

Managing water in the urban environment

Lessons from across the UK



Background

Funded by Defra and supported by WaterLIFE, the CaBA Urban Working Group held a series of Urban Water Management Workshops in March and April 2016 in Exeter, Manchester, London, Leicester and Worcester, respectively. The events were designed to bring together the very wide range of stakeholders and practitioners within the urban environment and to illustrate the multiple benefits that can be realised through collaborative delivery. Interactive sessions enabled participants to feedback the opportunities and barriers that they perceive with respect to implementing sustainable and partnership led urban water management, whilst technical presentations were designed to build capacity and expertise.

Approximately 300 participants attended the workshops in total, drawn from a wide range of organisations, including environmental NGO's, catchment partnerships, local authorities, water companies, community groups, the Environment Agency, Defra and Natural England. The following report captures the key findings of the workshops, drawing upon the presentations, interactive sessions and feedback sheets.

Collaborative working yields multiple benefits

Adopting a collaborative and integrated approach to urban water management maximises the multiple benefits that can be realised including; reduced flood risk, improved water quality, enhanced biodiversity, increased recreational opportunities, enhanced community health and well-being through recreation and engagement with green-blue spaces (now well proven through a wealth of academic research), reduced crime, and improvement of local economies.

Realising multiple benefits will often require the establishment of 'multi-functional spaces', for example using and enhancing existing green spaces for recreational benefits and also to manage floodwater and enhance biodiversity.

The Catchment Based Approach (CaBA) partnerships provide the framework to draw together a wide range of organisations, to help them to understand each other's strengths and objectives, to breakdown silo thinking, and to collectively agree priorities for action. Collaboration also means that multiple funding sources can be accessed enabling partnerships to 'get more for less' and realise cost-effective delivery.

Inaction means that flood risk, poor water quality, rivers with low aesthetic value, community disengagement and antisocial behaviour can remain significant issues in our towns and cities to the detriment of local people and economies. Moreover, the predicted future increase in the frequency and magnitude of intense rainfall events, coupled with progressive urban creep will, in the absence of any action, exacerbate a range of problems.

A growing number of examples of collaborative delivery in the urban environment are emerging, often involving local authorities (LAs). For example, case studies were presented from the Association of Greater Manchester Authorities, St Helen's Council, Enfield, Harrow and Lewisham Councils in London and Leicester City Council, each of which realised multiple benefits. Additionally, interactive feedback and one-to-one discussions indicated the likelihood for similar collaborative examples to emerge in the future in towns and cities in the South West and within the Severn River Basin.

Challenges and solutions to collaborative working

Changing mind-sets in organisations that are time and resource constrained can be a challenge, with inertia inhibiting change of traditional approaches, coupled with concerns regarding the efficacy and cost benefit of some delivery approaches. Rigid organisational procurement frameworks can also prevent collaborative delivery.

A very wide range of case studies were presented during the series of workshops, illustrating the efficacy of particular approaches, often including analysis confirming advantageous benefit to cost ratios. Indeed a substantial body of information quantifying benefits in economic terms is available including, for example, those captured in the [CIRIA's BeST](#) and the [SuDS Manual](#). A major challenge, that these workshops began to address, is to communicate the wealth of urban delivery examples and their economic rationale more widely. Additionally, it is important that future delivery builds in quantitative monitoring of all outcomes including environmental, societal and economic benefits, to continue to grow a robust evidence base.

There is often a lack of clarity and understanding around the roles and responsibilities arising from the policy and legislation of relevance to urban water management. The issue can appear complex with the overarching responsibility for water management changing multiple times as water moves through an urban catchment. However, it is this very complexity that points towards the importance and clear benefits of a collaborative approach. The Cambridge University [Planning Advice for Integrated Water Management](#) report provides a single source of information for planners as to how the water sector works from managing surface water and flood risk to providing housing, business development and infrastructure needs. In doing so, the report addresses much of the perceived complexity surrounding the issue, providing a series of case studies illustrating what is possible through partnership working. Similarly, the [Lewisham Council CaBA Guidance for Planners](#) provides advice with respect to development near rivers, outlining the basic considerations, information and processes that should be sought through the planning application process.

A hook or lever needs to be identified to engage potential partner organisations. Flood risk management often provides this driver due to its relevance to such a range of stakeholders within not just the urban environment but catchment wide too. In Leicester, the Local Enterprise Partnership has engaged with the Soar Catchment Partnership for this very reason, recognising the potential impact of flooding upon the local economy. Elsewhere, case studies illustrating economic growth and environmental protection can potentially engage Local Enterprise Partnerships – a focus solely on environmental issues is less likely to be successful.

Collaborative delivery has often been most successful where a particular individual has provided leadership and championed the approach to colleagues and external audiences. Dedicated project officers can realise longer-term benefits, whilst one local authority highlighted the value of having an Environment Agency water management expert seconded to them for a few hours per week.

Whilst workshop delegates were, in general, very supportive of Sustainable Drainage Systems (SuDS) some concerns were expressed regarding their adoption and long-term maintenance. In this respect, community engagement in their design can be of significant benefit, leading to greater local 'ownership' in the longer term. The need for greater collaboration on SuDS was also highlighted, both between departments in local authorities (e.g. highways and planning) and

between local authorities and other stakeholders like sewerage undertakers and Highways England.

The workshops highlighted that there is generally scope for much greater collaboration between those responsible for flood risk management (particularly lead local flood authorities) and the partnerships they lead, and both planning authorities (in district and unitary authorities) and catchment partnerships. This is particularly important given that 'up-stream' land management often has a significant impact upon flooding downstream in towns and cities. A holistic and catchment wide approach is required with respect to flood risk management and catchment partnerships have a key role to play in this, for example, through engaging rural landowners and implementing natural solutions. CaBA partnerships can also provide a voice for disempowered communities at risk of flooding.

Sustainable water management needs to be integrated into local policies and plans

Incorporating sustainable and integrated urban water management into local policies and plans provides a framework for delivery and helps to set out what is required of developers. The workshops identified a need to provide examples of strong policies within local plans and to disseminate these widely. The Greater Manchester Strategic Framework, Leicester City Council, Lewisham and Harrow Councils all provide good examples in this respect.

Strong local community engagement can influence policies and plans; elected members will listen. To achieve this requires communities to be engaged. This requires community groups to understand the benefits of integrated water management; and also understand how their local planning system works, so they can engage with local authority planning officers and lobby elected members, particularly those on planning committees.

Local communities have a key role to play

CaBA partnerships and others can play a role in drawing out community aspirations, driving a greater awareness of local environmental issues and solutions, and empowering communities to engage. Love Your River Telford and similar initiatives have markedly improved public awareness and community engagement. In the case of Telford significant cost savings have been realised through a reduction in the level of water treatment required.

There are a growing number of examples of empowered local communities co-delivering interventions in the urban environment. The London Wildlife Trust's 'Lost Effra' project in London and the Wildfowl and Wetland Trust's 'SuDS in Schools' initiative have collectively implemented small-scale street and school SuDS schemes, rainscapes, rain gardens, de-pave initiatives and green roofs etc. Monitoring shows that these small-scale interventions are effective and when implemented in sufficient number can realise benefits at the catchment scale.

Larger schemes can be co-designed with the local community to maximise engagement with green spaces and wildlife. This approach also builds local 'ownership' of a particular scheme and hence not only increases the possibility of resolving issues of longer-term maintenance but also reduces the potential for vandalism and anti-social behaviour.

More can be done to engage the business sector

Whilst water is an asset, and in some cases a critical resource, for business, it also poses a risk. For example, both flooding and insufficient water of a high enough quality may threaten productivity, whilst the discharge of excessively contaminated wastewater raises both a regulatory and reputational risk. Increased business engagement with water is emerging through collaboration with catchment partnerships including through the addressing of supply chain efficiency. However, much more can be done to engage businesses, especially within the urban environment, with the potential for significant success provided that the language and messages of engagement are appropriate.

Data and evidence are critical

Robust data and evidence, including water quality data and outputs from predictive tools, underpins the identification of pressures upon the urban environment, helping also to identify cost-effective and multiple benefit intervention opportunities and solutions. Data and evidence is also a means to drive collaborative working, being a proven stakeholder engagement tool.

The CaBA dataset includes 100+ GIS data layers made available to all partnerships nationwide. This information, coupled with support from the CaBA mentoring team has underpinned various delivery programmes in the urban environment. Flood risk maps and predicted sediment risk from rural land have played an important role in the work of the Soar partnership, for example, engaging Leicester City Council and the Local Enterprise Partnership. A programme of work has been developed through this collaboration that aims to deliver interventions to address flood risk - that is exacerbated by sediment loss - in the City of Leicester.

Understanding of urban ecosystems services and natural capital is key

There is a need to drive a more strategic approach that recognises and maximises the ecosystem service benefits afforded by the urban environment. To do so requires a quantitative understanding of environmental assets and natural capital value that, in turn, aid the identification of the optimum location for green (green-blue) infrastructure interventions in terms of maximising their benefits in the most cost-effective way. A common language needs to be established between those working in catchment partnerships, local authorities and other stakeholders in order to achieve multiple benefits and outcomes that are mutually beneficial.

Good examples exist of this approach, with the River Irwell Pilot Study using a range of spatial information to highlight locations within the catchment that afford the highest co-occurrence of opportunities, and to identify the type of intervention that would be most appropriate in each location. Defra's [Local Action Toolkit](#) involves working with local authorities and local community groups to enhance the value of natural capital in towns and cities, to improve people's lives, the environment and economic prosperity. The approach includes the development of a series of metrics that assess the current benefits being experienced by people and the environment, in order to target and implement interventions that enhance natural capital effectively.

Technical delivery

A very wide range of technical delivery examples by catchment partnerships and others was presented at the workshops. A number of partnerships now work with local authorities, the EA and

water companies to identify and tackle misconnections – and the collaborative approach to this key issue has proven to be effective. However, the scale of the problem is considerable and wholesale policy shifts are required to make a more widespread impact.

Diffuse urban runoff (polluted by hydrocarbons, heavy metals and sediment) is addressed through a range of landscape and engineering approaches ranging from the hydrodynamic vortex chambers installed by the South East Rivers Trust through to simple but effective mitigation measures such as roadside swales and hay bales on garage forecourts.

Habitat improvement both in-river and along the riparian margin is undertaken in the urban environment. These projects not only improve aquatic biodiversity and address hydromorphological pressures but also, importantly, enhance the aesthetics of a river and provide for greater community access and engagement with it. This in turn, helps the general public to value their local river and to steadily grow an understanding of the pressures that it faces and the actions that they, the local community, can take to address them.

Citizen science tools are helping CaBA partnerships to build robust environmental datasets that enable them to quantify pressures on the urban freshwater environment and identify cost-effective solutions. These datasets also underpin project proposals and help build confidence with potential funders that the partnerships are a trusted delivery partner. Several examples of these approaches were presented at the workshops including water quality monitoring by the Healthy Rivers Trust, the Ingrebourne Runoff Management Scheme and the Zoological Society of London's programme of surface water outfall monitoring using a dedicated app.

European funding – collaborative large scale projects

European funds are available to support the drive towards more collaborative urban water management. Both WaterLIFE and the LIFE IP Natural Course have such partnership working as a core objective, the latter including AGMA as a key partner. INTCatch is underpinned by developing innovative water quality monitoring tools that use digital technologies and present real-time information. The approach is well aligned to citizen science and the general approach provides significant opportunities for catchment partnerships to build robust environmental datasets that help prioritise delivery and secure funds to do so.

Recommendations

Whilst the emergence of examples of collaborative working in the urban environment is to be welcomed, the results from a questionnaire (developed by the CaBA communications manager) sent to local authorities nationally prior to the workshops indicated that these case studies are the exception and that partnership working in the urban environment is not the norm. Extending the workshops to a number of other major towns and cities would therefore be beneficial, particularly given that 'a much greater appreciation for the benefits of collaboration' was a common theme in workshop feedback across various stakeholders.

These workshops have proven to be a very effective means of engagement and dissemination however other communication mechanisms need to be advanced, including guidance notes and webinars. Material developed needs to capture case studies that highlight not only the range of environmental and social benefits that can be realised from collaborative delivery but the financial benefits that it affords too. There is a need, too, to disseminate widely good examples of local

policies and plans that capture the key elements of ensuring a sustainable and resource efficient approach to water management in the urban environment.

