

Debate

FLOODING FORESIGHT

4

Almost 4M
properties in the
UK are at risk
of surface water
flooding

£2.6bn

Government
investment in flood
defences by 2021

80%

Percentage
of planning
applications that
now contain
an element of
SuDS

In association with

Innovyze®

For well over a decade, the utopian view of sustainable drainage systems (SuDS) has seemingly stagnated their widespread and effective installation, adoption and maintenance. But the veil is slowly lifting on their complexities and now major breakthroughs are happening from the ground up. Here we take a closer look at the SuDS ambitions of the Pitt Review and how pragmatic and locally bold plans have begun to take hold.

Report by **Alexandra Wynne.**

Eleven years ago, the UK witnessed some of the most devastating floods in its history. The Met Office described the trigger as the “extremely heavy and prolonged rain” that fell relentlessly throughout June and July 2007.

Perhaps a tad understated remarks when in reality that summer equated to the wettest May to July period since records began in 1766.

The resulting floods caused several deaths and thousands of people’s lives and livelihoods were ruined. More than 7,000 homes in Hull were damaged by surface water flooding; the rivers Thames and Severn burst their banks; and many motorways and railway stations were closed.

Government soon after appointed Sir Michael Pitt, a former council chief executive, to chair a review into those floods and soon after he described the scale of damage then as “shocking” and the first-hand accounts “troubling”.

He labelled the flooding the country’s largest peacetime emergency for 60 years. At the same time, the Environment Agency warned that “two-thirds of the properties flooded this summer were affected because drains and sewers were overwhelmed” and added that in urban areas “paved surfaces behave like saturated soil”.

Pitt’s findings – published 10 years ago last June – were exhaustive and included 92 recommendations for improving the country’s response to the threat of flooding. Then environment secretary Hilary Benn offered the government’s support for all 92 and pledged that an action plan would “help to ensure that, as a country, we are all better prepared for flooding”.

KEY FACTS

7,000
Homes in Hull
damaged by
surface water
floods in 2007



Summer 2017: Floods killed 12 people

A decade on and our increasing acceptance that our lives may be disrupted by storm events is illustrated by the fact that we now name each storm. The most recent perpetrator, the fatal Storm Callum, hit the UK in October, taking lives, testing flood defences, causing destruction to property and beating Wales with its worst flooding for 30 years.

“ Politicians in this country have been easily distracted from tackling the root causes of flooding

Awareness body Know Your Flood Risk estimates that almost 4M properties in the UK are at risk from surface water flooding.

And with likely increases in the ferocity of storm events in the UK, these factors combined make widespread SuDS adoption an absolute necessity to create a first, and hopefully robust, line of defence against the flood threat.

GOVERNMENT POSITION – THE ROOT OF ALL CHANGE?

Well, perhaps not. Sadly, despite intermittent bursts of public activity and policy proposals, politicians in this country have been easily distracted from tackling the root causes of flooding. While disasters like the summer 2007 floods, and notably those of winter 2015, made a huge impact on people’s lives, the headlines soon moved elsewhere,

“Viewing, and designing, SuDS as part of the wider water management system opens up possibilities”

taking the policy makers with them.

Schedule 3 of the Flood and Water Management Act 2010, which deals with Pitt's recommendations concerning sustainable drainage, has still not been enacted in England.

Instead, the government made amendments to the National Planning Policy Framework to stipulate that major developments should “ensure” SuDS are put in place “unless demonstrated to be inappropriate”.

Getting developers to specify and install high spec systems that are fit for purpose up front is a challenge in itself while the government continues to prevaricate on the subject.

INDUSTRY DRIVING CHANGE

Yet while the government looks the other way, it is easy to ignore a growing movement in the world of SuDS that may well just prove it is possible to effect great change with little or no political weight.

There are increasing industry-led initiatives coming to light that give many reasons to be positive about the potential for the philosophical, economic, legal and strategic barriers to implementing and maintaining effective SuDS to be overcome.

“We're at a very exciting time,” insists Yorkshire Water drainage strategy manager Brian Smith, adding that the semantics of how SuDS are defined in part holds the key to change.

“The term SuDS is a bit of a misnomer,” he says. “It's actually about effective control and management of water and storm water.” Viewing, and designing, SuDS as part of the wider water management system opens up possibilities. Not least because legally water companies can adopt sewers whereas SuDS are more complex,

AT THE ROUND TABLE

This report is informed by a round table discussion held in London in October, in association with Innovyze. Around the table were:

David Fortune Innovyze
Peter Coombs Innovyze
Mark Hansford New Civil Engineer
Alexandra Wynne New Civil Engineer
Jeremy Jones Atkins
Chris Patmore WSP
Paul Shaffer Ciria
Steve Wilson Environmental

Protection Group
Brian Smith Yorkshire Water
Matt Tandy Aecom
Joanna Bradley SDS Ltd
Alex Stephenson British Water Surface Water Group
H2o Intel
Jonathan Glerum Anglian Water Service
Owen Davies Royal Borough of Greenwich
Wilhelmina Drayton London Borough of Bexley
Richard Kellagher HR Wallingford
Sarah Netherclift Innovyze

FURTHER READING

The Pitt Review, UK Government Web Archive
<http://www.nationalarchives.gov.uk/webarchive/>

London Sustainable Drainage Action Plan
<https://www.london.gov.uk>

Susdrain's Sustainable Drainage Systems (SuDS) maintenance and adoption options (England)
<https://www.susdrain.org>

Water UK updates on Sewers for Adoption 8
<https://www.water.org.uk>

National Surface Water Management and SuDS Group
<https://www.sudswales.com/>

Anglian Water Smarter Drop campaign for Newmarket
<https://smarterdrop.com/>

Smith explains.

“Some SuDS can be designed as sewers or having a sewerage function – and that's a step change for the industry,” he points out. “In fact, source control is a part of designing high quality SuDS.”

“Water companies will adopt SuDS – above and below ground,” he asserts, emphasising the point by explaining there is now established case law to support this approach.

Helping to forge the way ahead is industry body Susdrain, which, since 2015 has produced a fact sheet

detailing SuDS maintenance and adoption options.

It sets out some of the more attainable ones, along with likely risks and suggestions of how to mitigate them.

In particular it emphasises that hurdles can be overcome through discussions and collaboration with developers and authorities at the earliest opportunity.

Adding weight from the water companies' perspective is the intention of umbrella body Water UK to publish a framework and guidance on the relation between sewerage and SuDS components. The hope is to have something available in the next month or so.

Too much emphasis has perhaps been placed on looking around for organisations to volunteer to adopt SuDS assets. In trying to get the answers right, accepting that there is no one size fits all approach has been liberating, according to others at the debate.

“It is like a jigsaw with many different pieces,” says Atkins future water networks director Jeremy Jones.

“Local authorities, water companies, planners, highways authorities – they all work to differing design standards.

“Having said that, the fact is that all the pieces are there to solve everything by people working together.

“You see it in some of the more active water companies and they just don't see obstacles.”

The attendees at the debate highlighted anecdotal evidence of highways authorities improving their efforts, particularly in beginning to roll out more effective SuDS as the technology becomes more familiar.

But there was no wholesale support for their efforts as it was suggested that the degree to which design quality is ensured once it comes to construction remains questionable.

Added to which, there was a propensity to be more successful when it came to new build and less evidence that authorities were as accomplished in retrofitting SuDS.

However, Transport for London was lauded for its strategy to remove

“Local authorities, water companies, planners, highways authorities – they all work to differing design standards

impermeable paving where possible and its aim to manage rainwater sustainably by 2040.

FUTURE IS BRIGHT?

“It’s taken far too long to get here but we have come a long way,” suggested Alex Stephenson, director of water consultancy H2O Intelligence.

“It just takes a few champions.

“People must think ‘what’s the point of a small SuDS on a street corner?’ But if everyone did that nationally... it would be a huge move in the right direction.”

The change of mindset once again was key for Innovyze business developer Peter Coombs, whose anecdote of an early career associate in a local authority illustrated how far industry had to come.

Over 40 years ago Coombs was told: “I don’t want any clever ideas. This is how we do things.”

Nowadays he is more optimistic. “We’ve got the passion and the drive and knowledge to implement SuDS.”

While the development of skills and mindsets is evident there is more to be done.

The positives were illustrated by the fact that SuDS had made it onto the syllabus for Brunel University’s Flood and Coastal Engineering degree, suggested London Borough of Bexley flood risk and development manager Wilhelmina Drayton. Yet a greater working relationship between landscape architects and engineers, and an acceptance of the role technology could have requires greater commitment.

Technology must play a part in helping to create an asset register or data portal would be vital, debate attendees suggested. **N**

CASE STUDY: NEWMARKET SMARTER DROP CAMPAIGN

“It’s the kids who do it. It’s showing us we can do this, even without a major driver”

“At Anglian Water we’ve been very proactive on SuDS for a long time,” explains its regional flood risk manager Jonathan Glerum. Apart from the creation of its own guidance some years ago, this has been demonstrated through its recent “shop window” innovation project at Newmarket.

Also known as the Smarter Drop campaign, Anglian aims to make Newmarket in Suffolk the “water saving capital of the UK” with SuDS at the heart of it.

What makes the project stand out even more is that the project did not stem from necessity – the main qualification was that it was geographically central for Anglian and therefore could more readily draw on a wide variety of the firm’s skilled workers.

The “crowning glory” is a deceptively simple arrangement of SuDS – with design input from consultant Atkins – now installed at the town’s All Saints primary school. There, Anglian has funded and built a tree pit with a water droplet-shaped rain garden; a series of planters which enable the school drainpipes to be disconnected from the foul sewer; a watering can and cloud waterfall system to flow rainwater into the planters; a gazebo-style outdoor classroom for the children to learn more about the environment and water cycle; and a weather station to help support the education of children to monitor the climate at the school.

Alongside this it has produced



All Saints Primary School is Anglian’s “crowning glory”

educational material for maintaining the planters.

Plants and trees soak up rainwater and slow the speed at which it enters the sewers, reducing the chance of them overflowing. The greenery has the added bonus of being visually appealing as well as providing a home to wildlife and biodiversity.

It is a great learning environment for children. And what is even more symbolic is that while high level industry and politicians debate the question of who should own and maintain which SuDS across the country, here it has been beautifully and

simply resolved.

“It’s the kids who do it,” states Glerum plainly. “It’s showing us we can do this, even without a major driver,” he adds and his optimism is backed by the company’s commitment to getting the young on board to the extent that Anglian has bold intentions about changing mindsets – and starting with children – written into its 25 year business plan

“By investing more in our school and community education programme, we will promote key messages about the value of water.”