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Water sensitive design: integrating water with urban planning

For too long we have been designing water out of our cities when we should have been designing it in

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The Scottish National Gallery of Modern Art, Edinburgh. A water feature in the heart of a city will enhance the micro-climate and reduce heat island effect. Photograph: Murdo Macleod

In March this year, the Mayor of London and [RoDMA](#) announced a tender to create the UK's largest floating village in London's Royal Docks, on an area one and a half times the size of Green Park. Planners in Norwich, meanwhile, will be scrutinising plans submitted earlier this year for a [rain square](#) and flood park that aims to create 670 homes and new public spaces on a flood-prone site at the juncture of the Wensum and Yare rivers.

As long as we want to keep developing in low-lying areas, particularly around our tidal rivers and coasts, then creating whole settlements that rise and fall as the [water](#) ebbs and flows is a perfectly legitimate solution. The Dutch – the ultimate early adopters when it comes to water – already boast examples such as Amsterdam's pioneering [Ijburg community](#). But for the majority of people living in urban centres, floating villages aren't the future. In fact, they often obscure what we really need to be focusing on when we think about the relationship between our [cities](#) and water.

Those who visited [Ecobuild](#) this year had the opportunity to hear Professor Tony Wong, chief executive of the Cooperative Research Centre for Water Sensitive Cities, talking about the steady progression up the agenda of [water sensitive urban design](#) (WSUD) in Australia. Successive years of flooding and some of the worst droughts in recorded history – which have not only threatened the health and wellbeing of the population but very nearly brought industry grinding to a halt – have prompted the Australian government to think differently about water.

The result has been a huge shift in mindset that has seen WSUD enshrined in planning

and policy responses to climate change, and an acceptance that tackling flooding and drought doesn't have to be in isolation to creating liveable cities. A water feature in the heart of a city, for example, will enhance the micro-climate and reduce heat island effect, while whole productive landscapes can be supported by waste-water recycling.

A new report, Water Sensitive Urban Design in the UK, published by the CIRIA in March, reinterprets the WSUD concept for the UK and its conclusions might best be summed up simply as: for too long, we have been designing water out of our cities when we should have been designing it in. The introduction to the report sets out the challenge we face: "Water shortages, flooding and watercourse pollution are all signs of stress where developed areas have a troubled interaction with the natural water cycle and where, conversely, water has become a risk or a nuisance rather than an asset or an opportunity."

The evidence has been stacking up for some time. Flooding in 2012 caused the biggest insurance industry losses since 2007, when 13 people were killed and more than £3bn of water damage claims were filed. According to Defra, an estimated 5m properties in England alone are at risk of flooding – and their owners will be left even more vulnerable if the Association of British Insurers agreement to insure properties in high-risk areas is not renewed after July 2013. This isn't just about flooding either: 27% of water bodies in England do not meet European water quality standards, while 20 million customers in the UK experienced hosepipe bans in the 2012 to limit stress on water resources.

A survey of built environment professionals conducted as part of the report showed that 83% of respondents believe water management is considered too late in the planning and design process of developments. We have to start prioritising all elements of the water cycle when designing and developing new places. We can start by looking beyond the idea that a pipe in the ground is the best option for getting rid of rainwater. This is a 19th-century solution that is neither the best nor only solution to a growing 21st-century problem. Instead, we need a better understanding of the economics that allow soft-planted or bio-engineered drainage schemes to cost less while enhancing land values.

We already know, for example, that sustainable drainage systems (SuDS) – the creation of ponds, wetlands, swales and basins that mimic natural drainage – can be a cost-effective way to prevent surface flooding while creating valuable public amenities. But we need to go further than SuDS and start joining the dots between flood risk management and water resource management, and start putting water at the heart of discussions about what makes places great to live.

This is what we mean when we talk about WSUD, a process of looking at how, for example, we could be holding on to more of our flood water for reuse in meeting demand for drinkable water, while at the same time taking the pressure off existing infrastructure by reducing the amount of water entering the sewers. And a fundamental part of a water sensitive city is that we integrate the design of those features into the fabric of our towns and cities as attractive livable landscapes.

WSUD can be applied at all scales, from a single house to an entire city, and it can be retrofitted to existing developments as well as built in from the start. What we need are policies that see this thinking being adopted in every local plan and a commitment from the government to a comprehensive water management programme for the UK.

Sue Illman is president of the Landscape Institute, which published Green Infrastructure: An integrated approach to land use about the benefits green infrastructure can bring by creating multifunctional landscapes.

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