



The Chartered Institution of Water and
Environmental Management

Regulation for a Sustainable Water Industry

A positive vision for the future water
industry in England and Wales

September 2010

Regulation for a Sustainable Water Industry

Foreword by Jim Oatridge

CIWEM, as the leading independent professional body and registered charity advancing the science and practice of water and environmental management, is well placed to provide insight into the functioning of the water sector. In compiling this report, the Institution has consulted the views of its members from the water industry, the environmental and economic regulators, scientists, engineers, consultants, civil servants, local authority workers and academics. Those views have breadth and depth, and the Institution trusts that they will be of value in framing the nature and purpose of proposals in the Government's forthcoming Water White Paper.

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Chair of the CIWEM Trustee Board

Foreword by Dr. Colin Fenn

The present structure and *modus operandi* of the water sector of England and Wales were put in place over twenty years ago. Much has been achieved since then; but much has changed, too.

Has the sector performed well (effectively and efficiently) since privatisation in 1989? A fair minded response to that question would be a resounding yes, evidenced by the capital invested and the improvements achieved (in infrastructure, the environment, water quality and levels of service to customers).

But are the existing governance and operational structures fit for now and the future, and will they be effective and efficient going forward if left as they are? Probably not. We get as we govern, and the governance arrangements put in place at privatisation were designed to address the situation and problems of that time; principally the need to raise funds to address a legacy of chronic under-investment in the sector. Now, the need is to provide reliable water, sewerage and environmental services to a growing population under threat of climate change and variability, with a growing imperative to protect the environment and reduce carbon emissions than could scarcely have been anticipated in 1989. That is not to say that environmental needs are taken into account as best they could be; just that we

have at least reached the stage where social, environmental and carbon costs and impacts are now factored into play (if imperfectly) in balancing supply and demand, and in rebalancing it as population rises, or temperature rises, or rainfall reduces...

The challenges we now face – from climate change, population growth, societal dynamics, economic constraints and shifts in values, amongst many others – are very different, and arguably more complex to reckon than those that were faced in 1989. Now, the challenge of the day and the future is dealing with scarcity, pinch and uncertainty. And uncertainty requires adaptive approaches from us, as we seek to address pinch in resources whilst caring for the environment. So we need to ensure that the sector is governed and managed in as flexible and as smart a way as possible, to enable it to continue to provide safe and secure supplies of water to those who reasonably demand them, subject to availability, environmental management and social equity constraints. So too to enable it to deliver wastewater collection, treatment and discharge services that recognise the value of return flows to receiving waters and the environment, but also the costs of treating effluent to higher and higher standards. And all at a price not just that customers can afford and are willing to pay, but at a price that the environment, the economy, society and customers can afford. Whatever the future holds.

That the existing system needs to be changed in some areas, to some degree, is accepted by most, if not all. Not necessarily replaced in its entirety, but certainly refreshed and revamped. If we believe that we need water, sewerage and environmental services to be delivered more efficiently than they are now, we need to define the models, frameworks and processes that will enable those more efficient operations to be delivered. It is not enough to state, for example, that water supply services in the south east of England could be delivered more efficiently and at lower total cost were the various incumbent companies to share and transfer resources between them as though they were one regional entity, when their individual licences of appointment place other priorities upon them and when prevailing regulatory and methodological processes drive them in other directions. We can and should expect water companies to be as efficient and as effective in the use of water resources as the current structure and governance rules enable. For further efficiencies and gains to be achieved, we need to consider policy reform, and increased regulatory, charging and pricing flexibility to enable the value of water to be better known and appreciated, and better factored into account in determining the options that exist to tackle (say) a supply deficit in a particular resource zone, and to enable the best of those on a social utility basis to be made clear. Positive incentives to promote desirable outcomes need to be increased, whilst biases to act in ways that may not be desirable – such as the well-known bias in favour of capital expenditure as against operational activities - need to be addressed.

The Coalition Government has announced its intention to publish a White Paper on reform of the water sector in 2011. The Cave and Walker reviews - on competition and innovation, and on charging and affordability in the water sector, respectively – delivered reports in 2009 and 2010 that precipitated wide debate on the shape of the water sector going forward. Ofwat's own 'root and branch' review of future regulation of the water sector is carrying the debate further. So too will the external review of the effectiveness of Ofwat's regulation of company activities. Others, including the water companies and non-governmental organisations, are contributing to the debate. This report is CIWEM's contribution. CIWEM believes that in the light of issues that have come to the fore - climate and demographic

change, the drive for sustainability, carbon management and resource efficiency - the time is right for a fundamental review of how the water sector is regulated.

This report examines the various options that might be taken to 'modernise' the regulation of the water sector, for purposes of promoting a truly sustainable industry that safeguards our environment whilst ensuring the provision of reliable water supply and wastewater reuse services nationwide. More pointedly, it proposes particular revisions to existing systems and process that CIWEM would like to see. This report looks at the regulatory process, discusses the features of a sustainable water industry and considers how this might be operated and structured. It seeks to identify clear, positive measures for the industry and sketch the path from the current regulatory process towards a more sustainable water industry.

As an Institution, CIWEM stands for the delivery of integrated water management, and the delivery of water, wastewater and environmental services within environmental limits. This report sets out the Institution's recommendations for change and action, in the cause of shaping a water industry suited to a future that holds different challenges to those of the past.

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Executive Summary

Regulation for a sustainable water industry is CIWEM's positive vision for the future water industry in England and Wales. CIWEM believes a wide-reaching review of the governance of the water industry is needed now to ensure that our use of water is sustainable in the long term and in respect of environmental limits. Notwithstanding the successes achieved in the delivery of water and sewerage services in the last two decades, the structure, regulation and management of the water sector needs to be considered afresh if the challenges of the future, from population growth, climate change and environmental management are to be met.

CIWEM's vision includes calls for more carbon, water and resource efficiency; more innovation, the frequent reuse of water and the sustainable management of catchments. Relationships in the industry also need to change with more partnership working, more integration and water companies delivering broader water "services" - through a regulatory regime based on long term investment and planning cycles. CIWEM also believes that the true price of water needs to be established and for metering to become commonplace.

We believe these measures need to be built into a future Water Bill and subsequent secondary legislation and guidance. CIWEM hopes that the 2011 Water White Paper will provide a platform for this by including a single set of industry objectives (with sustainability in mind) to guide politicians in the long term and to address how policy should be implemented by the industry. We believe there needs to be a blend of legislative, policy, regulatory and market mechanisms to set the platform for the delivery of effective and efficient water, sewerage and environmental services with sufficient freedom and incentives to encourage the development and uptake of new ways of working.

Abbreviations

AMP	Asset Management Planning
ASR	Aquifer Storage and Recovery
CCW	Consumer Council for Water
CERT	Carbon Emissions Reduction Target
CHP	Combined Heat and Power
DEFRA	Department for Environment, Food and Rural Affairs
DWI	Drinking Water Inspectorate
EA	Environment Agency
GHG	Greenhouse Gas
OFWAT	Office of Water Services
PR	Periodic Review
R&D	Research and Development
ROCs	Renewables Obligation Certificates
WET	Water Efficiency Targets
WFD	Water Framework Directive



1. Introduction

The value of water in our society

- 1.1 Water is a necessity for life; it is our most basic need. The role it plays in energy supply, infrastructure, economic growth, food, health and culture makes it a central concern for our national policiesⁱ. Within the UK our water resources are already under pressure, with some twenty five million people living in areas where there is less water available per person than in Spain or Morocco. Yet how many people are aware of this? To say that we take water for granted in the UK is an understatement.
- 1.2 In the UK water has traditionally been regarded as a free resource and not one with an inherent value of its own. The sustainable management of water must fully reflect the value of water not just for people, but also for the environment and the ecosystem services it provides. There is a need to use water more wisely, to store it for use when it is less plentiful and to reuse treated water.
- 1.3 In the UK we are able to meet some of our water needs through “hidden” or “virtual” water. Over two thirds of our true “water footprint” comes in the form of food, goods or energy and from the water required in their production, that are imported from other countries, which may themselves be under water stressⁱⁱ. Were we to have to provide all of our needs from our own resources, we would struggle to find the required water resources – and the financial and environmental costs of doing so would be enormous.
- 1.4 The key purpose of the water industry is to deliver the provision of safe drinking water and effective wastewater management through the management of a natural cycle, the water cycle, for human and environmental needs. To do this, the industry draws on other resources, notably in construction materials but predominantly energy. The Environment Agency estimates that the UK water industry contributes to 0.8% of the UK greenhouse gas (GHG) emissions¹ and if household emissions related to water (in heating it, particularly) are included, this increases to 5.5% of our overall emissionsⁱⁱⁱ. This puts the water industry as a significant contributor to our national carbon footprint and as a target for mitigation policies.
- 1.5 Although climate change is likely to lead to more intense rainfall events and increase the risk of flooding, projections also suggest it will reduce the amount of water available in rivers in England and Wales by ten to fifteen per cent by 2050, on an annual basis, and by up to as much as eighty per cent during summer months^{iv}. Groundwater resources may also suffer. This, along with the ongoing and potential increase in the population of England and Wales, will put greater pressure on our limited water supplies and our water environment.
- 1.6 Water for the needs of human society and for the environment are inter-dependent, but decisions about one are often made without regard to effects upon the other. The

¹ Around 56% of this is from wastewater, 39% from water supply and 5% from administration and transport.

regulatory model for the water industry has been successful over the past 20 years but there are significant challenges in the years ahead from adapting to the impacts of climate change, reducing carbon and energy intensity, asset deterioration, affordability and the demands of a growing population; CIWEM considers it is now time to reassess how we regulate in the light of these issues.

- 1.7 As the leading independent professional body and registered charity advancing the science and practice of water and environmental management, CIWEM is well placed to provide insight to the industry. In the production of this report we have consulted the views of our members from the water industry, environmental and economic regulators, scientists, engineers, consultants, civil servants, local authority workers and academics.

Water regulation in England and Wales

- 1.8 The water industry in the UK supplies more than 20 million properties and directly employs more than 27,000 people. Following the privatisation of ten public-owned water authorities in 1989, water supply and wastewater collection and treatment are undertaken by private sector companies in England and by a company limited by guarantee in Wales. Water companies operate within a statutory regulatory framework but must also reflect the demands of their shareholders.
- 1.9 In England and Wales, water is a highly regulated sector with OFWAT (the Office of Water Services) undertaking the economic regulation for the water and sewerage industry, the Environment Agency (EA) is responsible for environmental regulation and as the competent authority for delivering the Water Framework Directive, and the Drinking Water Inspectorate (DWI) regulates the quality of water supplied to customers.
- 1.10 The economic regulation process is based on financial analysis, least cost appraisal, review and challenge. In 1989, the original instruments of appointment (licences) of the private water companies were established and devised to ensure the financial stability of the industry so that continuity of service could be guaranteed and that the companies could finance their operations and investment at least-cost. The process is based on business modelling that identifies the projected least whole-life costs for capex² and opex³ within an Asset Management Planning and Business Planning process. This is then open to regulatory scrutiny by OFWAT.
- 1.11 The environmental regulation process is based on the allocation of water rights and limits (so as to ensure that water companies have access to water), on the identification of environmental protection requirements from national statutes (increasingly from those transposed from European legislation), and on the delivery of prescribed drinking water standards. Together, the economic and environmental regulators aim to ensure that water companies deliver security of supply and the collection, treatment and disposal of wastewater for customers at "least all-in cost" to people, society and the environment.

² Capex – capital expenditure

³ Opex – operational expenditure

- 1.12 As intended, investment in infrastructure, processes and environmental protection has increased significantly since privatisation, supported by the water companies' access to private capital, and has delivered tangible benefits in improved assets, improved drinking water and environmental quality and improved operational performance⁴ v. There is no doubt that the way the water industry has been governed in the two decades since privatisation has led to huge improvements in all aspects of the sector's performance. However, challenges change as time moves on, and we believe the time is right for a thorough review of the governance model for the water sector.

Is water regulation currently unsustainable?

- 1.13 CIWEM believes that the economic regulation of the water industry may no longer promote resource usage that is truly sustainable in the long term. It does not strongly foster a holistic approach to the use and management of the water environment for 21st century needs such as enhancing ecosystem services, nor does it deal with issues that have come to the fore, including sustainability, climate change, carbon management, demographic change and resource efficiency^{vi}. The industry is facing a far less stable operating environment which will test the limits of the current system and may add new and unforeseen challenges^{vii}.
- 1.14 There is often a debate between the use of market forces and regulation. Whilst market forces may provide a tool for managing water in the future, the choice should not be between markets and regulation but ensuring that the two can work in mutual support with aligned objectives to deliver sustainable outcomes. Used together they can counter the imbalances that may exist when used in isolation^{viii}. CIWEM believes the sector will need to balance legislative, policy, regulatory and market mechanisms in the future.
- 1.15 Regulation in general has been the subject of a number of reviews of late; in 2005 The Hampton Review^{ix} identified ways to reduce the administrative regulatory burdens on businesses' efficiency and the Better Regulation Task Force produced a report^x on reducing regulation. Too much regulation hinders business' efficiency, yet the recent financial crisis has shown the dangers of under-regulating. More than ever there needs to be a balance of regulation that protects investment in the water industry, levels of service to customers and the water environment, whilst not adding excessive administrative burdens to those regulated.
- 1.16 Various measures can be used within regulation to drive behaviour (Figure 1.1) - varying from "carrots" (incentives) to "sticks" (penalties) and more recently "nudges". Environmental regulation has undergone a shift in recent years from strict command and control measures to "light-touch" incentive-based regulation to fulfil environmental objectives^{xi}. If the correct incentives are provided and aligned, those regulated are encouraged to comply and there is less need to use penalties which involve further

⁴ Unit operating costs have fallen by around 30% since 1989 (source: OFWAT).

administration and time. The use of penalties will always have a role for poor performance but regulation is largely more effective when incentives are in place for out-performance. “Smarter regulation” is beginning to use an understanding of behavioural economics (nudges) to influence outcomes⁵.



Figure 1.1 Future regulation: options and opportunities

- 1.17 Within the water industry there are still incentives that actively reward behaviour and outcomes that are inconsistent with a sustainable water sector. For example, financial regulation features an incentive framework that encourages capex-based solutions rather than opex-based ones and promotes a repeating “boom and bust” business and asset management cycle. The regulatory mechanisms now in place tend to promote end-of-pipe solutions rather than fundamental design solutions that would promote long term sustainability⁶. The current incentives to build more (infrastructure) and sell more (water) are dipolar to the very outcomes we need^{xii}. OFWAT have introduced a “revenue correction mechanism” to try to counter the motivation to sell more water but there is still considerable scope for incentive realignment. Fortunately the highly regulated sector provides a strong foundation for this^{xiii}.

⁵ An example of a “nudge” with respect to water might be the use of a water butt – when the water level is low a customer will realise that there may be less water available in the environment and use less mains water in their home. In a positive move The EA’s Water Strategy is beginning to look at incentive realignment.

⁶ These issues were raised amongst delegate feedback from the joint CIWEM/ENDS seminar ‘Sustainable regulation of the water industry’ (February 2010).

- 1.18 Despite high levels of investment the pace of improvements in technology for water and wastewater treatment has been incrementally slow, it is becoming increasingly difficult for new technologies to be approved and implemented and there have been no groundbreaking improvements in demand management^{xiv}. CIWEM believes that a step-change in the development and up-take of innovation within the industry is required and that this is currently hindered by institutional resistance and a lack of incentives within the regulatory regime^{xv}. We are however encouraged that OFWAT is examining these matters as part of its current “root and branch” review of regulation for the future.
- 1.19 There are also tensions that can arise between different regulatory requirements. For example the environmental standards for water and wastewater treatment are being made more stringent through EU legislation, but compliance with these results in added carbon emissions. This puts pressure on the industry to balance two main resources. There is also an issue with the 5 year UK economic regulation cycle not readily synchronising with the 6 year cycle of the key EU directive governing management of the water environment: the Water Framework Directive (WFD).
- 1.20 In its present format the regulatory process has limited scope for engagement with the public⁷, and the degree of transparency in the investment and price setting decision making process administered by OFWAT is at times questionable. Links to other relevant processes such as spatial planning are missing and are fundamental to water supply. Rational spatial planning could help to solve some of our demand management issues as the location of population and industry are inherently linked to the need for water.

What is “regulation for a sustainable water industry”?

- 1.21 A sustainable water sector would ensure that water supply meets appropriately managed demand within natural environmental limits in all regions of the country and that water services are delivered at an acceptable price to the consumer.
- 1.22 Under a sustainably governed and managed water sector, with government, regulators, service providers and customers acting in concert to achieve agreed long term goals, investment choices would not benefit today's society at the expense of future generations, or at the expense of the environment. They would instead recognise the value of incremental and flexible solutions with a long term perspective that manages the future risks facing the sector. Avoiding mal-adaption and wasting money in stranded assets now will allow for the shaping of efficient investment and pricing strategies in the future.
- 1.23 Alongside sustainable investment in resilient infrastructure and new water resources we will equally require the promotion of demand side measures. CIWEM believes that the water industry needs to broaden its scope in how it is managed and regulated with water companies being increasingly recognised as “water service providers”. This would

⁷ Unlike the new Water Resources Management Plan process which can be seen as a good model.

see the supply of sustainable water services at the centre of companies' delivery and incentive structure. Regulatory mechanisms to counter revenue loss would allow water companies to work with customers to help save and reuse water, so as to reduce their bills, use resources more efficiently and reduce the impact on the environment.

- 1.24 Whilst balancing the economic, social and environmental needs of society are presently defined in the parameters for regulation, they need to be adapted to reflect the changed needs of society - to enhance sustainability and reduce carbon. The cost-benefit assessment of investment at PR09⁸ took account of carbon, social and environmental costs, yet we advocate that the true environmental costs of water need to be established and for the Government to set a surrogate for this such as a "shadow price of water". This "true" cost or value of water can then be used in decision making.
- 1.25 In the early stages of a new regulatory framework improving the sustainability of the industry will be borne in the main by higher costs to the customer (in the same way as renewable energy bills are currently higher). However we believe that environmental externalities have not been included properly or fully in the cost of water (or in the price that customers pay for it), and that an increase in the cost of water to customers is one of the unavoidable consequences of improved environmental reckoning and protection.
- 1.26 CIWEM believes that more needs to be done to educate and encourage the public in order to reduce water demand and increase acceptance for water charges that reflect the cost of their provision, on the average, overall, and incrementally, where and when water is scarce and demand is high. The consumer base for the water sector in England and Wales is poorly informed and a key challenge is dispelling the myth that the UK does not experience water scarcity. CIWEM supports the Walker Review's^{xvi} recommendation that a national education campaign on water efficiency is needed.
- 1.27 We believe that subject to measures to protect vulnerable users, the marginal price of water for domestic use above a socially agreed threshold should be set to recover the cost of its delivery and environmental impact, at least. To do so requires near-universal metering of households, and the adoption of rising block or other "smart" tariff regimes. We advocate the early delivery of both.
- 1.28 The Environment Agency's assessment of water availability^{xvii} shows very marked regional differences and whilst we believe a common regulatory framework is necessary, it will need to incorporate sufficient flexibility to allow for regional variability in outcomes. The most appropriate regional solutions (tariffs, metering, trading etc) will depend on the unique supply and demand features of the area.
- 1.29 Further detail on our vision for a sustainable water industry is set out in chapter 2.

⁸ PR09 – Periodic Review 2009 – This set the price of water for the period 2010 – 2015.

A change of direction

- 1.30 There has been a plethora of new legislation and initiatives in the water sector: the *Flood and Water Management Act*^{xviii} (2010), *Future Water*^{xix} (2008), the Labour Government's *Low Carbon Industrial Strategy*^{xx} (2009), the Welsh Assembly Government's *Strategic Policy Position Statement on Water*^{xxi}, the Environment Agency's strategy *Water for People and the Environment*^{xxii} (2009) and their Regulatory Business Forum. At the European level the European Commission is working on Water Framework Directive implementation, water scarcity, drought and climate change adaptation and is expected to produce an EU blueprint for water in 2012.
- 1.31 Two reviews into water were conducted under the Labour Government. Professor Martin Cave led the *Independent Review of Competition and Innovation in Water Markets*^{xxiii} between 2008 and 2009. Among its recommendations to the UK and Welsh Assembly Governments and sectoral regulators, were calls for retail separation, the trading of abstraction licenses and a reduction of barriers to market entry. The *Independent Review of Charging for Household Water and Sewerage Services*^{xxiv} led by Anna Walker published its final report in late 2009. The Walker Review stated that charges should incentivise efficiency and investment should take the (environmental) value of water into account. Whilst these reviews sparked rumours of a new Water Bill and changing times for the industry, the issues surrounding sustainability were largely absent.
- 1.32 Following the formation of the Coalition Government in May, the timetable for a Water Bill has lengthened^{xxv} leaving no coherent water policy for England and Wales. A review of the role of OFWAT (for early 2011) and a Water White Paper scheduled for July 2011 have been announced^{xxvi}. CIWEM hopes and believes that these will need to have a broader scope than the conclusions of the Cave and Walker Reviews and include a full review of regulatory and market mechanisms.
- 1.33 Other key decisions that have been announced and will impact the water sector include the imminent cuts to departmental budgets and the diminution of quangos, the abolition of Regional Spatial Strategies⁹ and the Infrastructure Planning Commission, and the establishment of a Green Investment Bank^{xxvii}. New legislation announced in the Queen's Speech (in May 2010) may also play a role such as the Energy Security and Green Economy Bill, a Public Bodies (Reform) Bill, a Decentralisation and Localism Bill, a Local Government Bill and a Freedom (Great Repeal) Bill^{xxviii}. With the intended withdrawal of funding from DEFRA to the Sustainable Development Commission, the Secretary of State has announced that she will be driving the sustainability agenda across the whole of Government^{xxix}. This is by no means an easy task and will need to begin early, and in earnest.

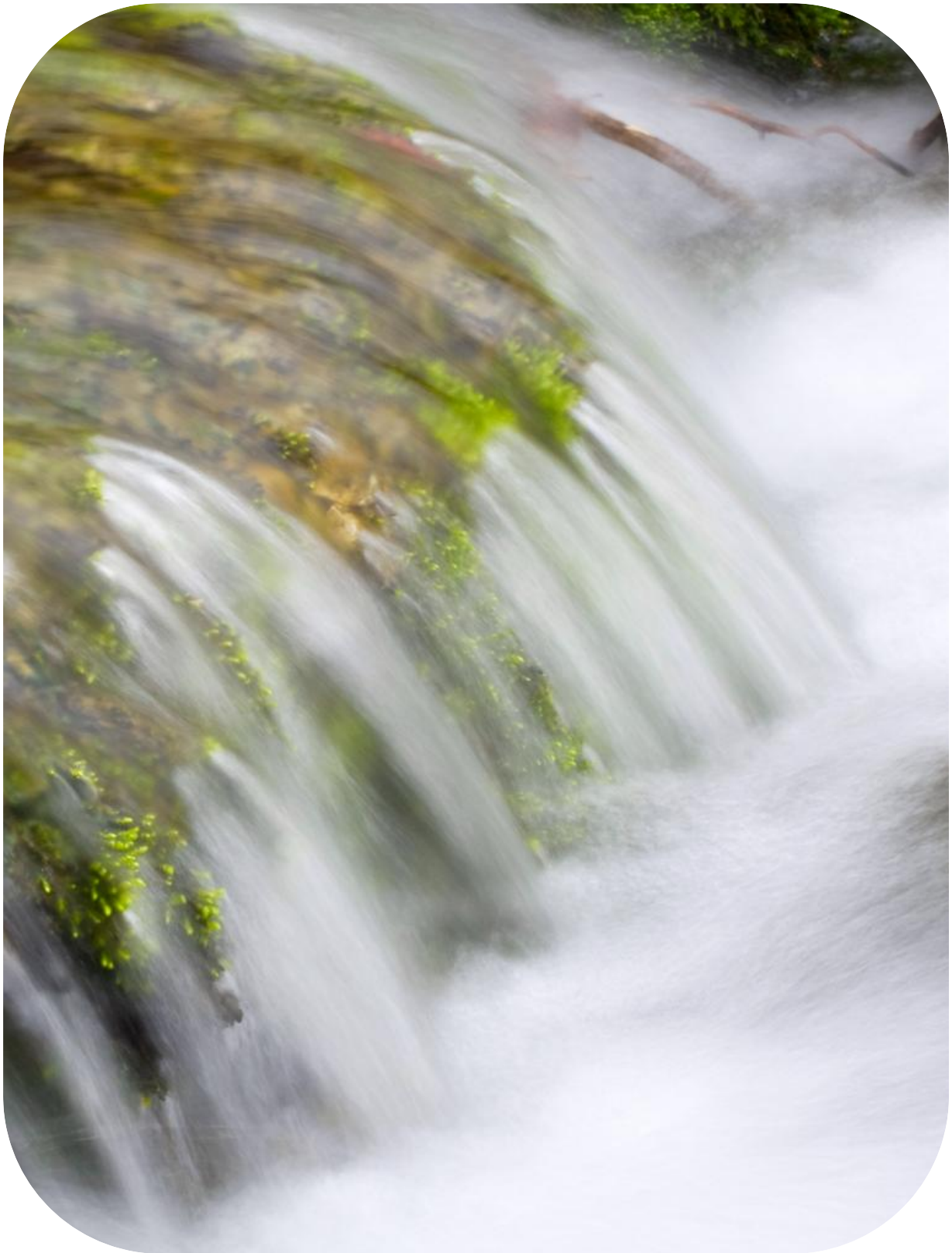
⁹ This will make demand management forecasting much more difficult.

The role of CIWEM

- 1.34 Prior to the election, the rumours of a Water Bill or a Water White Paper and a “comprehensive review”¹⁰ of OFWAT led a number of organisations, CIWEM included, to the decision that they should make their views in this area heard.
- 1.35 CIWEM led the water section of the report *Beyond Carbon*^{xxx} by the influential Aldersgate Group. This report highlighted the need to review water regulation in the UK so that issues of resource efficiency as well as carbon emissions would receive greater attention. CIWEM also played a key role in the Engineering for the Future report *Global Water Security*^{xxxi} which addressed water as a global issue and the position of the UK within that context. This highlighted how our water policy and the import of “virtual water” can impact the water security of other nations and we need to consider the implications of this in our national policy.
- 1.36 We believe that given the future pressures the time is right for a review of water regulation. There is a window of opportunity following the regulatory settlement for 2010-15 and the announcement of spending decisions of the new Government that will affect the industry's regulators. In the current economic and cost-cutting climate, there are a series of widespread reviews being undertaken looking at the wider regulatory system including environmental regulation. It is imperative that Government decisions made on future regulation of the water industry are taken in the context of these wider reviews and not in isolation.
- 1.37 In this report we will outline clear, positive measures for the industry and outline the path from the current regulatory process towards a more sustainable water industry. This report complements CIWEM's work stream on *Integrated Water Management*¹¹ which explores how water management can work in tandem with planning, development, drought and flood management functions to deliver truly integrated policies and solutions for the future.
- 1.38 CIWEM hopes that the production of this report will support the development of a future White Paper or Water Bill. We believe there needs to be a blend of legislative, policy, regulatory and market mechanisms to set the platform for the delivery of effective and efficient water, sewerage and environmental services with sufficient freedom and incentives to encourage the development and uptake of new ways of working.

¹⁰ Announced by the Minister for the Natural and Marine Environment, Wildlife and Rural Affairs during the House of Commons reading of the Flood and Water Management Bill on 25th February 2010.

¹¹ Due to be published March 2011 following a series of CIWEM conferences and events on the topic.



2. Features and benefits of a more sustainable water industry

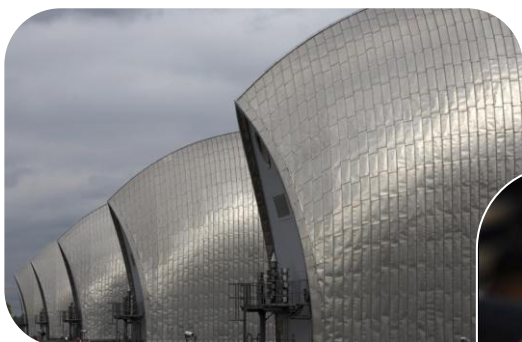
2.1 Table 2.1 shows the features that CIWEM believes would create a more sustainable water industry and the benefits that these would provide. Details of how these might be achieved are provided throughout chapter 2.

Feature	Benefits
i. Increased innovation	<ul style="list-style-type: none"> - Provides a catalyst to sustainability improvements in the industry, driving best practice - Identifies cost savings as well as technological improvements - Potential to export technology
ii. More resource, carbon and energy efficiency	<ul style="list-style-type: none"> - Reducing climate change impacts on a global scale - Demand savings will lead to reduced consumption and costs
iii. Increased water efficiency	<ul style="list-style-type: none"> - Less water treatment - reducing CO₂ emissions, waste and increasing cost savings - Enhances the perceived and actual value of water to the consumer - Protects supply
iv. More water re-use	<ul style="list-style-type: none"> - Reduced consumption of expensively treated potable water - Increased water resource availability and a less drought sensitive water resource - Environmental enhancement through the restoration/creation of wetlands - Enhances the perceived value of water to the consumer - Reduced effluent flow loads to sewers - Reduced nutrient discharge to water bodies
v. Prices that reflect the value of water	<ul style="list-style-type: none"> - Enhances the perceived and actual value of water to the consumer - Incentivises more sustainable water use - Provides revenue for environmental protection
vi. Long term investment and planning cycles	<ul style="list-style-type: none"> - Ability to plan for the impacts of climate & demographic change - Promotes greater investment in innovation and R&D - Streamlined plans reduce regulatory burden
vii. Working in partnership	<ul style="list-style-type: none"> - Improved co-ordination resulting in greater efficiencies and cost saving - Less iteration in regulation, saving time and costs - Facilitates innovation and R&D from a wider group
viii. Integrated approaches	<ul style="list-style-type: none"> - Greater knowledge sharing and efficiency - Water embedded in planning leading to reduced flood risk and environmental enhancement
ix. Catchment land management approaches	<ul style="list-style-type: none"> - Reduced treatment requirements leading to cost and carbon savings - Biodiversity and other environmental benefits
x. Water companies as service providers	<ul style="list-style-type: none"> - Environmental enhancement - More balanced and sustainable planning and strategy development

Table 2.2 Features and Benefits of a sustainable water industry

i. Increased innovation

- 2.2 **Innovative solutions in both management and technology will be needed to solve the long term issues facing the sector; they will identify cost and carbon savings and provide a catalyst for sustainability improvements. Regulatory and market mechanisms need to provide the necessary freedom and incentives to encourage the development and uptake of new technology and ways of working.**
- 2.3 Both environmental and economic regulators, ideally with government support, must better accommodate and incentivise innovation. Innovative low-carbon solutions need to be developed and implemented to balance the demands of carbon and water treatment targets.
- 2.4 It is important that the regulators of the water industry allow a degree of regulatory risk in support of developing novel and more sustainable technologies. At present low-tolerance risk-averse regulatory methodologies do little to change the industry's traditional conservatism and reluctance to adopt new technologies and approaches, and favour end of pipe "techno-fixes"¹² that are often more carbon intensive^{xxxii}. Regulators and the industry need to work as partners to deliver the most sustainable and long term solutions.
- 2.5 Reducing leakage below its currently calculated "sustainable economic level" will be achieved using innovative solutions such as smart metering and the division of monitoring areas into smaller and smaller units. With the visibility of water use to the customer it is easier to find and/or fix leaks and more economic to do so.



¹² For example, treatment works using capex solutions over process solutions (see reference)

ii. More resource, carbon and energy efficiency

- 2.6 **Increasing resource, carbon and energy efficiency will contribute to greenhouse gas emission reduction targets and economic success and well being in the future^{xxxiii}. General resource efficiency principles need to be adopted across the industry through investment practices such as life-cycle assessment, the promotion of demand side measures and the utilisation of alternate energy sources.**
- 2.7 Carbon reduction targets are needed for the water industry to ensure that the financial regulator allows companies greater revenues to cover these costs. For example if a regulatory target is set for metering and other demand management measures then the companies' revenues would be protected against such investment. The introduction of metering will account for the value of water and lead to an increased price of water services to consumers. Yet in the longer term an increase in demand-side savings will mean that less water has to be treated and can lead to reduced consumption and costs for consumers. Some water companies had their meter installation programmes cut back by OFWAT at PR09 in the absence of such targets. See case study 2.
- 2.8 Carbon emission assessments¹³ for investments should be based on a whole life-cycle analysis of water. They should include suppliers, manufacturers and raw materials. This should also include marginal items such as transport costs and the costs of the regulatory process. Carbon emission reductions may be driven through the Government's shadow price for carbon which, if high enough, will lead to a global escalation in low carbon technologies¹⁴. Physical accounting for the use of key resources on an economy-wide basis, alongside monetary accounting, would help to make more balanced decisions.
- 2.9 Barriers to joint working between energy and water companies need to be removed within the framework of the Carbon Emissions Reduction Target (CERT) and the Water Efficiency Targets (WET) and any successor¹⁵. As heating water contributes to 89% of energy use in the home^{xxxiv}, emission reduction targets can be met cost-effectively through water and energy efficiency measures working in tandem, through the use of flow restrictors for example. Under the current framework of CERT and WET set by OFWAT, water and energy companies cannot claim the credits for the energy savings from the same device. This regulatory mechanism was designed to stop double-counting carbon savings but actually works to preclude a joined-up approach. If the barriers were removed water companies could claim energy reduction credits which would incentivise demand management.

¹⁴ DEFRA Water Resource Management Plans require a description of greenhouse gases emissions that will arise from the plan. OFWAT cost benefit guidance states a company must estimate the CO₂e of building, operating and maintaining its assets of both carbon dioxide and other greenhouse gas emissions into their CO₂e. We consider that the costs in 2.8 should also be included in all investment decisions.

¹⁵ CIWEM has been lobbying the relevant Ministers alongside others (Waterwise, Water UK and the Energy Retail Association) to try and remove these barriers.

The utilisation of alternative energy sources

Severn Trent Water have a large programme in place developing CHP, growing and processing energy crops and maximising hydro power and wind power on their sites. In 2008/09 Severn Trent Water produced 17.5% of their energy usage from renewable sources with an aim to generate 30% of their electricity by 2013 to reduce their impact on the environment and become less reliant on the national grid. The majority of their energy is produced from sewage sludge, a by-product of the sewage treatment process, and in 2008 they achieved 45% of the Renewables Obligation Certificates (ROCs) available for sewage sludge biogas in the sector. Using by-products for energy production enables them to reduce their costs and lessen their impact on the environment.

Case study 1.

Demand management – Smart metering

There is considerable scope for homeowners to use water more efficiently and contribute to energy savings - particularly the use of hot water (see also 2.9). The use of smart meters can both educate and give customers greater control over their water usage and it is this sort of demand management that can impact greatly on minimising capex solutions to increase capacity in future years.

At PR09 OFWAT did not accept some companies' proposals for smart metering as their position is to support metering only where the benefits outweigh the costs. The cost of metering (initial and recurrent replacement cost) may outweigh the savings on treatment costs (in the volume of water used, and the avoided cost of its abstraction, treatment, distribution, retreatment, disposal, and the additional capex and opex involved to do so). However smart metering would allow the variable tariffs for different daily, monthly, and seasonal consumption. This would reduce peak flows in networks that can dramatically reduce or remove the need to invest in future capacity.

The public are keen to increase their own sustainability and were they to know their own consumption (through water usage visibly displayed in their property) and the target they should strive to meet, there are large potential reductions in water demand to be made. This would defer capital investment (and carbon costs) for capacity throughout networks and treatment as well as reductions in energy uses for pumping and treatment.

Case study 2.

iii. Increased water efficiency

- 2.10 **Greater water efficiency means less water has to be abstracted, treated, pumped and re-treated, thus water efficiency by itself helps to reduce carbon emissions and with less water going further, helps to meet climate change adaptation goals.**
- 2.11 There should be a target to achieve and then go beyond the *Future Water* aspiration for water consumption to average 130 litres per person per day (l/p/d) 2030 in the UK. This should be jointly delivered by the Government, regulators, water companies and customers. Germany has already exceeded this target with an average household consumption of 122l/p/d^{xxxv} and it is as low as 90l/p/d in some of the former eastern states¹⁶. CIWEM believes that reducing per capita consumption to and below 130 l/p/day in England and Wales will require significant attitudinal and behavioural change by customers. Government and regulator support will be essential for awareness raising and promoting this change.
- 2.12 CIWEM believes the financial regulator should have a statutory duty to promote water conservation and efficiency¹⁷. Currently OFWAT has a duty to assess whether water companies are discharging *their* statutory duty to promote water efficiency but this has been restricted, in any quantifiable terms, to meeting the Base Service Water Efficiency target they have imposed. This requires companies to deliver annual reductions in household consumption of 1 litre per property per day^{xxxvi}. CIWEM believes this rate of water efficiency requirement to be too low.
- 2.13 Water Resource Management Plans need to put into action the reduction measures cited in them through reducing leakage, increasing metering and placing a greater emphasis on water efficiency. Additionally, long term forecasts of water availability need to be placed in the public domain.
- 2.14 It is essential that as “smart metering” begins to be established that water use is included and displayed alongside energy use in the home. This would also provide valuable data to water companies on consumer circumstances, use patterns and provide better information to customers about their level of wastage (see more on metering in section v and case study 2).
- 2.15 Building Regulations and *The Water Supply (Water Fittings) Regulations 1999*^{xxxvii} should be amended to specify an expectation for low volume flush toilets, low flow shower heads and water efficient appliances. This should lead to the cessation of selling water inefficient products and investment in the re/training of plumbing professionals with respect to fitting and maintenance. Regular reviews of Water Fittings Regulations will also be needed.
- 2.16 Significant further reductions could be made to industrial water usage and water efficient processes should be promoted through planning approval for industry (see also

¹⁶ Though the social and infrastructural framework in Germany differs in key respects from that of England and Wales.

¹⁷ CIWEM realises that OFWAT has a statutory duty to promote sustainable development however we are of the opinion that this is not being undertaken as a priority.

- 2.20). The extension of retail competition, currently being investigated by OFWAT, for non-household customers may help businesses improve their water usage.
- 2.17 Local Authorities should address their water usage with regard to usage in parks and gardens (case study 4). As part of a public awareness campaign the horticultural industry needs to be encouraged and guided to sell and promote appropriate water efficient gardening products to the public.

Waterwise “Tap into Savings” water and energy saving project.

The Tap into Savings initiative in Surrey provided a range of free water efficient devices, including toilet cistern kits, aerated showerheads, shower adaptors and tap inserts fitted in bathrooms and kitchens. Residents are encouraged to take control of their energy bills with the help of free energy monitors, energy saving products and advice. As part of the project, Surrey residents are being encouraged to join EcoTeams which are neighbourhood groups to learn and develop ways of saving water and energy, wasting less and recycling more. Projects such as this that actively engage the public with water efficiency should be extended to other areas starting with those under water stress.

Case study 3

Xeriscaping in Albuquerque, New Mexico, USA.

Due to population growth and the existing demand for water supplies the city of Albuquerque was facing serious water stress. The city encouraged water conservation through the use of xeriscaping (landscaping and gardening in ways that reduce or eliminate the need for supplemental irrigation). The Water Utility Authority provides support to homeowners to xeriscape and offers substantial rebates on their water charges. Guidance is also provided on what types of plant to use and how to layout gardens. CIWEM would support the widespread use of xeriscaping in public areas in the UK.

Case study 4



iv. More water reuse

- 2.18 **Much of the water we use for non-potable purposes such as industrial applications, toilet flushing and irrigation, is unnecessarily treated to potable-water standards. Water reuse, the practice where suitably treated wastewater from one process is reused for a different beneficial purpose can provide an alternative water supply for both households and industry.**
- 2.19 A coherent government policy and the publication of guidelines utilising the Drinking Water Quality Standards for the protection of public health and the environment would increase water reuse (case study 5). Unplanned indirect reuse is commonplace throughout the industry but planned indirect reuse is still restricted, largely due to the perceptions of risks to public health. This is despite the adoption of stringent effluent treatment standards. Perceptions need to be changed through more education and awareness to provide a greater public understanding of the benefits of reuse as several water companies have not made use of available options due to public acceptability worries.
- 2.20 CIWEM would like to see pro-active, strategic political and financial support from the Government and regulators to compel common utilisation of direct and indirect water reuse for industry¹⁸ (case study 6).
- 2.21 Rainwater harvesting and greywater systems should be built into new build community schemes and potentially individual homes to move towards better understanding and use of environmental water, potable water and reused water for different purposes.
- 2.22 Programmes should be established to support the development of local small scale water storage, wetland creation and restoration, and aquifer storage and recovery (ASR). Increased rainwater harvesting should also take place to provide water for agriculture and livestock, and to recharge aquifers. It is essential that these kinds of measures are keenly supported with incentives.
- 2.23 Considerable untapped potential exists for reuse in areas where discharges are currently made to the sea, or to inland waters that are not abstracted from further downstream. These can be redirected inland to support river flows and abstractions, for example there are huge above-natural flows in the River Trent, currently lost to sea, which could be diverted to irrigate the Fens.
- 2.24 More work is needed to understand the greenhouse gas emission impacts of water reuse compared to those of other water supply options including desalination, rainwater harvesting, winter storage reservoirs and demand side options to reduce deficits in supply.

¹⁸ For further information see CIWEM's Policy Position Statement on Water Reuse for People and the Environment <http://www.ciwem.org/policy-and-international/policy-position-statements.aspx>

Langford sewage treatment works localised wastewater treatment scheme.

Since 2003 Essex & Suffolk Water have been recycling treated effluent from Anglian Water's Chelmsford sewage treatment works, which was previously all discharged to the sea by means of a 15km pipeline. In times of low rainfall between 20 and 30MI/d of treated effluent is pumped to Essex & Suffolk Water's recycling treatment plant where the effluent undergoes UV disinfection. This water is then discharged into the River Chelmer for later abstraction and pumping to Langford Water Treatment Works. Here it undergoes further treatment to ensure that the water conforms to all drinking water quality standards. Indirect water reuse such as this increases water resource availability and creates a less drought sensitive water resource.

Case study 5

The USA as a leader in water reuse

In the USA there are National Guidelines for Water Reuse although many states also have their own guidelines or criteria for reclaimed water uses. Projects in the USA are often financially supported by state or local government loans, bonds or grants. Legislation has been approved which allows the Environmental Protection Agency to give \$125 million in "alternative water source grants" to industrial water reuse projects. The American Water Works Association and the WaterReuse Association both sponsor innovative water reuse research and development projects and WaterReuse encourages federal and state support for reclaimed water and produces educational materials.

Case study 6



v. Prices that reflect the value of water

- 2.25 **Prices need to reflect environmental realities with sufficient political will to price externalities effectively. The key financial and pricing issue is that water pricing alone does not effectively encourage efficiency and a reduction in wastefulness.**
- 2.26 CIWEM calls for the Government to develop and mandate a “shadow price for water”¹⁹. We advocate that this needs to include the true environmental costs of water and should be reflected in abstraction license charges. It should also be charged to customers following consultation and subject to the provision of appropriate protection for vulnerable sectors of society. We recognise that the challenge will be in setting a price that balances consumptive and environmental use. The extra revenue would go towards managing the environment, with proceeds being used to compensate for loss of rights and the replacement cost of less damaging rights and assets. The development of a shadow price would also help to raise the value of new innovative products²⁰.
- 2.27 CIWEM considers metering to be an equitable solution to water charging. There are currently low levels of metering in many parts of the country that make the measurement of usage and improved consumer understanding of water issues very challenging. Water metering needs to be rolled out across the country with collaboration from other utilities on how it can be introduced cost-effectively and should be introduced at a pace to reflect regional water resource circumstances. CIWEM recognises and supports the increased pace of household metering embodied in the 2010-2035 Water Resources Management Plans recently published by water companies.
- 2.28 The rising block tariff, or variants of it, appears to be an effective way to fairly charge for water and to send a clear message on the costs of excessive consumption to the consumer (case study 7)²¹. Basic usage should be charged at a low cost with the unit cost escalating rapidly thereafter, this would enable affordability and ensure that wasteful users foot the environmental bill for their usage.
- 2.29 CIWEM believe that both regulatory and market mechanisms have a role to play in achieving the delivery of water, sewerage and environmental services. We believe that the full value of water needs to be established, communicated to and accepted by customers as soon as possible, to support the introduction of market-based instruments. Until the true value of water is established and communicated, demand management measures will continue to be under-valued and under-used. CIWEM believes that the issue may best be tackled by 'mixed economy' solutions involving government interventions, the co-ordination of action by public bodies, the development of appropriate incentives for private firms and household customers and the promotion of awareness and attitudinal change on the scarcity and value of water across the whole of society.

¹⁹ Shadow prices are a surrogate value used when cost benefits are intangible. Shadow prices are already used for carbon across Government in policy and planning to ensure that lower-carbon options are recommended where they are economically and socially justified.

²⁰ Since developers could show higher potential cost-savings to investors.

²¹ The practicalities of gathering and maintaining information on household occupancy do present a further challenge.

Southern Water's plans to adopt seasonal water tariffs

Southern Water has recently announced winter and summer tariffs as a result of water stress in the area with a volumetric charge higher in the summer to discourage non-essential use. In this way a minimum per person volume can be allocated at competitive prices whilst allowing the market to dominate at the next two tiers of pricing bands for greater volumes. This allows the water companies to maintain their level of income without having to diversify into other areas or supply chains.

Case study 7



vi. Long term investment and planning cycles

- 2.30 **Business planning cycles in the water industry favour the short term with uncertainties towards the end of the 5 yearly cycles causing “boom and bust” investment. A longer-term component would allow water companies to profile their investment programme in the most appropriate manner to deliver sustainability objectives. It is critical that funding follows the outcomes of the planning process and that decisions are made transparently.**
- 2.31 It is essential that the myriad of plans produced by the water industry and their regulators are streamlined. Water Resource Management Plans look to 25 years ahead, business plans cover 5 years, River Basin Management Plans 6 years and Future Water had a 30 year aspiration. Plans ought to be fully integrated and consistent with the outcomes of the price review process to significantly reduce regulatory burdens. A single set of industry objectives are needed to guide politicians in the long term.
- 2.32 CIWEM would hope to see lessened reliance on capital works and the cyclical cycle in capital expenditure with more incentives to develop a twin-track approach that includes operational and demand management solutions. Allowing companies to account for the reduction of carbon emissions in the home would shift the economics of demand side options (see also 2.9).
- 2.33 Climate change and demographic change implications have to be a principal factor in future business planning and investment. Planning for these in essence involves building resilience within the system against shocks and acknowledging uncertainty^{xxxviii}. In this respect the importance of flexible and incremental solutions, innovation in technology and avoiding wasting money in stranded assets cannot be overstated.

The Thames Estuary 2100 project (TE2100)

The TE2100 is a plan to manage flood risk in the Thames Estuary for the next 100 years and although in a differing field, presents an example of long term adaptive planning. It takes on board the need for flexible, resilient plans to avoid near-term potentially expensive and maladapted decisions which will also be essential in water resource planning.

Instead of relying on climate scenarios as most climate change plans tend to, the TE2100 uses threshold analyses which avoid over-engineering too early. Flexible decision pathways are developed to assess options for flood protection and spatial planning and incorporate continuous monitoring – an essential element for infrastructure lead times. The project has also engaged significantly with local communities and has produced plans for the short, medium and long term (which are useful when working on political timescales).

Case study 8



vii. Working in partnership

- 2.34 **CIWEM would hope to see a harmonised and mature partnership between the regulators, water companies and manufacturers/suppliers and consultants in order to deliver a sustainable water industry. This would improve co-ordination and streamline regulation saving time and money. A balance of formal regulation, formal partnerships and informal partnerships will be needed.**
- 2.35 Improved co-ordination across regulators; and investigation into more flexible approaches to regulation by looking to examples of good practice in other countries (e.g. Australia) and in other sectors. The recent collaboration of OFWAT, the Environment Agency and DEFRA working on water rights trading is a good example of partnership working (case study 9).
- 2.36 The ability to make local decisions attuned to local circumstances in terms of water supply and treatment, metering and reducing leakage would help overcome rigidity in regulator relationships. This should incorporate stakeholder engagement to deliver on top local priorities (see also section x).
- 2.37 Innovation and R&D partnerships between water industry, consultants, manufacturers, professional trade bodies, academia and others could be supported by the Technology Strategy Board.
- 2.38 Climate change is likely to have considerable implications for water quality and will present a challenge to meeting WFD targets^{xxxix}. Water companies and the EA will need to collaborate, model and monitor together to achieve good ecological status in their catchments. Other water and land users (such as farmers) will also need to play their part in the process (see also section ix).

Regulators working together on water rights trading.

As part of OFWAT's "future regulation" programme are proposals for incentivising water rights trading. Water rights' trading is the transfer of rights to abstract water from one person to another. It involves the trading of rights only, not the trading of actual water. The transferred rights are set out in a new abstraction licence approved by the Environment Agency. There is also potential for inter-basin trading where water would be transferred between neighbouring water resource zones. Trading water rights will be important in light of changes to water resource availability.

Issues such as this require a joined up approach and partnership working. OFWAT have been working closely with the Environment Agency and DEFRA and the aim is to achieve sustainable levels of abstraction in England and Wales (see also 2.47).

Case study 9

Developing new solutions in partnership

Bristol University's School of Mechanical Engineering invented ice pigging (a process which involves cleaning water mains by injecting ice slush into a rising main before forcing it through the pipe with water). As a result of researchers working in partnership with Wessex Water and Bristol Water they were able to develop this pioneering method following a two day trial using the companies' water mains. The development of this process is of benefit to all the partners but can only be achieved by working together.

Case study 10



viii. Integrated approaches

- 2.39 **Integration within the water sector implies a much closer operational link between flooding, water quality and water resources and the various links to the natural environment. Integration is also needed with external sectors such as energy, land use and planning. This will increase the awareness that the water cycle involves managing shortages and excesses, leading to knowledge sharing and efficiencies, reduced flood risk and environmental enhancement.**
- 2.40 CIWEM would hope to see a water industry which is an integral part of wider water and environmental management approaches which bring together land management, flood risk management, water and drought management, planning and development. The Dutch are leading in the area of integration using regional government bodies to manage the water barriers, waterways, water levels, and the water quality in their region.
- 2.41 Water companies and regulators need to work with each other and local spatial planning bodies to integrate planning of water supply, wastewater treatment and sustainable drainage within development plans and associated green infrastructure strategies. The industry should be championing and providing the water-environment components of green infrastructure networks in our towns and countryside. (see also 2.45)
- 2.42 Linkages need to be established through smart metering with other utility bills to encourage customer efficiency. This should be closely allied with a campaign on energy efficiency, to ensure that households think about energy and water efficiency at the same time (see also case study 2).

Water Cycle Studies carried out by local councils

Water Cycle Studies integrate various streams of water resource planning to allow infrastructure strategies to be embedded into local development plans. They provide an evidence base for land owners, water infrastructure providers and planners. National guidance states that there are five key sources of information that need to be considered as part of the WCS: catchment abstraction management strategies, strategic water resource management plans, River Basin Management Plans (from the Water Framework Directive), water company infrastructure plans and the Code for Sustainable Homes. Water cycle studies aim to assess the implications of spatial planning on water resources, water quality and flood risk together.

Case study 11

ix. Catchment land management approaches

- 2.43 **A catchment approach is essential so that problems can be tackled at source rather than through end-of-pipe capital and energy intensive treatment. Managing the land within a catchment helps to deliver cleaner source water, a more carbon and resource efficient treatment process as well as delivering biodiversity and other benefits.**
- 2.44 The primacy of the Water Framework Directive in melding water regulation and management in its widest terminology needs to be established. Effective implementation of the Directive will require improvements in engagement, policies and governance^{xl}.
- 2.45 Water resource and water quality issues need to be an integral part of the spatial planning process; DCLG is working on water and planning guidance which will help to raise the profile of water management within planning.
- 2.46 The UK receives a great deal of run-off that can be gathered in green spaces²². The industry needs to be leading the realisation of necessary sustainability outcomes identified through local water cycle studies (case study 11), including retrofitting water conservation and SUDs technologies to achieve water neutrality and flood risk management imperatives. Aquifers could also provide a reserve for drought periods if they are managed through ASR, with groundwater pumped into them in times of plenty for later re-abstraction.
- 2.47 Water rights need to be allocated fairly and reflect the value of the local environment. They are currently distributed on the principle of 'first come first served' and any later requirements must not derogate from existing licences. This does not provide incentives to be efficient or return unused licensed volumes back to the market^{xli}. Following the Cave Review, OFWAT have been working closely with DEFRA and the EA on potential market reform^{xlii} focusing on abstraction pricing and the trading of water rights (case study 9). Trading water rights from agriculture to water supply has worked well in the USA and Australia however there may be a limited market for this in the UK, due largely because we have little low value water use in agriculture^{xliii}. There may be the potential for other sectors such as power generation to take part^{xliv}.
- 2.48 Effective measures are required to prevent the transfer of diseases, parasites or alien species from catchment to catchment in the event of water transfers between neighbouring water resource zones. The chemical and hydrological integrity of individual river systems will need to be maintained.
- 2.49 OFWAT has sanctioned a wide range of catchment projects, not just to improve water management in upland catchments but also to influence land use around groundwater sources where there are issues with high levels of nutrients and pesticides contaminating

²² For further information see CIWEM's briefing report: Multifunctional Urban Green Infrastructure. Available from: <http://www.ciwem.org/policy-and-international/current-topics/natural-capital.aspx>

water. The ecosystem services approach can be used to justify the broader value of particular projects more effectively.

The Sustainable Catchment Management Programme (SCaMP)

In partnership with the RSPB, United Utilities have restored blanket bogs and areas of eroded and exposed peat to help establish vegetation and improve water quality. As the land is the primary source of water for 6.7 million people in the North West of England, the way the land is managed has a significant impact on water quality. SCaMP has been made possible by United Utilities holding the land in the catchment and has been funded mainly through PR04.

Case study 12



x. Water companies as service providers

- 2.50 **The delivery of integrated water, wastewater and environmental services by water companies not just water and sewerage services is key to creating a new sustainable mindset. The aim is to have water companies delivering integrated services (including helping customers save water and providing services to the environment) and for regulators to ensure the effective delivery of these.**
- 2.51 Water companies are already environmental managers but have to work within the statutes and regulatory policies agreed - which do not currently recognise the totality of them being service providers²³. The regulators should be given responsibilities for promoting the delivery of integrated water, wastewater and environmental services. The Environment Agency has looked to other countries' experiences and tools to deal with the associated revenue loss and believe there is the opportunity for this approach in England and Wales^{xlv}.
- 2.52 CIWEM recommends that water companies who over-perform against their environmental targets should be rewarded with lower abstraction prices or carbon credits. The Government and regulators should also ensure that they give the water industry timely and consistent signals about what outcomes are required.
- 2.53 OFWAT have acknowledged the potential for water retailers to become "water service providers" and help their customers save water, (similar to Business Stream in Scotland). The change from the Overall Performance Assessment used since 1996 to the Service Incentive Mechanism (SIM) in 2010 is one step towards this. The SIM will measure companies' performance through customer satisfaction and reward or penalise them at their next price limits^{xlvi}.
- 2.54 Sustainability champions within water companies should have a remit for the responsible procurement of goods and services and financial operations.
- 2.55 The Consumer Council for Water (CCW) should have a similar sustainable development duty to OFWAT. In CIWEM'S view, the CCW's contribution would be improved by the adoption of a broader focus on their part, extending beyond the sole objective of minimising costs to customers and embracing an holistic approach to water supply and management, which will be of long term benefit to consumers.

²³ The PR09 Final Determination document makes reference to its obligation to ensure that companies deliver reliable and efficient water and sewerage services, not water, sewerage and environmental services.



3. Timetable for transition

- 3.1 CIWEM considers that the time is right to review our regulatory processes. Following our transition plan we believe that a new regulatory process for the water industry could be in place for the 2014 AMP6 negotiations:



Figure 3.1 Timeline for transition to a sustainable water industry



4. Conclusion

- 4.1 Ensuring that our use of water is sustainable – in all senses of the term, and particularly in respect of remaining within environmental limits - will involve working holistically and cross-sectorally. A wide-reaching review of the governance of the water industry is needed now. Notwithstanding the successes achieved in the delivery of water and sewerage services in the last two decades, the structure, regulation and management of the water sector needs to be considered afresh if the challenges of the future, from population growth, climate change and environmental management are to be met.
- 4.2 A regulatory review of the industry should be considered within the context of a wider review looking into the overlap and inefficiencies across the environmental regulatory framework as a whole. Environmental regulation and investment needs to be more integrated to enable multi-utility benefits and ensure that sustainability can be delivered across sectors.

CIWEM's vision

- 4.3 Essentially, a more sustainable water industry would ensure that water supply meets appropriately managed demand in all regions of the country and at an acceptable price to the consumer. It would also deliver low carbon and resilient solutions that respect environmental limits. Investment choices would not benefit today's society at the expense of future generations. They would instead recognise the value of incremental and flexible solutions with a long-term perspective, managing future risks and incorporating a balance of demand and supply side measures.
- 4.4 Views from water companies in their current twenty five year Strategic Direction Statements vary significantly demonstrating that there is no "one-size-fits-all" approach to a sustainable water industry. That is not to say that a common regulatory framework would not be right for the future, just that some degree of flexibility – perhaps determined upon after experimental testing of new regulatory approaches in different circumstances – looks to be needed.
- 4.5 A common regulatory framework incorporating sufficient flexibility would allow for regional variability in outcomes (in terms of areas such as metering and the price of water). The most appropriate solutions will depend on the unique supply and demand features of the area along with the natural environment assets, the social make-up, population density and predominant land use. The impacts of climate change will have a profound impact on the water industry and the water environment^{xlvi} so flexibility within planning and investment, and the ability to make local decisions attuned to local circumstances will be essential.
- 4.6 Nevertheless there are common features in our vision for a more sustainable water industry that we have described and in this report that we would hope to be included in a future Water Bill and subsequent secondary legislation and guidance (figure 4.1). This prescription for change includes:



Figure 4.1 Changes for future legislation, policy and guidance

- 4.7 Alongside legislation and guidance there are other measures that will be required. The development of mature partnerships and the involvement of relevant parts and the whole of society will be essential components to the development of a sustainable water industry. Barriers preventing joint working need to be removed and regulators of the industry will need to allow a degree of regulatory risk in support of developing novel and more sustainable technologies. A shift towards more incentive based regulation, such as those that incorporate “nudge” behaviour is also required.
- 4.8 There is an urgent need for awareness-raising to increase knowledge and interest in water conservation realities, water efficiency and the technical aspects of water supply and treatment in England and Wales to both reduce water demand and increase acceptance for future water prices which include environmental externalities. CIWEM actively supports a move for water companies to provide environmental services which would not only improve environmental outcomes but involve customers within the water supply process and help to ensure the integrated delivery of services.

Next steps

- 4.9 The timeline in chapter 3 outlines the steps that are needed to shape the regulation of the industry into a new regime by 2014. An early Water White Paper would be opportune. It should include the recommendations of the Cave and Walker reviews and look at a full review of regulatory and market mechanisms. We would hope that it would include a single set of industry objectives (with sustainability in mind) to guide politicians in the long term and to address how policy should be implemented by the industry.
- 4.10 The financial structure and regulatory framework will need to be devised following the White Paper. The production of a Water Bill will put in place the structure necessary to deliver sustainability measures and could deliver a new regulatory process for the water industry before the 2014 AMP6 negotiations.
- 4.11 Further guidance may be needed to ensure that both the economic and environmental regulators' practices and priorities are aligned to ensure an integrated approach that benefits both people and the environment. CIWEM envisions a water industry which is an integral part of wider water and environmental management approaches which bring together land management, flood risk management, water and drought management, spatial planning and development.
- 4.12 If the goal from here onwards is the efficient and effective delivery of integrated water, sewerage and environmental services – as CIWEM believes it needs to be – then the rules of the game and the behaviour of the players needs to change, now - both within and beyond the water sector.



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