance, perceived "ownership" and a sense of shared responsibility. This willingness can become more problematic in the absence of long-term engagement, as people forget and populations change. For this reason, outreach will generally be beneficial. Creative efforts at longer-term engagement and awareness-raising need to be ongoing. When residents are engaged, a proportion of these are likely to want to become involved with maintenance.

EVERETT, G., LAMOND, J., MORZILLO, A., CHAN, F. & MATSLER, M. (2015) 'Delivering green streets: an exploration of changing perceptions and behaviours over time around bioswales in Portland, Oregon', *Journal of Flood Risk Management*, http://dx.doi.org/10.1111/jfr3.12225.
EVERETT, G., LAMOND, J., MORZILLO, A., CHAN, F. & MATSLER, M. (2015) 'Can sustainable drainage systems help people live with water?', *Proceedings of the ICE – Water Management*, http://dx.doi.org/10.1680/wama.14.00076.

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EP/K013661/1

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