

NIC Resilience Scoping Study Consultation

Response from the Landscape Institute

Summary

The Landscape Institute (LI) aims to lead and inspire the landscape profession to ensure it is equipped to deliver its purpose under our Royal Charter for the benefit of people, place and nature, for today and for future generations. We represent over 5,000 landscape architects, planners, designers, managers and scientists.

The National Infrastructure Assessment 2018 states that “Infrastructure delivery depends on the availability of the right skills, the approach to construction and project management, the depth of the supply base, and the capability of government and other infrastructure owners and operators to act as an intelligent client”. Landscape professionals can support effective and timely delivery through landscape-led approaches to infrastructure planning, and can identify and enable key opportunities to implement green infrastructure and other measures during development, in order to achieve multiple benefits for society and the economy.

Landscapes and how they are designed, managed and used by the public have a major impact on national infrastructure, including road, rail, energy, power and communications networks, water and waste management, and city growth, and vice versa. The key resilience proposals from the NIA 2018 related to landscapes included ensuring resilience to extreme drought through additional supply and demand reduction a national standard of flood resilience for all communities by 2050 and measures to make cities healthier, more liveable and better designed for living. The Landscape Institute is currently seeking case studies that illustrate where landscape professionals have made a positive impact in the delivery of infrastructure projects in the UK and abroad. This will be developed into new guidance to assist members with the planning and delivery of infrastructure projects¹.

The following consultation response outlines the many ways that landscape professionals can contribute to the delivery of sustainable and resilient national infrastructure networks.

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¹ <https://www.landscapeinstitute.org/news/infrastructure-guidance-case-studies/>

Q1: What are the key questions that the next National Infrastructure Assessment should answer about resilience?

We have set out some questions below relating to the terms of reference for the NIC:

a) Review UK and international knowledge and approaches relating to resilience of current and future economic infrastructure systems, including how this can be understood, definitions, ways of assessing resilience, treatment of interdependencies and the management of the risk from different threats and hazards.

- Can the Ofwat definition of resilience, “resilience is the ability to cope with, and recover from, disruption, and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future” be applied more broadly?
- How can the definition of resilience produced by the Ofwat task force and the resilience duty placed on Ofwat be applied to wider infrastructure concerns and regulators/ departments/ planning bodies?
- How can the resilience approach being taken at the city scale (e.g. 100 resilient cities) be better applied to the National Infrastructure Assessment?

b) Develop an understanding of public expectations and response to the potential loss of infrastructure services and review alternative options and contingency planning, for example, in the light of technological advances such as cyber threats, and behavioural changes.

- What is the public perception of, and response to, potential loss of infrastructure during resilience events?
- How can behaviour change be better utilised to support infrastructure resilience (e.g. public involvement in maintenance of public green infrastructure networks, potential for provision and maintenance of private green infrastructure such as SuDS systems within residential and business properties that can help overall wastewater and drainage management)?
- How can we support communities seeking to take a more active role in landscape management (e.g. for resilience of green infrastructure linked to flood resilience), protection and design by promoting co-production and knowledge exchange?

c) Develop an analytical approach that can be used to better understand the resilience of economic infrastructure systems, and the costs and benefits of measures to improve this.

- How can we better identify the multiple benefits from resilience actions and utilise these in discussions around both capital and maintenance funding for more resilient landscapes?

d) Undertake pilot analysis of infrastructure systems (for example through ‘stress tests’ of sectors, geographical areas or companies) to identify actions to improve the resilience of national infrastructure systems and inform investment decisions.

- How can stress testing the resilience of infrastructure at a landscape-scale identify actions to improve resilience?

e) Make recommendations to government on the resilience of economic infrastructure, how best to assess resilience, sharing of good practice, actions needed and data collection or analysis to inform the next National Infrastructure Assessment.

- How can an improved planning process ensure joined-up working between different infrastructure needs, for example integrating green infrastructure for flood risk and wider climate resilience when making changes to communications, energy and water and wastewater infrastructure?
- How can taking a more integrated approach to planning for national infrastructure, addressing issues of regulatory silos, help improve resilience?
- What are the skills and types of professional expertise that will enable resilience in national infrastructure?

Q2: On the basis of your response to question 1, what issues should be prioritised in the resilience study?

We have identified several issues in relation to national infrastructure that could be addressed by this resilience study.

Sustainable Drainage

Sustainable drainage systems (SuDS) are a key element of green infrastructure that have multiple benefits. However, these are being delivered less well in England than in Wales or Scotland. A recent report by the LI and the Construction Industry Council² highlights the huge step change still needed in this area. The report found that 96% of local authorities report that the quality of planning submissions for SuDS are either 'inadequate' or 'mixed'. And as of 2017, 25% of local authorities had no formal SuDS policies in place, nor any immediate plans to implement any. This is putting communities under threat of surface water flooding as climate change continues to put pressure on our landscapes.

Answers to some of the questions proposed above could help address some of the issues being faced around delivery, adoptions and maintenance of SuDS to enable drought and flood resilience of national infrastructure networks.

Integrated Water Management

There are many different names and definitions for integrated water management. In our response we are referring to a holistic water cycle approach to managing water resources, water quality, and flood risk management. New Drainage and Wastewater Management Plans are in development by water companies³, however there is a risk that they will not account for the potential benefits of water reuse that may help fund the creation and management of green infrastructure such as SuDS whilst delivering more resilient, semi-autonomous systems, moving away from centralised water and wastewater supply services.

With pressures from drought also increasing, particularly in the East and South-East of England, water reuse via SuDS can provide an alternative and more resilient decentralised water supply option. An example exists in the North West Cambridge water reuse scheme that combines SuDS and water reuse⁴. Anglian Water, for example, are promoting water neutrality and are looking at incentives for integrated water management through SuDS and water reuse. However, there remain barriers to developers implementing these approaches.

Environmental Net Gain for new infrastructure planning

The Government has recently consulted on proposals for Environmental Net Gain. They have announced that they plan to move forward with statutory requirements for biodiversity net gain. However there is a risk to large scale infrastructure proposals if wider

² https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/01/11689_LI_SuDS-Report_v4a-Web.pdf

³ <https://www.water.org.uk/policy-topics/managing-sewage-and-drainage/drainage-and-wastewater-management-plans/>

⁴ <http://www.nwcambridge.co.uk/vision/sustainability/water-recycling>

environmental and social benefits around flooding, drought and biodiversity are not considered as these benefits may not be realised.

Q3: Are there specific (e.g. policy, knowledge, data sharing or other) barriers to addressing resilience emerging from cross-sectoral interdependencies?

Respondents to the LI and CIC survey suggested the following policy changes are required to address delivery of SuDS in England:

- Making SuDS requirements statutory and covering minor schemes
- Implementation of Schedule 3 of the Flood and Water Management Act 2010 (FWMA) – thereby establishing SuDS Approving Bodies (SABs) within LPAs, which must approve all new drainage schemes, requiring that they meet national standards
- More emphasis on ‘true/green’ SuDS and those that deliver multiple benefits, i.e. water quality, amenity, biodiversity
- Removal of the right to connect to public sewers
- More power to create regional policies and standards

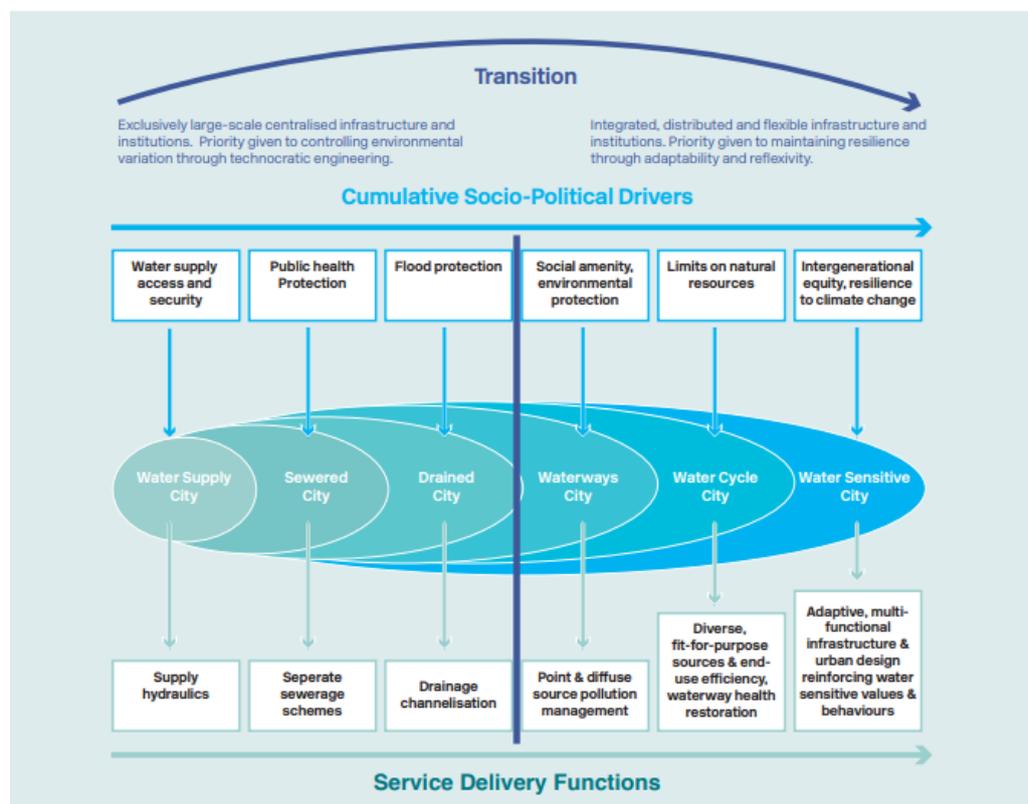
A major issue within government, regulators and water companies is working in silos. This separation of biodiversity, water quality, water resources, flood risk, urban planning and design, among others, often means that the multiple-benefits from more integrated approaches aren’t achieved. This should be addressed through the lens of resilience in the next National Infrastructure Assessment.

Q4: Are there any examples in which barriers to resilience issues, arising from sectoral interdependencies or other causes, have been addressed or overcome?

There are international examples where barriers to resilience around sectoral interdependencies have been overcome. We present two case studies below:

Transitioning to Water Sensitive Urban Design in Australia

In response to the Millennium Drought followed by major floods in Eastern Australia, the concept of Water Sensitive Urban Design was developed. By taking an integrated approach to urban water management, cities such as Melbourne had to overcome many sectoral interdependency issues and problems linked to organisations operating within silos. The key transition factors for Melbourne are outlined in a report on their transition and are included in the Figure below⁵. These factors have been considered for the UK in a scoping study, however many of the proposed actions from this haven't been taken forward because of the structure and the industry and approaches to regulation of the water sector in the UK⁶.



⁵ https://watersensitivecities.org.au/wp-content/uploads/2016/05/TMR_A4-1_MovingTowardWSC.pdf

⁶ https://www.waterwise.org.uk/wp-content/uploads/2018/02/CIRIA-2013_Creating-Water-Sensitive-Place.compressed.pdf

Managing the Urban Heat Island in Singapore

Another example of a coordinated approach is in management of urban heat islands in Singapore. In 2017 Cooling Singapore was set up with the aim: to remove heat from the urban system, and thereby improve outdoor thermal comfort. This initiative will require a cross-institutional effort and a 'whole of government' approach due to many areas including energy policy, transport, building standards, planning and public health. This approach is in the planning stages but builds on previous successful initiatives such as the Active, Beautiful, Clean Water Programme, which has delivered improved flood management through blue-green infrastructure led and designed by landscape professionals⁷.

⁷ <https://www.landscapeinstitute.org/journal/winter-2019/> (pp. 37-18)