Creating a water sensitive South West

creation of a diverse, multi-stakeholder group charged with the task of transitioning Devon and Cornwall into a water sensitive region

by Tony Barrett

In the South West of England water is a major part of the outstanding natural environment that is recognised worldwide. In this Atlantic promontory, the counties of Devon and Cornwall experience some of the UK's highest rainfall totals and are often the first to experience the full effect of winter storms. This dynamic often extreme environment is an important, regional characteristic that has shaped the iconic coastline, moorlands and rivers of the South West. The communities that live and work in the South West have a timeless relationship with water. The region's naturally sheltered harbours combined with clean and abundant rivers have, over many centuries, established and sustained thriving communities. This timeless connection to water is evident with the region's maritime history, commercial fishing fleet and industrial riverside antiquities.

Image 1: Steeped in maritime history, the Hoe has been a popular area for Plymothians and visitors for centuries - Courtesy of AECOM

Image 2: Horizon House: The Environment Agency's Head Office in Bristol utilises rainwater harvesting and recycling to flush water efficient toilets, reducing total mains water use by 70% - Courtesy of AECOM

Impacting the water cycle

In recent years this relationship has come under strain from population growth and development. This growth, coupled with increased climate variability, has impacted every aspect of the water cycle. Adapting to these challenges requires a smarter, more sustainable approach to water management and should reinvigorate a community's connection with its water. Water must be managed in a way that guarantees the protection of natural environments whilst also meeting the day-to-day needs of society.

Water sensitive urban design (WSUD) is one approach that can meet these demands and create attractive urban centres with greater liveability. However, achieving successful WSUD outcomes requires collaboration across a wide range of stakeholders. To explore this further, key stakeholders for water in the South West region have come together and formed the South West vision partnership. This relationship began with a workshop to both share perspectives and explore the topics of WSUD and sustainable drainage planning.

Thinking differently about water

Conventional approaches to water management rely on centralised 'linear' networks. Currently, each network is designed to convey water over great distances between source, treatment, use and disposal, with little integration between these systems.

Where changes in supply or demand occur, the traditional response is to expand the capacity of the network to accommodate increases in volume. This conventional approach to water management has limited benefits and cannot meet the drivers of climate variability and population growth alone.

WSUD is a new way of thinking about water management that can both meet these challenges and provide greater benefits for local communities. WSUD integrates water cycle management with the built and natural urban landscapes. It recognises that all elements of the water cycle are linked - rainwater, potable water, wastewater and groundwater - and adopts an integrated approach to tackle the issues of urbanisation and climate variability.

By managing them collectively, we can close the loops in our conventional, linear water management systems. This leads to greater network efficiencies, improved system capacity, improved urban hydrology and, when integrated into the built form, creates healthier urban environments. By seeking opportunities to apply WSUD, the South West region will manage water and wastewater resources in a way that provides positive economic, social and environmental outcomes.

An engaging workshop

Recognising the current issues and the need for change, South West Water and AECOM jointly hosted a workshop at South West Water's headquarters in Exeter to understand the context and barriers to more integrated water management solutions.

The workshop showcased the leading approaches to WSUD and invited attendees to share their expertise on how to address the various barriers to delivering WSUD in Devon and Cornwall. A series of short presentations outlined the key attributes of a water sensitive future and provided the evidence base for change. Local and international case studies were also exhibited to inspire the adoption of WSUD.

The workshop was attended by key stakeholders in the South West, including: South West Water, University of Exeter, Environment Agency, Devon County Council, Plymouth City Council, Torbay Council and Cornwall Council.

Re-imagining the South West

As part of the workshop, water champions from leading South West organisations were asked to reflect on the WSUD concept as they re-imagined a water sensitive South West of the future.

Each participant was encouraged to be as creative as possible in their group work as they envisaged how the WSUD principles could be delivered locally.

Each group represented a specific water sensitive location:

- A water sensitive city (e.g. Exeter).
- A water sensitive coastal town (e.g. Torquay).
- A water sensitive rural catchment in the South West.
- A water sensitive new development (mixed-use urban community).
- A water sensitive neighbourhood (existing urban community).

The output of this exercise was a list of necessary actions to assist the South West's transition towards a water sensitive future. Turning to the wider social, economic and environmental benefits of WSUD, each group refined their actions into the three most beneficial and achievable.

The final exercise was to cast votes on the top three actions from each group and determine the final top three actions from the workshop.

The top three actions of the workshop were:

1. To identify WSUD champions within organisations and communities across a range of levels.
2. To establish unbounded and responsive partnership working arrangements.

Image 3: Rainwater collection at the Eden Project's 'Core' building, Cornwall. Water sensitive measures adopted across the site include rainwater harvesting for toilet flushing and irrigation, surface water infiltration, water efficient fittings and water cycle education
Courtesy of AECOM

Image 4: The rivers and estuaries of the South West provide an unrivalled setting for water sports
Courtesy of AECOM

3. For all organisations to realise the benefits of non-conventional solutions and show commitment to their delivery.

Working together

The workshop provided the vital first step toward the formation of a diverse, multi-stakeholder group charged with the task of developing a collaborative vision to transition Devon and Cornwall into a water sensitive region.

To reinforce the messages and actions from the workshop, and maintain momentum, a vision document was created *(see image 6 next page)*. This vision document is the first step in creating a more resilient future. It builds on the success of the workshop and, for the first time, presents the combined views of key organisations responsible for WSUD delivery.

In this unique document, South West Water, the Environment Agency, University of Exeter and South West and lead local flood authorities describe what WSUD means to them, presenting the barriers they face and proposing a series of next steps. Collaboration is by far the strongest theme featuring throughout these perspectives.

Turning vision into reality

Recognising the importance of creating water sensitive communities, AECOM is helping the key stakeholders continue the conversation through a regional, water sensitive committee. This initiative will help every stakeholder set ambitious, targeted objectives, whilst bringing communities along with them on the journey.

This partnership will be an important forum to share best practice and collaborate across the region to ensure WSUD gets the momentum needed to mainstream it.

South West Water, for example, has a unique opportunity to lead the mainstreaming of WSUD across the region for the benefit of the environment, local communities and their customers through their 'Downstream Thinking' initiative. This is South West Water's catchment-based approach to alleviating sewer flooding and reducing the likelihood of watercourse pollution through ecologically sensitive 'soft' engineering schemes.

Spearheaded by South West Water and set to be delivered in partnership with a range of stakeholder groups including the Environment Agency, local councils, and lead local flood authorities, 'Downstream Thinking' is about long term planning, new ways of working and greater information sharing and communication.

By working together the region can identify where and how these benefits can be delivered. These include SuDS, habitat management, targeting sewer misconnections and tackling sewer misuse.

Mainstreaming WSUD is a shared responsibility and collaboration is fundamental for its success. This vision partnership is the start of a new, collaborative venture and will lead to coordinated implementation of water sensitive schemes and, perhaps more importantly, an engaged community that values water.

The initial meetings have created a firm foundation from which the vision partnership can grow, with strong commitment from all partners.

Conclusion

WSUD in the UK is still in its infancy and, while we fully understand the necessary solutions, making integrated water cycle management a standard practice will be challenging. The vision document outlines the aspirations of key organisations involved in WSUD delivery in the South West region. Communicating these

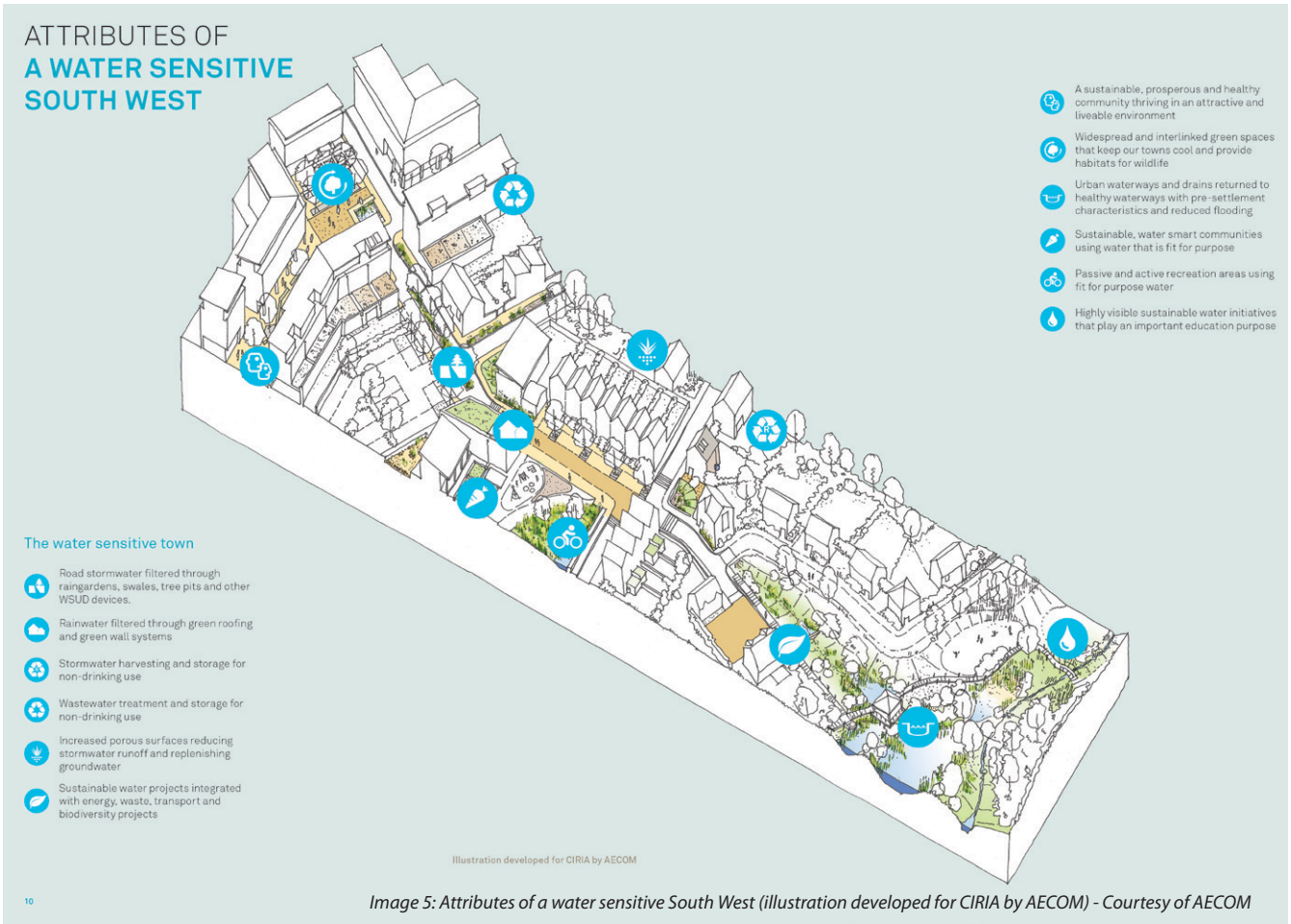

Image 5: Attributes of a water sensitive South West (illustration developed for CIRIA by AECOM) - Courtesy of AECOM

Image 6: Documenting the workshop and formalising the next steps, the 'Creating a water sensitive South West – a collaborative vision' has enabled key stakeholders in the South West to have a joint vision in creating a water sensitive region - Courtesy of AECOM

perspectives will facilitate deeper collaboration and may even fast track the adoption of this smarter approach to water management across the region.

Mainstreaming of WSUD is a long term goal. Working towards this vision will ensure the region continues to support thriving, prosperous communities whilst protecting the environment that gives the South West its unique qualities. Whether this be through trialling new water management technologies, working with communities more effectively on high profile WSUD projects or re-thinking a business as usual approach, every stakeholder in the region has a role to play.

The principal of the collaborative vision has since been applied to Yorkshire, where AECOM helped Yorkshire Water engage with their stakeholders, bringing together key councils, the Environment Agency and universities from across the region.

Establishing a shared vision is a critical first step in creating a water sensitive future where every stakeholder recognises the need to work together.

The editor and publishers would like to thank Tony Barrett, Principal Consultant with AECOM, for providing the above article for publication.

Image 7: Rainwater harvesting system used for toilet flushing at AECOM's Exeter office, and the poster used to educate employees.