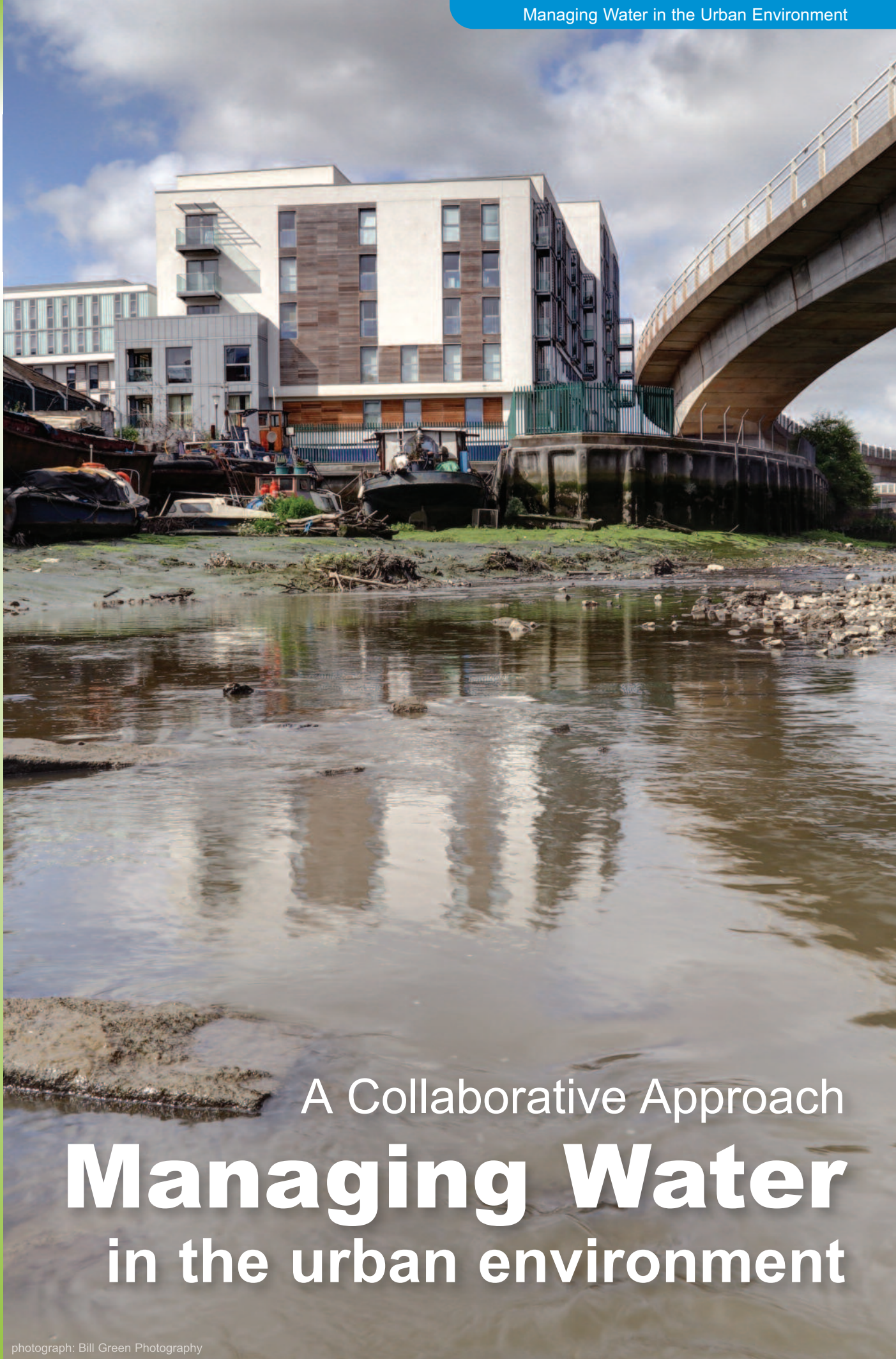




The Catchment Based Approach



A Collaborative Approach
Managing Water
in the urban environment

photograph: Bill Green Photography

Chapter one

Collaboration delivers multiple benefits

Adopting a collaborative and integrated approach to urban water management can realise multiple benefits for people and the environment including; reduced flood risk, improved water quality, enhanced biodiversity, increased amenity and 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.

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 identify nature-based solutions. Collaboration also means that multiple funding sources can be accessed enabling partnerships to 'get more for less' providing the necessary leverage and cost-effective delivery to make integrated water management a reality. A growing number of examples of collaborative delivery in the urban environment are emerging involving CaBA partnerships, Local Authorities and other key stakeholders.

Thames21 is working with the London Borough of Enfield to improve the Pymmes and Salmons Brooks in North London. Sustainable Drainage Systems (SuDS) are being designed to improve water quality and reduce flood risk. The systems, including wooded wetlands and ponds, have been co-designed with local people as part of the Love the Lea campaign, and will also provide new wildlife habitat and green space for the local community to enjoy. Both the Thames Water Community Investment Fund and the Greater London Authority have provided funding to enhance the amenity and educational value of the SuDS sites.



photograph: Ian Lamont/Thames21

Glenbrook SuDS, Enfield

Chapter two

Challenges and solutions



photographs: Environment Agency

The risk of urban flooding – like this in Witney and (right) Hexthorpe – could be reduced



A substantial body of information now exists to address concerns regarding the cost effectiveness of some delivery approaches in the urban environment. Both CIRIA's BeST and the SuDS Manual, for example, confirm advantageous benefit to cost ratios and quantify a range of benefits in economic terms.

There is often a lack of clarity and understanding around the roles and responsibilities arising from the policy and legislation associated with 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 on development near rivers, outlining the basic considerations, information and processes that the planning application process should require.

There is generally scope for greater collaboration between those responsible for flood risk management, particularly lead local flood authorities, and the partnerships they lead, and both district and unitary planning 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. Catchment partnerships have a key role to play in this, for example, through engaging rural landowners and implementing nature based solutions. CaBA partnerships can also provide a voice for disempowered communities at risk of flooding.

A new district park for the Manor and Castle area of Sheffield manages the runoff from a 300 dwelling new housing development. Without the neighbourhood SuDS scheme the housing development would not have been viable as the SuDS was considerably cheaper than conventional drainage. Project delivery reflected a partnership between the Council Parks Development Team, Sheffield Wildlife Trust, The Green Estate Company and Bellway Homes. The scheme consists of a series of basins positioned at different levels down the sloping topography of the park, each managing an increasing size of storm event and improving water quality down the system, ending in a dry grass basin doubling as a recreational space designed to manage a 1-in-100-year storm event.

For further information:

- CIRIA's BeST: www.susdrain.org/resources/best.html
- SuDS Manual: www.susdrain.org/resources/SuDS_Manual.html
- Cambridge University Planning Advice report: www.catchmentbasedapproach.org/images/PDFS/Urban-working-group/Planning_Advice_Note_June.pdf and www.catchmentbasedapproach.org/images/PDFS/Urban-working-group/Planning_Supplementary_Case_Studies_June_2014.pdf
- Lewisham Council CaBA report: www.catchmentbasedapproach.org/images/PDFS/Urban-working-group/CaBA-planning-guidance-note-WEB-FILE.pdf

Chapter three

Integrating sustainable water management into local policies

Local plans, which set out the local planning authority's policies for development in their area, are at the centre of sustainable development. Incorporating sustainable and integrated urban water management into local plans and policies provides a framework for delivery, guiding developers to provide the interventions and infrastructure needed. The common factor in successful local plans is a clear vision for what sustainable, integrated water management in the plan area looks like. This is supported by detailed policies setting out requirements for development which: provides sustainable drainage and water management; maintains and improves water quality, manages and reduces flood risk; and enhances the use, enjoyment and setting of

rivers, streams and wetlands. Good plans have sufficiently detailed and robust policies to give planners the support they need to insist that what developers build contributes to the plan's vision for sustainable integrated water management.

Strong local community engagement can influence policies and plans but to achieve this, community groups need to understand the benefits of integrated water management and must be able to draw together quantitative and robust evidence. They must 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.

photograph: Bill Green Photography



Ladywell Fields in Lewisham has been transformed from its previously characterless landscape into a diverse, popular and accessible public open space, with surveys indicating that the public's perception of the park in terms of recreational value and safety has improved. Before the river was restored to its natural course, only 44% of people felt safe using the park. Now 78% say they feel comfortable visiting Ladywell Fields. And the number of people using the park has increased by 250%. Returning the river to a natural state has seen a marked increase in wildlife. Local communities play an important role in the rivers' upkeep.

Ladywell Fields, Lewisham, London

“Planners have the power to make river restoration work within current laws and can insist that it is part of new development”

– Paul Chapman, London Borough of Lewisham

Chapter four

CaBA partnerships and other local groups can play a key role

CaBA partnerships and other local groups can play a key role in drawing out community aspirations, driving a greater awareness of local environmental issues and solutions, and empowering communities to engage. There are a growing number of examples of local communities co-delivering interventions in the urban environment. The London Wildlife Trust's 'Lost Effra' project in London and the Wildfowl & Wetlands Trust's 'SuDS for Schools' initiative have collectively implemented small-scale street and school SuDS schemes, rainscapes, rain gardens, de-pave initiatives and green roofs etc. Results show that these small-scale interventions are effective and when implemented in sufficient number can realise benefits at the catchment scale. Working with schools also provides the opportunity to engage younger generations and help them to understand and value their local environment. 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.

Love Your River Telford brings together NGOs including Shropshire Wildlife Trust, Telford and Wrekin Council, Severn Trent Water, community groups and an industry led environmental group to tackle urban water quality issues and realise benefits for the whole community. The 'Clean Stream Team' sits at the heart of the project and, supported by the wider community including businesses and schools, identifies and resolves pollution incidents. This provides substantial financial benefits too.

photos (left to right)

SuDS bog garden, Hollickwood Primary School

A wildflower swale at Hollickwood Primary School

New SuDS bog garden in action, Hollickwood Primary School

New retention pool at Queen Elizabeth's Girls' School, London

photographs: Andy Graham / Wildfowl & Wetlands Trust



Chapter five

More can be done to engage the business sector



photograph: Bill Green Photography

Liaison with business can positively impact on local water quality

The Business Team at Groundwork provides a funded confidential pollution audit service offering advice to companies in Wigan and Skelmersdale to reduce the risk of pollution entering the River Douglas and River Tawd. The project seeks to improve river water quality, whilst supporting companies to reduce potential financial liabilities from poor site pollution management. SVR Plastics Ltd in Skelmersdale, for example, have recently worked with the Team, undergoing a pollution audit that has helped to improve their pollution prevention measures, reduce the likelihood of river pollution and the risk of large fines.

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. Collaboration with catchment partnerships is increasing business engagement with water. This includes addressing 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.

Chapter six

Partnership funding and sustainable financing and management is essential

Working in partnership and pooling resources enables schemes to go ahead that are not affordable for the individual partners on their own. Additionally, the sum of the pooled resources can be greater than the threshold cost of the scheme, allowing more to be achieved for the money, or savings to be made by the partners. Either way, this is getting more for less. However, securing the funding to do the work needed is just the

start. Arrangements (and financing) must be put in place to manage and maintain the scheme in the long term. This can be through community and local authority partnerships or community/Trust partnerships but it is vital that communities are involved. Community management can reduce costs but, importantly, it keeps the community engaged with the scheme.

Chapter seven

Data and evidence are critical to success

Robust data and evidence, including water quality data and outputs from predictive tools, help to identify and quantify pressures upon the urban environment and determine effective multiple benefit intervention opportunities and solutions. Data and evidence is also a proven stakeholder engagement tool that drives collaborative working.

Citizen science tools are helping CaBA partnerships and others to build robust environmental datasets that enable them to quantify pressures on the urban freshwater environment and identify cost-effective solutions. These datasets enable realistic and robust project proposals and plans, building confidence with potential funders that the partnerships can deliver as a trusted partner. A Citizen Science and Volunteer Monitoring Resource Pack has been developed under CaBA, capturing a wealth of information. <https://www.catchmentbasedapproach.org/resources/volunteer-monitoring>



Following a successful pilot phase, a volunteer scheme to undertake rapid evaluation of pollution on the River Wandle in South London has subsequently been rolled out to other local rivers. Working closely with the Environment Agency, the volunteers, under the umbrella of the South East Rivers Trust (SERT), were trained to assess and report on Category 3 pollution incidents. A single point of contact at SERT coordinates the

volunteers on the ground and reports back to the EA representative. The scheme has led to a greater number of such incidents being attended than would be possible under the EA's current 'business as usual' model adopted elsewhere, and reduced response times. Additionally, the local community has enhanced awareness of river pollution, including misconnections and problematic outfalls, and how to report it.

Chapter eight

Understanding of urban ecosystem services and natural capital is key

Understanding the value of environmental assets and natural capital in our cities and towns helps to identify the most appropriate interventions and their optimum locations so that benefits can be maximised in a cost-effective way.

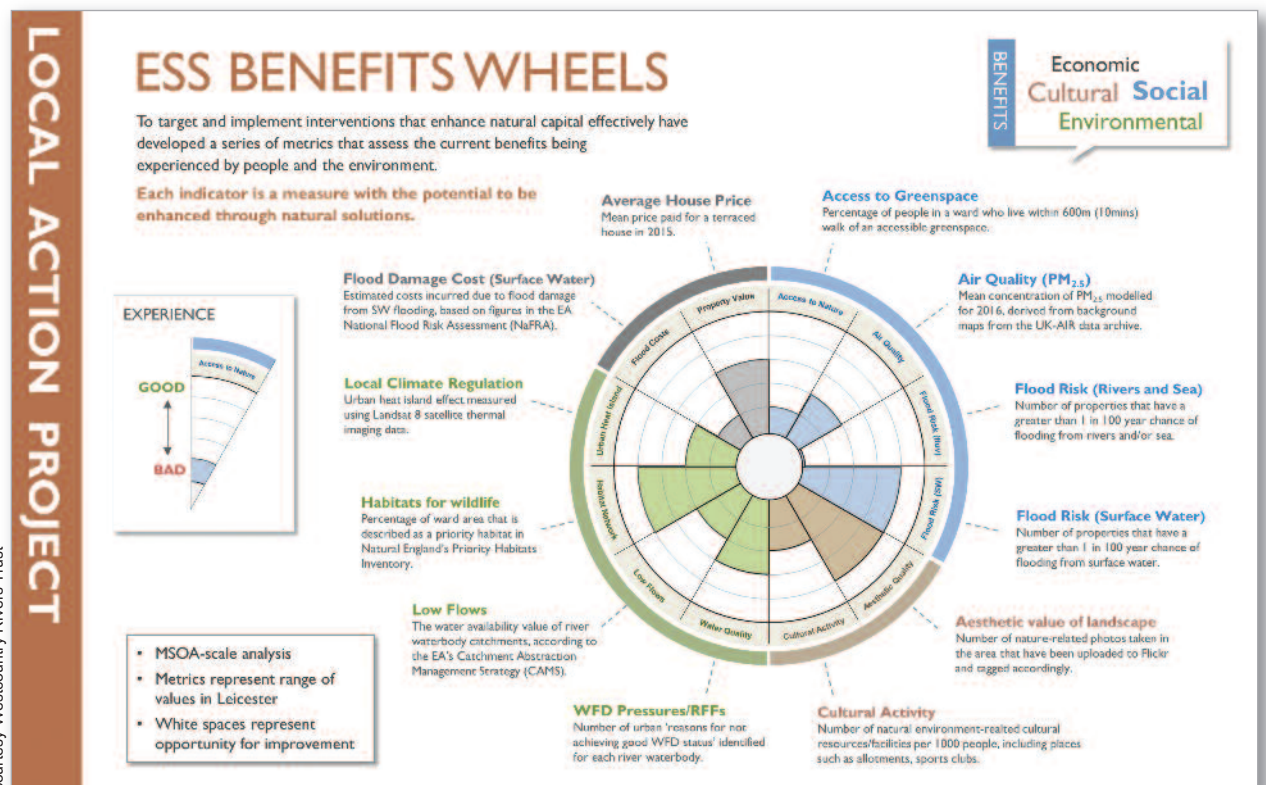
Defra's Local Action Toolkit promotes a partnership approach to enable communities to develop a shared vision for where they live. It provides a methodology to help communities build consensus, facilitate local decision-making and secure funding for natural capital improvements. This enables local groups to work with the community, local authority and other stakeholders 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. It is supported by robust data and evidence on the benefits of green infrastructure, SuDS and natural capital.



photograph: Peter Bide

For further information:

- Local Action Toolkit: <http://urbanwater-eco.services/project/local-action-toolkit/>



Getting the details right is crucial - 1

Misconnections

Where domestic appliances are incorrectly connected to the wrong pipe, dirty water can flow directly into a nearby watercourse; many houses built after 1920 have a separate rainwater system draining directly to a local stream or river. Such misconnections have a marked detrimental impact upon the quality of urban streams. A campaign to encourage local residents to check their plumbing, with prizes for any misconnections found, has been the focus of a project in the Upper Mersey. The Healthy Rivers Trust led the project under the local CaBA partnership with the support of Stockport Metropolitan Borough Council, the Environment Agency, United Utilities and Stockport Homes. The project used maps to help local residents identify whether they are in an area with a separate sewage system and therefore potentially at risk of having a misconnection at their property. This and similar initiatives are able to target where to correct the problem and realise substantial improvements in water quality.



photograph: Healthy Rivers Trust

Misconnections impact upon water quality



Similarly, urban run-off from roads can also pollute - but solutions exist (see Appendix-2 overleaf)

photograph: South East Rivers Trust

Getting the details right is crucial - 2

Urban runoff

Diffuse urban runoff from roads and pavements is typically contaminated with a range of pollutants including sediment, heavy metals and hydrocarbons. Surface water drains often convey this runoff directly to a local watercourse where it can rapidly diminish water quality and impact upon aquatic life. CaBA partnerships have implemented a range of landscape and engineering approaches to remove and mitigate diffuse urban runoff, from the innovative hydro-dynamic vortex chambers installed by the South East Rivers Trust to more standard measures such as roadside swales and retention ponds.



photograph: South East Rivers Trust

Installation of a vortex chamber

Getting the details right is crucial - 3

Habitat improvement



both photographs: South East Rivers Trust

Volunteers work on habitat improvement

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.



Habitat transformed



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www.catchmentbasedapproach.org/about/governance#urban-working-group

For more about the Catchment Based Approach visit www.catchmentbasedapproach.org

Report design by Wildcat (wildcat1@ntlworld.com)

photograph: Bill Green Photography