



SPONGE CITIES UK



Briefing note

Why we should be adopting sponge city principles across the UK

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The UK is facing increasing extremes of weather, from flash floods to droughts; these are playing out with growing severity in urban areas.

Hard surfaces in urban areas exacerbate water pollution, the urban heat island effect and flooding from rainwater (known as surface water flooding; there are now around 4.6 million properties in areas at risk, a 43% increase on the Environment Agency's previous [assessment](#) for England). Yet in recent decades urban areas have increased in size [by nearly a third](#), while losing a [city-sized](#) amount of green space.

To tackle these challenges we need to make our urban areas more spongy.

What is a sponge city?

Sponge cities use nature-based infrastructure to reduce climate and environmental impacts and create attractive places to live and work. Features such as rain gardens, urban wetlands, pocket parks and street trees absorb, filter and store rainfall to reduce the impacts of floods, droughts, heat and pollution. All this greenery creates a sense of place for communities as well as habitats for wildlife.

In sponge cities, water is considered a treasured resource – filtered and stored for beneficial use – rather than viewed as a problem to be got rid of quickly through underground concrete drains.

The concept of sponge cities has [gained traction globally](#) since it was introduced by the late landscape architect Kongjian Yu and adopted as a national policy in China to tackle urban flooding. The concept has been adapted for different situations, and its principles implemented around the globe including in parts of Asia, Africa, Europe and the Americas. But we're yet to embrace it widely here in the UK.

With this government's desire for growth, ambitious housebuilding targets, and proposed [12 new towns](#), there is a huge opportunity to mainstream the sponge cities concept and protect homes and businesses from climate extremes, while also creating thriving communities.

It doesn't just have to be spongy cities. Sponginess is beneficial for new and existing towns, villages, developments and entire landscapes.

What's stopping sponginess in the UK?

Opportunities to mainstream sustainable drainage systems (SuDS) – a key component of the sponge cities concept – have been missed by successive governments, influenced by a false position that delivering nature-based infrastructure is too costly and bureaucratic for developers, and a blocker to housing delivery.

In England, after serious floods in the summer of 2007 killed 13 people, impacted 55,000 homes and businesses and caused £4 billion in economic losses, the Flood & Water Management Act 2010 provided the legal framework for mandatory sustainable drainage systems in new developments. Fifteen years later, those provisions have still not been implemented. That's 15 years during which climate change has brought more intense and frequent storms and longer heatwaves to our communities. Fifteen years during which [more than two million homes](#) have been built without such well-designed, climate resilient measures in place.

Debunking myths

The sponge cities approach has been shown to be more cost-effective compared to conventional concrete-based underground drainage systems – almost £450 million cheaper in the case of [the Chinese city of Wuhan](#), for example. And the myriad additional benefits they deliver – from water resources to biodiversity gains to amenity value – have been demonstrated worldwide.

But for too long in the UK, SuDS have been labelled as too difficult to deliver and a cost burden. CIWEM's [research](#) suggests that the capital and maintenance costs differences between SuDS and conventional drainage in the UK is marginal, and there is no requirement to factor in their multiple benefits to cost benefit analyses.

Recent analysis, commissioned through the 'Enabling Water Smart Communities' project, demonstrates clearly that the economics are positive. It finds that if SuDS were required for the Office of Budget Responsibility (OBR)'s forecast of 1.3 million new homes, the **total additional welfare value to residents could be as much as £219 million annually**, which translates to a **£3.1 billion property price premium**, if SuDS were mandatory. And if we were to integrate sponginess – rain gardens, street trees, pocket parks and ponds – across all our cities the benefits would be orders of magnitude greater.

The research finds that residents place a high value on the natural drainage features of SuDS, and that the public would pay an average of £281 more a year to live in a home with SuDS. The research also found that a home with SuDS has a £4,001 premium in market value than an otherwise identical property with standard drainage systems.

Developers recognise this value in terms of property prices and saleability of homes. But they need clarity from government and a nationally consistent approach to deliver 'sponginess' in all new developments efficiently.

The current planning-led approach breeds inconsistency from local authority to local authority, alongside an adversarial relationship between developers and flood risk authorities that delays developments and costs public money in planning appeals and inquiries. Moreover a long-standing barrier to SuDS identified in the 2008 [Pitt Review](#) into the summer 2007 floods – no clear mechanism for adoption and long-term maintenance – has still to be addressed.

How do we get more spongy?

The recent announcements in [flood funding policy](#) in England should help to improve support for a nature-based, decentralised approach to managing rainfall where it falls. But we need a fundamental shift in mindset to turn the vision of sponge cities UK into reality.

We call on all parties to collectively recognise the benefits of a sponge cities approach to society: flood management, water resources, water quality, health and wellbeing, nature and placemaking.

Making new housing climate resilient and nature friendly is not a barrier to the government's growth and housing ambitions.

We call on government to:

1. **Deliver cross-government, ministerial commitment to a 'sponge cities' approach** to new development and regeneration of existing cities, towns and villages to manage surface water flood risk, reduce the impact of development on drainage, sewerage infrastructure, the natural environment and unlock a raft of wider benefits.
2. **Build its proposed 12 new towns in England, several of which are in flood risk and water stressed areas, as exemplars of the sponge cities concept** to ensure that they will be resilient communities at the end of this century, not just for the next decade or two.
3. **Develop a national rainwater management strategy as part of its forthcoming Water White Paper**, which sets out how water resources, water pollution and flood risk management pressures will be reduced through managing rainwater effectively where it falls. This should apply for new build and through retrofit, as well as through major infrastructure.
4. **Legislate for a mandatory requirement for SuDS in new development**, with clear mechanisms for SuDS approval and adoption covering funding and long-term maintenance. This can be a lighter-touch approach than Schedule 3 of the Flood and Water Management Act. But a planning-led approach will perpetuate the failure of the past 15 years because planning is always open to interpretation and often time consuming and expensive negotiation.

We will:

Reach out across the water practitioner, developer and wider community to collate a comprehensive evidence base on the benefits of a committed approach to sponge cities in England and across the UK.

For more information please contact:

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