

SUSTAINABLE WATER STEWARDSHIP THE NEXT BIG STEP FORWARD



UNIVERSITY OF
CAMBRIDGE
PROGRAMME FOR
SUSTAINABILITY LEADERSHIP

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This document is a summary of the workshop on *Sustainable Water Stewardship: The Next Big Step Forward*, organised by the University of Cambridge Programme for Sustainability Leadership (CPSL) and sponsored by Anglian Water.

It is a signpost for future work: summarising the discussions on the workshop convened to connect current thinking, find innovative ways to address the challenges of sustainable water stewardship and agree next steps.

CPSL and Anglian Water are most grateful for the enthusiasm and input of participants at the event. The views in this report represent the themes of discussion on the day, as collated by CPSL and key contributors. Comments have not been attributed to specific organisations or individuals.

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Foreword

Innovation without walls

I am delighted that the University of Cambridge Programme for Sustainability Leadership (CPSL) is working with Anglian Water on the critical topic of sustainable water stewardship.



many other senior figures representing political, scientific, regulatory and business viewpoints were able to take an active part.

CPSL's concept of collaboratories is based on the spirit of 'innovation without walls' that has resulted in so many technological and scientific breakthroughs. Small, results-focused groups of cross-sector and cross-industry practitioners meet over a period of time to tackle key sustainability challenges, focusing on how a collaborative approach may bring about substantive and deliverable change. Typically, the process kicks off with a one- or two-day workshop, the purpose of which is to determine specific areas for exploration. Often, it will close with a conference or summit at which the conclusions of the working groups are disseminated to a larger audience. CPSL's expertise in working with senior business leaders means that we are able to facilitate a lively and challenging environment and to assist participating organisations' design processes, which will allow ideas to be translated into outcomes.

If we are to meet the challenges of economic and residential growth while creatively and effectively adapting to climate change in the UK, it is vital and urgent that water services are provided in ways that are cost-effective and resilient. Initiatives will need to be promoted to work at a landscape level, rather than being dictated by administrative boundaries, so as to recognise fully the value from ecosystem services. In order to achieve these objectives, the many parties with an interest in the subject will need to work together in a setting that promotes collaboration and trust.

I am very hopeful that the network that is now forming to address the subject of sustainable water stewardship will be a positive and authoritative player in this field during the coming year. This report both summarises the proceedings of the workshop and outlines some of the key challenges ahead. We are most grateful to Professor Tim O'Riordan for his major contribution to the planning and content of this collaboratory, and especially to Anglian Water for their support in bringing together the right group of people to make it happen.

The workshop on *Sustainable Water Stewardship: The Next Big Step Forward*, held in London on 18 November 2010, was conceived as the launch of a Cambridge Collaboratory on this subject. It brought together experts from industry, academia, and the public and third sectors. We were delighted that the day was chaired by Lord Selborne, Treasurer of the All Party Parliamentary Water Group, and that

Polly Courtice

Director, University of Cambridge Programme for Sustainability Leadership

Introduction



The timing of this initiative could not be more opportune. The White Papers on the natural environment and water in 2011, as well as work on the Floods and Water Management Act and the Water Framework Directive, provide a propitious moment to review our approach to water stewardship and to encourage more effective and sustainable solutions.

Sustainable water stewardship must, of course, address all aspects of the water cycle, including flooding, ecological needs, wastewater, water resources, amenity, recreation and its environmental footprint.

We must therefore build a broad and knowledgeable community of interests that can inform the development and implementation of new policy measures. I was greatly heartened by the scale of interest in this first workshop on sustainable water stewardship and the determination of so many participants to work together in the future. I was particularly encouraged by Anglian Water's commitment to supporting this agenda, as business must surely play a critical role in bringing these ideas to reality and engaging with a public that has not fully realised the significance of water stewardship.

I offer my warm congratulations to all those involved and look forward to continuing my participation in this most important effort.

The Earl of Selborne GBE, FRS

The context for action



There is a significant amount of work already underway on sustainable water stewardship. **Now is the time to increase the momentum**, building on this work and critical and timely opportunities such as:

- **Two White Papers in 2011** – the first White Paper is an opportunity to change the way we think about and manage the natural environment, seeing it as a system and valuing the services it gives us. The second White Paper will continue themes addressed in the Flood and Water Management Act 2010, and will focus on the future challenges facing the water industry, providing a clear direction and policy framework for the future.
- **Future legislation** – the Localism Bill and Public Bodies Bill offer an opportunity for revising the current approach to planning and water care.
- **Research** – fresh research on placing a value on natural processes and services offers opportunities for connecting the various environmental benefits attached to land with additional social and economic benefits and potential cost reduction.
- **Pilot studies** – experimentation is yielding new insights into better delivery of sustainable water stewardship. There is an opportunity to link up with existing pilot schemes to consider whole landscape planning, valuation of benefits from natural processes, cost efficiency and more connected regulation. This would provide a vital evidence base for many of the policy themes now under discussion.

The time is right for making sustainable water stewardship a reality. There is a buzz in the air over new forms of delivery for water care, in terms of sustaining whole landscapes, managing rainfall from the point of impact on any surface, and in shifting customer behaviour towards smart water use and associated carbon reduction.

The wider impacts of this approach relate to **the significance that communities and individuals place on water**, and the vital role it plays in a sustainable future and in achieving healthy nature, healthy people and healthy communities.

Achieving such a vision for the natural environment must come from fresh ways of planning, regulating and delivering, where **the natural environment is the people's environment**, cared for by public, private and civil society operating in unison.

Set in the context of this new sense of excitement about the benefits of an approach that considers the water cycle as a whole, the workshop brought together key players to join up the thinking and create new opportunities for collaborative action as a way forward.

Participants at the workshop held in London on 18 November 2010

First Name	Surname	Organisation
Richard	Ashley	Professor of Urban Water, University of Sheffield
Jenny	Bashford	Water Policy Adviser, NFU
Ian	Bateman	Director CSERGE, University of East Anglia
Phil	Bennett-Lloyd	Climate Change Manager, Norfolk County Council
Peter	Bide	Head of Flooding, Coastal Change and Water Team, Department for Communities and Local Government
Bruce	Blaine	Director of Environment and Sustainability, Peter Brett Associates Consulting Engineers
Wendy	Brooks	Flood and Coastal Risks Manager, Environment Agency
Susan	Brown	Public Affairs Manager, Anglian Water
Phil	Burston	Senior Water Policy Officer, RSPB
Henry	Cator	Chairman, Association of Drainage Authorities
Andrew	Clark	Head of Policy Services, NFU
Tim	Collins	Principal Specialist – water, Natural England
Matt	Cullen	Policy Adviser, Flooding and Climate Change, Association of British Insurers
Vicky	Dawe	Head of Non-Agricultural Diffuse Water Pollution Team, DEFRA
Stephanie	Dickins	Project Assistant, Town and Country Planning Association
Vanessa	Goodchild-Bradley	Policy Consultant, Local Government Association
Jilly	Hall	Regional Policy Adviser, Natural England
Vicki	Harty	WaPUG Committee, CIWEM
Clive	Harward	Head of Water Quality & Environmental Performance, Anglian Water
Peter	Holland	Catchment Manager, Anglian Water
Emma	Howard Boyd	Director, Jupiter Asset Management
Wendy	Kimpton	Flood Strategy Manager, Yorkshire Water Services Ltd
Stephen	Langlois	Planning and Equivalence Manager, Anglian Water
Neil	Lightbown	UK Underwriting & Strategic Claims Director, Royal and Sun Alliance Insurance Group
Amanda	Long	Head of Corporate Responsibility, Anglian Water
Anne	McIntosh MP	Chair of the Environment, Food & Rural Affairs select committee
Joe	Morris	Professor Emeritus, Cranfield University
Tim	O’Riordan	Professor Emeritus, University of East Anglia
Alice	Owen	Commissioner, Sustainable Development Commission
Mike	Peirce	Director, Strategy and Communications, University of Cambridge Programme for Sustainability Leadership
Mark	Pendlington	Director of Corporate Affairs, Anglian Water
Helen	Perkins	National Water for Wildlife Project Manager, The Wildlife Trust
Arthur	Philp	Underwriting Manager (Strategy), Aviva UK General Insurance
Mark	Robins	South West Regional Senior Policy Officer, RSPB
David	Schofield	Associate Director, Arup Group Ltd
Earl of	Selborne	Member (former Chairman) House of Lords Select Committee on Science and Technology
Peter	Simpson	Managing Director, Anglian Water
Tony	Smith	Chief Executive, Consumer Council for Water
Jean	Spencer	Regulation Director, Anglian Water
Alex	Stephenson	Operations Director, Stormwater Division, Hydro International
David	Thomas	Chief Engineer, Middle Level Commissioners
Rose	Timlett	Freshwater Policy Officer, WWF-UK
Sheila	von Rimscha	Programme Manager, University of Cambridge Programme for Sustainability Leadership
Noel	Wheatley	Head of Environment and Water Quality, Ofwat
Mike	Whitehead	Head of Environment Group (Midlands), Highways Agency
Mike	Woolgar	Managing Director, Environmental & Water Management, Atkins Ltd
Mark	Worsfold	Head of Asset Strategy, Ofwat

Looking for fresh approaches

Sustainable Water Stewardship: The Next Big Step Forward was convened on 18 November 2010, in order to bring together senior policy-makers and experts from the key sectors involved to discuss innovative solutions for achieving water stewardship at lower overall cost and higher natural resilience.

The aim of the workshop was to share existing knowledge and experience, and discuss future opportunities for collaboration, with the intention of starting a dialogue between all parties that wished to help translate the outcomes into meaningful action.

Workshop format

The full-day workshop opened with presentations from panellists and an initial plenary discussion before participants split into four breakout groups to discuss core themes. It closed with a plenary discussion to summarise conclusions from the breakout groups and agree next steps. This report is structured, following the format of the workshop:

Participants were asked to explore fresh approaches to:

- reducing the risk and cost of flooding
- using ecosystems processes to reduce the scale of investment needed in sewage and water treatment
- promoting more collaborative water stewardship initiatives on a landscape scale
- achieving improvements in planning guidance and delivery.

pp8–11	Panel opening debate	Four panellists were invited to open the debate by setting out the issues from the perspective of their organisations. A wide-ranging discussion followed in which a number of challenges and opportunities were highlighted. Panellists’ presentations are summarised on pp8–11; they shared perspectives from: <ul style="list-style-type: none"> • Water industry – Peter Simpson, Managing Director, Anglian Water • Regulation – Mark Worsfold, Head of Asset Strategy, Ofwat • Science – Wendy Brooks, Flood and Coastal Risk Manager, Environment Agency • Political – Anne McIntosh MP, Chair of the House of Commons Environment, Food and Rural Affairs Committee
pp12–19	Breakout groups and plenary discussion	Breakout groups discussed four core themes in more detail: <ul style="list-style-type: none"> • Planning • Strategy • Finance • Pilot projects Discussions and conclusions from each of these groups are summarised on pp12–19.
pp20–21	Plenary discussion and concluding thoughts	Views were shared on the day through a plenary discussion, following which, Professor Tim O’Riordan summarised the key themes and opportunities for moving forward. He outlines these on pp20–21.
pp22–23	Next steps	There was significant enthusiasm for finding a collaborative way forward to explore opportunities. Proposed next steps for a Cambridge Collaboratory to take action on this are outlined on pp22–23.



Panel presentations

Peter Simpson, Managing Director, Anglian Water



‘A 21st century water company needs to lead the way in changing the way that individuals, communities and businesses engage with and use water.’

Professor John Beddington, the UK government’s chief scientist, has forecast that the world is heading for a ‘perfect storm’ by 2030. Across the globe, demand for energy will increase by 50%, food by 50% and water by 30%, with significant implications for society.

Anglian Water has a strong track record in securing and conserving water resources; although the population in the region has grown by 20%, our successful demand management strategy means that we supply the same amount of water now as we did 20 years ago. Nevertheless, water scarcity will be a challenge in the long term, with consequent implications for economic development and quality of life. Water will become even more precious, especially when we consider the total water footprint of our consumption: adding the embedded water in the products we use to direct water consumption (around 150 litres per day) gives an average of over 4,600 litres per person per day.

Traditionally, water companies have built new assets in order to meet demand and ‘engineer’

a solution, but this approach is no longer the sole answer. Water companies will need to work collaboratively and, in the current climate of ecological and economic unpredictability, will need to be more flexible and more able to take risk.

Recent good practice has started to promote collaborative, long-term action, working with nature, communities and ecosystem services. Examples include:

- Water cycle studies; water, throughout its cycle, needs to be included in local authority planning.
- Catchment management schemes.
- Take-up of Sustainable urban Drainage Schemes (SuDS); there needs to be flexibility for organisations such as water companies to adopt SuDS, where it is the right decision locally.

To enable change we need to address the blockers:

- There should be a statutory requirement for new developments to have a drainage strategy. Water companies should be included as statutory consultees on planning decisions.
- Regulatory incentives should reflect the fact that collaboration over all aspects of water stewardship is essential to meet the future challenges. Drainage or flood defence schemes should incentivise water companies to contribute to improving third-party assets.
- Incentives should allow innovative approaches, which step beyond the traditional way in which we have worked in the past.

A 21st century water company needs to lead the way in changing how individuals, communities and businesses engage with and use water. Anglian Water’s *Love Every Drop* campaign for change sets out to put water at the heart of a whole new way of living. And that means we have in our sights water efficiency and reducing the amount we all use, stopping pollution, cutting carbon and eliminating waste. We want to get people thinking as responsibly about water as millions already do about recycling.

Mark Worsfold, Head of Asset Strategy, Ofwat



‘Traditionally water has been moved away as quickly as possible but to meet future challenges we now need “slow water”. Water should be managed at a catchment level.’

- Privatisation of the water industry has achieved many successes to date, including increased investment, increased environmental compliance, better infrastructure and a reduction in customers’ bills.
- The challenges ahead include climate change, population growth, the economic situation and consumer expectations.
- There are no ‘right answers’. The issues are complex and solutions will involve trade-offs as well as judgements on costs versus benefits, and on who should pay.
- There are many unknowns and we need to improve our evidence. In January 2010, Ofwat launched a project on sustainable water to increase understanding of the issues.
- Traditionally, water has been moved away as quickly as possible, but to meet future challenges we now need ‘slow water’. Water should be managed at a catchment level.
- Levels of uncertainty have increased and the prediction is that today’s 1 in 30 event will become a 1 in 10 event within the next 30 years. Planning needs to reflect this, for example by influencing how people manage their gardens as soakaways and by looking at charging customers in order to influence water usage behaviour, in a similar way to the ‘polluter pays’ principle.
- Solutions to these challenges will take time and will require changes in culture and attitudes. An open debate and an atmosphere of mutual trust are needed.

Wendy Brooks, Flood and Coastal Risk Manager,
Environment Agency



‘We must change the way we respond and find the right ways to incentivise overcoming these challenges.’

Factors indicating the need for an integrated approach to water stewardship include:

- a growing body of legislation
- a framework for local decision-making now in place
- funding pressures
- increased understanding of the influence of issues such as climate change and demographics.

Risks are growing faster than plans to deal with them. Challenges include:

- retrofitting drainage and water harvesting in the urban environment
- managing diffuse pollution and flood risk in the rural environment
- lack of evidence at catchment level about the best route forward for sustainable water stewardship.

We must change the way we respond and find the right ways to incentivise this.

The benefits of specific measures need to be measured with a proper understanding of who benefits. To achieve the desired change requires:

- multiple funding sources
- better understanding of how ecosystems work
- better understanding of the effectiveness of mitigation measures
- more resilient properties and better drainage.

Studies have concentrated on new developments rather than the bigger problems of retrofitting in urban environments. More needs to be done to demonstrate the benefits of an integrated approach. The Environment Agency has pilot schemes underway, but more are needed.

Local decision-making involves both responsibility and accountability. Fairness and justice need to be the objectives.

Anne McIntosh MP, Chair of the House of Commons
Environment, Food and Rural Affairs Select Committee

The debate is timely. Water scarcity and sustainable water resource management are quickly rising to the top of the agenda for many businesses. Population growth, climate change, changing consumption habits and economic growth are all increasing competition for scarce water resources.

The coalition government policy on water is currently being formulated, although some features are starting to emerge. The government will set out its plans in a White Paper on the natural environment followed by a White Paper on water in 2011.

It is vital that we implement the recommendations in the Pitt review on flooding. We need a balance between protecting habitats and property, and between safeguarding rural and urban interests.

In terms of planning, there should be:

- a presumption against building on flood plains
- restrictions to building in flood risk areas as well as stricter resilience guidelines
- a requirement for water companies to be consulted on all new building developments
- for major developments, an end to the automatic right to connect to the sewerage system.

Local authorities should retain authority for implementing SuDS, but there should be a requirement for the water company to be consulted. The customer should pay.

Metering is just part of an approach to ensure that supply and demand are balanced. Where possible, it should be voluntary. We also need to change incentives to ensure the sustainable use of water.

In terms of responsibilities for water, we need joined-up government (DCLG, DEFRA, the Treasury) and joined up thinking between all interested parties.

‘In terms of planning for major developments, there should be an end to the automatic right to connect to the sewerage system.’



Breakout Group A

Planning guidance for flood risk and water harvesting

The context

In the UK, land use planning processes are being reviewed, and there is an opportunity to reshape the planning framework to ensure it supports maintaining a healthy, affordable water supply now and into the future. The purpose of planning remains unchanged: to achieve sustainable development, that is to help people in the UK live well within environmental limits. But the planning process, including who takes the decisions and how those decisions are to be implemented, is changing. The coalition government is committed to 'localism' and to making decisions that are democratically accountable, rather than bureaucratic.

Tackling barriers

The direction of travel is understood, and could help achieve more sustainable water stewardship. But as one participant said, 'We don't have a problem in the future; we have a problem now.' Wide-ranging discussions identified several potential barriers that are not insuperable, but which need concerted action if the aim of sustainable water stewardship is to be supported by land use planning processes:

'We don't have a problem in the future; we have a problem now.'



Systems thinking

People often have a good understanding of a problem like flood risk, but often the understanding of the root causes of that problem is weaker. Considering flood risk alone is not productive. Water management in an area needs to be considered across the whole of the water cycle. So the principles in planning guidance need to highlight how flood risk, water supply, water treatment and surface water management are all connected.

Capacity in communities

The principle of localism needs to be supported by building capacity in local communities to understand and act upon the range of issues. Are there structures in place which could bring people together for community water planning? Do people know what the risks now, and in the future, might be and what they can do to mitigate those risks?

Careful recognition of social trust and cooperation

Building the social capital, the knowledge, skills and goodwill to support changes in land use takes time. A hasty decision, or an ill-thought-out process without meaningful engagement, can destroy the social trust that underpins change, and can create major rifts in communities, which take a very long time to heal.

Avoiding being tied by administrative boundaries

Local action to change water management may well be affected by, or have implications for, other communities and not necessarily adjacent ones. Decision-making needs to reflect the wider boundaries of action and support 'enlightened' self-interest.

There are also some very short-term risks that are increased by the rapid change in sub-national planning in England. The swift demise of regional planning bodies means there is an acute risk that we will lose the knowledge, evidence and understanding of how social, environmental and economic infrastructure, including water resource planning, operates at a scale larger than the local authority but smaller than the country as a whole.



Breakout Group B

Smart design and incorporation of ecosystems processes

The context

The traditional approach to water management via hard engineering solutions and softer planning arrangements, needs to be refocused. The opportunity should be taken to make use of ecosystem processes to reduce 'whole life' costs of delivering sustainable water stewardship.

Sustainable solutions

The group examined the concept of 'stewardship', agreeing on a definition of looking after an asset or resource on behalf of others. There was a consensus that working with nature would provide more sustainable solutions. Examples discussed in the area of flood management included:

- restoration of river/wetland systems
- run-off control in urban areas through improving soakaways and providing on-site storage through SuDS
- providing floodways that allow excess rainwater or snowmelt to pass safely and offer recreational and communal benefits at other times.

The need for management at a landscape or river basin level was widely endorsed.

Ecosystem services have been considered internationally in development planning for some years, but have only recently started to form part of UK policy. Defra, the Environment Agency, Natural England, the NFU and some water companies are piloting the concept in order to get some economic valuations of different ways of providing services. The aim is to make a firmer comparison of hard and soft solutions from a sound evidence base. Ofwat now supports soft solutions around sympathetic drainage solutions and customer water use reduction that should benefit customers in the long term.

Land and water management are intimately connected and farmers, as stewards of the land, have a significant role, not least in terms of maintaining their income. Water companies also have an interest, since adequate good quality water is the basis of their income stream and of customer approval. Water company customers, however, have little interest except when the price rises, or there is a disruption to supply; likewise they have little interest in flood management unless there is some personal risk or community impact. The insurance industry's position on flooding is ambivalent: insured flooding costs are a relatively small proportion of their overall losses. Their current business model could therefore be said to depend on the risk of flooding being kept reasonably constant – hence their lobby to ensure that government upholds the deal to ensure protection of housing to a level of 1:75 years.

The conclusions

There are some policy moves in the UK and EU towards a systems-based approach to water stewardship. But few 'smart' design or integrated ecosystem services' processes have been adopted so far, with the exception of SuDS for new development and a limited amount of retrofit. PPS25, the official planning guidance for flood and coastal risk reduction, was instrumental in achieving much of this. The Pitt review acknowledged that flooding is a 'community' issue, and the Flood and Water Management Act of 2010 places responsibilities on parties who can coordinate responses. Solutions need to involve many parties if landscape or catchment scale solutions are to be adopted, but each interested party's agenda and influence will vary.

Increasing people's understanding to the level that they wish to engage in water stewardship will require higher levels of awareness and commitment, coupled with some form of economic incentive. In the absence of crises that accelerate interest, this will take time.



Image courtesy of Robert Bray Associates

The main interested parties already have incentives to be involved, often financial and/or regulatory in character. Existing regulation may need modifying to emphasise the incentives. Ofwat has recently recognised the value of some water company efforts in whole landscape care.

Where initiatives have been successful, there has often been a financial motive as well as clarity in roles and responsibilities. An example is SABMiller's practice of paying farmers in South America to manage a forest to maintain reliable groundwater flows, rather than clearing it for drought-inducing agriculture; the payback for farmers is a secure, with a relatively generous, income for low levels of input, and the company makes a 3:1 return in the investment in securing high-quality water.

The 'localism' agenda may support the need for change and landowners or water companies may find common ground in some circumstances. There is, however, no clear mechanism for deciding who the lead organisation should be. There is a risk

that local solutions may affect regional solutions, and a regulatory framework – at catchment level this could be the River Basin Plans – is needed to prevent detrimental consequences.

Water has historically not been valued in terms of its vital benefits to nature and people; instead, there has been a focus on abstraction, distribution, sewage collection and treatment services. Ecosystem services' valuation assesses the value of water and other natural capital when testing sustainable solutions. An accepted set of valuations is needed to allow comparison and sensitivity testing of different solutions.

There is now an opportunity for water companies to promote smart design and ecosystem approaches, given the regulatory drivers to which they respond. Their relationship with customers at a river basin level is closer than that of some other potential lead organisations. Accordingly, regulation should continue to sponsor and challenge such approaches, which will require partnership with other interested parties.

Breakout Group C

Funding medium-term cost-saving investments



The context

Sustainable water stewardship offers the opportunity to deliver new collaborative solutions that deliver a range of environmental, social and economical benefits. Delivery through new partnerships and approaches brings with it fresh challenges and opportunities for financing. We need to understand issues such as how investment decisions are made, where funding should be sourced, how responsibilities should be allocated and the role of cost-benefit analysis.

Discussion

The group discussed a range of issues around the funding of investments, which will deliver longer term savings. A number of themes emerged:

Responsibility

All sectors have a part to play in sustainable water stewardship and responsibility. Financing arrangements should reflect this through a mixture of regulation, incentives and user responsibility.

Experience in other countries can provide valuable insights into new ways of allocating responsibility. For example, in Holland, water boards are responsible for everything to do with water and flooding. Customers in each province know how much they are paying towards water infrastructure, based on the different catchments. This model gives an integrated approach as well as increasing transparency for communities on what they are paying for.

Customer/communities

Educating and engaging with the public is essential to ensure legitimacy and to encourage people to see the wider value of water. This will be increasingly important with the trend towards localism.

Research shows that customers are prepared to pay towards investment even, where they do not directly benefit, such as for flood protection measures. However, there is debate over whether customers are always the same as taxpayers. This deserves further consideration when reviewing how investment costs are recovered.

As a society we must adapt to the risk of flooding with resilient house and interior design.

Investment decisions

We need to focus on outcomes: what we want to achieve and how to achieve it, and on creating a system and bodies that are fit for purpose.

It is important that we have a quantitative understanding of problems and benefits, and various solutions when making such important decisions. Decisions should be made on the basis of cost-benefit analysis, with funding ring-fenced according to its original purpose. Generally, benefits for flooding outweigh costs 8:1, giving a strong case for investment.

Sources of funding

We need to look at new ways to fund investment and to attract investors who are leaving the utility sector because of perceived challenges.

One opportunity is through innovation in funding mechanisms. New revenue streams need to be packaged so that they are attractive to investors. This could be via an equivalent to the green bond, which is currently being targeted at projects to reduce carbon, but not at infrastructure projects involving water.

The Common Agricultural Policy is another alternative source of funding worthy of further exploration.

For new development, water companies have no mechanism to fund third-party assets and there is limited public funding for drainage. Further flexibility is needed to be able to join up funding from various bodies.

Changes in legislation are required to ensure developers pay a fair share of the costs for new development, as currently, developers have the right to connect whether drainage is there or not.

The conclusions

Sustainable water stewardship is an inter-generation issue and it is essential that we have a long-term focus on funding and on delivery.

Decisions should be made on the basis of cost-benefit assessment, and involving social decisions on how costs and benefits are distributed.

While there is customer support for paying for investment such as flood protection, transparency is essential to ensure legitimacy and support.

Changes in legislation are required to improve consistency, certainty and fairness of recovering costs for new development.

New revenue sources are required, which are packaged to be attractive to investors.

New and innovative approaches are needed to make all of this happen.

Breakout Group D

Pilot projects providing practical examples

The context

Many organisations across the water and landscape planning sectors are currently taking practical and collaborative steps to enhance the sustainability of water stewardship in their areas of operation. These initiatives are delivering significant practical benefits, as well as helping to build up collaborative networks. But there is a clear need to scale up these varied initiatives in order to mould their impact in the light of the issues covered at the workshop through further evaluation and sharing of lessons learned.

Creating a culture

The scale and effectiveness of activity to enhance the sustainability of water stewardship is limited by a range of factors, relating to personal and organisational incentives, behaviours and knowledge. The group noted in particular that there is insufficient understanding of the costs and benefits to different parties, some of which have competing interests. In part, this is because the necessary scientific foundations are not in place, and in part, because there are not the markets to evaluate and deliver these benefits and avoid these costs.

Public awareness is also a significant constraint, with limited awareness and trust in the activities of water companies and other potential beneficiaries and funders. Of course, the 'public' also needs to be recognised as a complex mix of interests, with individuals and groups ranging from those with a deep green agenda to those essentially disengaged from the issues.

Further constraints identified by the group include funding streams that stop before the full range of evidence and learning is generated, and a tendency to focus on immediate threats, not longer term opportunities.

The group affirmed the importance of facilitating a series of lighthouse projects that would provide beacons of high-quality learning in the field of sustainable water stewardship. The new initiatives should be:

- **innovative** – learning from the experience of other sectors, such as social enterprise, and from new finance models, such as voucher systems
- **systemic** – addressing the links between multiple sustainability issues
- **realistic** – recognising and addressing issues of contention among key players, and the main incentives for each group
- **at the right scale** – going beyond catchment to landscape management
- **multifunctional** – recognising the contributions, rights and expectations of different parties
- **engaging** – encouraging wide participation and creating a strong community of interest
- **adaptive** – addressing local needs using a variety of approaches.

The conclusions

In order to build an effective lighthouse process, the next steps should be to:

- **collate** the evidence from existing initiatives using sound science to evaluate lessons
- **construct** a practical framework of principles (or terms of reference) for effective water stewardship initiatives
- **convene** relevant partners for a select number of new initiatives that will provide a beacon of best practice for others – recognising what can be done individually and what needs to be done collectively
- **communicate** lessons widely amongst relevant stakeholders.



Our chance to move forward

Professor Tim O’Riordan

There is huge scope to develop new forms of delivery and valuation for sustainable water stewardship, and the timing is right.

On planning

There is to be a consultation on how to connect longer term private and public interest with local action and ownership of delivery and benefits. This opens up the scope for planning to provide guidance on the delivery of ecosystem services in the form of space and locations for carbon storage, for soil stability, for flood water retention, for drought response provision, and for new forms of biodiversity. This would be set in the form of **landscape-wide land use covenants**. There is, as yet, no scope in planning law or private property rights for such an arrangement on a landscape scale.

So there is a need to convene a working group to look into this possibility, and to bind it into any changes in planning guidance. Clearly, there is also a need to connect the owner to the landscape with appropriate payments and incentives, as well as novel forms of covenants. If rainfalls are to be managed for many purposes, then planning guidance needs to be extended to ensure that the many benefits from water harvesting, from controlling excessive runoff into storm drains, and for providing soakaways and floodways, achieve a new sense of direction.

All of this will need a fresh look at the various forms of planning guidance in order to consolidate and to provide a framework for local delivery, and to enable local communities to play an active part in designing developments that have been proved to offer reduction in flood risk. This, in turn, means that there should be strategic guidance in planning as well as scope for local action. It is vital to appreciate that local action must be designed, both in planning terms and in new approaches to regulation in order to meet the specific circumstances, for example of flood geography, of cultural histories of landscape care and access, and of the scope for health and spiritual benefits arising from sustainable water stewardship.

On regulation

There is considerable interest among Ofwat, the Environment Agency, Natural England, the Local Government Association and the Drinking Water Inspectorate for a more coordinated approach to regulation and setting incentive charging. The key is the scope for using natural services for flood diversion, for water cleansing and for redirecting drainage from buildings and hard surfaces in new forms of coordinated delivery. This will require a framework for guidance, which sets the parameters of landscape-scale and integrated planning, coupled to freedoms for water companies and, possibly, the insurance industry, to set asset plans and investment scenarios within a more flexible and coordinated regulatory

framework. For this to take place, there will need to be a working group to set the guidelines and promote the appropriate guidance frameworks.

On human behaviour

Much needs to be done to help domestic water users be more efficient in their use of water and in energy use, linked to the heating of water. Behaviour is a product of ingrained habit (which is therefore difficult to break), price incentives, and overall awareness, set in a moral framework of water stewardship. The moral framework can alter habit, especially at a household and community level. This may mean the use of local people who are confident and trusted to work with households in shifting their water use. It may also involve the deployment of smart meters to assist people to understand the effect of changing their water and energy usage, for example by moving to cold water washing, shorter power showering, fixing all leaks and providing rainwater retention for non-drinkable use such as gardening and even flushing cisterns. All of this is important for both the water companies and the nation, since, for example, each litre of delivered water in the Anglian Water region creates 0.35 grams of carbon as a result of the power needed to move heavy drinking water around. Household behaviour shift can be encouraged by price incentives drawn from the benefits of lower investment in piping, sewerage and drainage over future decades.

On lighthouse projects

An exciting mix of schemes is currently being promoted by a range of interested parties such as Defra, the Environment Agency, the NFU and Natural England, as well as the water and insurance companies. These include schemes for reforestation in Yorkshire, new approaches to grazing and soil conservation in the Lake District, trials for reducing flood risk – also in Yorkshire – and various pilots looking at ways to place a value on ecosystem services. Water companies are joining up with a variety of partners to try out ways of reducing future costs of piping and treatment



by using natural processes for water cleansing and drainage reduction. None of these pilot schemes is yet geared to the changes of thinking mentioned above. So there is a need to build on the successes and frameworks of cooperation established by these pilot schemes, and to extend them as incubators for the new approaches to planning, cost recovery and ecosystem care outlined above. This is vital, as the experience of a connected set of extended trial lighthouse projects, designed to cover a variety of local circumstances and to meet the objectives of better planning and regulation, making use of nature's resilience, should inform the policy themes emerging as a result of the new thinking that is palpably in the air.

Conclusion

In conclusion, some ideas that are relevant to the two White Papers, and also the emerging legislation on planning and service delivery, are noted here.

- Nature is not just about species and habitats. Healthy nature has huge relevance for human well-being and community engagement.
- Climate change and huge disruption of existing natural rhythms and species' resilience mean nature-based responses have to be created everywhere, not just in protected reserves (important as these are).

- The next generation of citizens need to 'own' nature through creating their own special biosphere reserves in their schools, parks, churchyards, wastelands and communal spaces. This is intrinsic to local wellbeing, now considered a vital arena for policy delivery.
- These *people's nature reserves* need to be connected by planning agreements, by scientifically supported proposals for green ways and by 'stepping stones'. In this way, stressed existing habitats and species can migrate to new habitats. It is also vital to extend the buffer zones around existing core protected sites. In addition, it is possible, in the light of the multiple benefit streams that healthy natural processes offer, for sponsored schemes for landscape care to be paid for via privately and publicly operated services, such as water provision and drainage from hard surfaces for new wetlands, and floodways for enabling excess water to use the routes nature intended for it.
- Nature's services should be regarded as assets that citizens and businesses should be prepared to value and conserve. Prudent use of these assets will result in savings in publicly and privately funded services such as drainage provision, as well as in insurance payout reduction and reduced highways' disruption from nuisance flooding.
- A society that treats nature with respect will also treat its citizens with respect. Living near spaces that are natural, peaceful, secure and energising brings mental and physical health, for example by reducing heart disease and obesity. Therefore, natural assets are the lifeblood and the key indicators of a robust, fair and healthy society.
- Delivering such a vision for the natural environment will require fresh ways of planning, regulating and delivering, involving new partnerships of investment and benefit, and ensuring that the whole community is involved and connected to the living landscape. In this way, the natural environment is the people's environment, cared for by public, private and civil investment acting in unison.

Sustainable Water Stewardship: The Next Big Step Forward brought together experts from industry and the public and third sectors to discuss collaborative ways of making progress.

Contributions on the day showed significant support for continuing such an approach and we hope that the event will mark the launch of a Cambridge Collaboratory.

Taking the next steps

Mike Peirce, Director, Strategy and Communications, Cambridge Programme for Sustainability Leadership (CPSL)

We were delighted at the significant interest at the workshop in creating a community of interest to explore key issues in more depth and start pilot projects to test some of the ideas in practice.

Defining the way forward

To help define the scope of this work, a follow up meeting was held in January 2011 involving representatives from different sectors who were particularly interested in driving the initiative forward. The meeting was chaired by Lord Selborne.

Participant organisations and individuals

- Anglian Water
- Anne McIntosh MP Chair of the Environment, Food and Rural Affairs Select Committee
- Association of Drainage Authorities
- Defra
- Environment Agency
- Jupiter Asset Management
- Lord Selborne
- Ofwat
- RSBP
- Royal Agricultural Society of England
- Tim O'Riordan, Adviser to the Sustainable Water Stewardship initiative
- University of Cambridge Programme for Sustainability Leadership

Building on the exciting range of ideas from the initial workshop, the discussions explored a number of possible areas of focus for further work encompassing all aspects of sustainable water stewardship.

The group envisaged a three year programme exploring sustainable water stewardship themes with the aim of placing a whole new set of values on water in the broadest sense.

This perspective of the values of the total water asset recognises its role and importance across the entire water cycle - for the environment, for recreation and community health and for spiritual wellbeing, across catchments with benefits of storage against drought, flood management and improving water quality and from abstraction to the many ways we consume and finally discharge water.

The Natural Environment White Paper, published in June 2011, offers a number of fresh opportunities to provide an emerging new policy context for the Collaboratory. This document emphasises the many natural values for water which should be incorporated into planning and corporate accounting. It also broadens the scope for lighthouse projects and for whole landscape management and planning. It calls for much more interconnected arrangements for creative financing, planning and regulation across the whole water cycle.

In many ways the Collaboratory reinforces the messages of the White Paper but takes them even further.

With this in mind, we agreed that our programme for action will focus on three key areas:

1. Regulation/planning/finance

Exploring the changes in planning, policy and financing arrangements to achieve sustainable water stewardship.

2. Sustainable water abstraction

Testing ways in which the framework for allocating water between the environment and between different users (such as agriculture, public water supply and industry, leisure and pleasure) could be more sustainable and better reflect how each party values water.

3. Behavioural change

Developing a social marketing strategy to encourage people to see the overall value of water to all our lives and act in a way that reflects the fact that water is essentially borrowed from nature before it is restored to nature.

A collaboratory for action

Cross-sector collaboration will be critical and so a new 'Collaboratory' is proposed to bring together all relevant parties.

CPSL's concept of Collaboratories is based on the spirit of 'innovation without walls'. Small, results-focused groups of cross-sector and cross-industry practitioners meet over a period of time to tackle key sustainability challenges, focusing on how a collaborative approach may bring about substantive and deliverable change.

We are grateful to Anglian Water for showing leadership and continuing its sponsorship of the Collaboratory programme which will include a working group for each of the three areas and a Steering Group to guide the overall programme and provide strategic direction.

Steering Group

The Steering Group will be chaired by Lord Selborne, with Tim O'Riordan as special adviser. It will include senior representatives from relevant sectors including water, environmental, planning, political, local authorities, land owners, and business. The group will guide the Collaboratory, providing insight and access to relevant wider initiatives to enhance cross sector working.

Work Streams

Each of the three key areas will have a dedicated cross-sector sub group to focus on assessment and action. The groups will report to the Steering Group on a regular basis.

Practical testing

Pilot schemes, called lighthouse projects, will be carried out in East Anglia to test the various opportunities and requirements as identified by the collaboratory process.

Next steps

We are very grateful for the involvement of all participants in our preliminary activities and hope that they and many others will join the Collaboratory to ensure that it will make a positive and authoritative contribution in the coming year.

An initial Steering Group meeting will be held in July 2011 to finalise the terms of reference for the Collaboratory. The preliminary findings of the Group will be shared with stakeholders from across the sector at a workshop in Spring 2012.

The University of Cambridge Programme for Sustainability Leadership (CPSL)

works with business, government and civil society to build leaders' capacity to meet the needs of society and address critical global challenges. Our seminars and leadership groups and our partnerships with those who make or influence decisions are designed to transform public and private sector policies and practices and build greater understanding of our interdependence with one another and the natural world. Our network of alumni brings together the most influential leaders in the world who share an interest in and a commitment to creating a sustainable future.

CPSL is an institution within the School of Technology. We work in close collaboration with individual academics and many other departments of the University. HRH The Prince of Wales is our patron and we are also a member of The Prince's Charities, a group of not-for-profit organisations of which His Royal Highness is President.



The Sustainable Water Stewardship Collaboratory is run by the University of Cambridge Programme for Sustainability Leadership as part of its Sustainable Cities programme, with the support of Anglian Water.



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