

Water for Life



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Water for Life

Presented to Parliament
by the Secretary of State for Environment, Food and Rural Affairs by Command of Her Majesty
December 2011

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Foreword by the Secretary of State for Environment, Food and Rural Affairs



The privatisation of the water industry has been a success story. Since the public regional water authorities became private companies in 1989, the industry has invested over £90 billion to reduce its impact on nature and to continue to deliver high quality, affordable drinking water.

So why do we need a white paper about water?

Because the truth is that in some areas of England our water supplies are already under stress.

Because, despite a dramatic improvement in the health of many of our rivers, only a quarter of our water bodies are fully functioning ecosystems.

And because, in the coming years, the combined effects of climate change and a growing population are likely to put increasing pressure on water quality; and on our water supplies.

We think of water as free, falling from the sky in abundance. It is only when rivers start to run dry, reservoirs fall low, cracks emerge in the ground that the old certainties are shaken. These are warning signs of what we might expect to see in a changing climate.

We cannot do without water. It is in many ways our most precious resource. So we must act now to make the changes needed to keep our rivers flowing and our water supplies reliable and affordable.

This White Paper describes a vision for future water management in which the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious resource it is. And it explains that we all have a part to play in the realisation of this vision.

A handwritten signature in black ink that reads "Caroline Spelman." The signature is written in a cursive, flowing style.

The Rt Hon. Caroline Spelman MP

Executive Summary

1 We all enjoy clean water at the turn of a tap, and watch it drain away without a thought. We think of England as a rainy country, and find it hard to believe some areas have less rainfall per person than many Mediterranean countries. We take water for granted.

2 It has been 22 years since the water industry was privatised. Since then it has invested over £90 billion to reduce its impact on nature and to continue to deliver high quality drinking water, while keeping water bills affordable. In recent decades we have seen a dramatic improvement in the health of many of our rivers.

3 But the truth is that water supplies are already under stress in some parts of the country. Because of pollution and over-abstraction only a quarter of our rivers and lakes are fully functioning ecosystems. In the coming years, the combined effects of climate change and a growing population are likely to put increasing pressure on our rivers, lakes and aquifers. If we do not act, the security of our water supplies could be compromised.

4 Droughts may become more commonplace. Changing rainfall patterns could affect our river flows and make it harder for our groundwater reserves to be recharged. More intense rainfall may increase the likelihood of surface water flooding, leading to pollution of our water bodies. Meanwhile, population growth means more demand for water.

5 A report by the Environment Agency, issued alongside this White Paper, draws the following conclusions:

- Water resources are already under pressure. Current levels of water abstraction are already harming nature.
- In the future there is likely to be less water available for people, businesses and the environment.
- Future pressures will not be limited to the south and east of England.
- In the longer term climate change could have a bigger impact on available water resources than population growth.
- The water environment will change. Some species will be better suited to future conditions than others.
- Demand for water will need to be managed and we may need significant new water resources.

6 We cannot do without water. Clean, thriving water bodies are an integral part of the natural environment, giving life to plants, animals and people alike. Water is also integral to the economy. We need it to grow food, for industrial processes and for energy production.

7 This is why protecting the health of our rivers and lakes, maintaining our water infrastructure and managing our water resources effectively, while keeping water affordable for all – is among the most critical of the challenges we face.

8 It is also a very complex challenge, posing some difficult questions. How do we protect the environment and take less water from our rivers, while meeting the demands of a growing population? How do we encourage innovation and dynamism in the water sector while ensuring it remains a low-risk choice for investors? How do we incentivise less wasteful use of water while keeping water affordable for everyone?

9 We must act now to find the answers to these questions, and start to make the changes needed to keep our rivers flowing and our water supplies reliable and affordable.

10 This White Paper is a call to action. It describes a vision for future water management in which the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious resource it is. And it explains that we all have a part to play in the realisation of this vision.

Water and the natural environment

11 Published in June 2011, the Natural Environment White Paper, *The Natural Choice* made clear the importance of valuing nature and the benefits it provides. Healthy rivers, lakes, groundwater, estuaries and wetlands deliver a wide range of benefits, from relatively pure water needing less treatment to be drinkable, to flood protection, recreational opportunities and thriving wildlife.

12 We have many exquisite stretches of water, to fish in, to swim in, to walk along. But only 27 per cent of our rivers and lakes are fully functioning ecosystems. Under EU law we have a legal imperative to make a substantial improvement to this figure by 2027. We also have a clear moral imperative; and an economic one.

13 This White Paper makes clear that we must halt and reverse the damage we have done to water ecosystems, and ensure that they can continue to provide essential services to us and the natural environment more generally. It takes forward a key message from the Natural Environment White Paper: that we all have an interest, and therefore a role, in protecting our water bodies.

14 We have been damaging rivers and other water bodies in two ways. We have been polluting them; and we have been taking too much water out of them (over-abstraction). Over-abstraction compounds pollution, because the less water there is, the more concentrated the pollution will be.

Tackling water pollution

15 There has been good progress in tackling pollution over recent years, largely as a result of tackling point sources of pollution such as discharges from sewage treatment works and industrial processes.

16 Diffuse pollution, from a range of sources such as run-off from roads and farmland, and detergents and other toxic materials people put down drains, is still a problem. Taken individually, the impact of each source would be relatively low. But taken together, their impact can be dramatic, poisoning water and damaging wildlife and plants.

17 Given the diversity of the sources of pollution, neither Government regulation nor public money alone can solve the problem. Instead we need a new approach that mobilises local groups and draws on new sources of funding. Therefore this White Paper takes forward the new “catchment-based approach” to water quality and diffuse pollution launched earlier this year.

18 A river’s catchment area is all the land and other water bodies from which it receives water. The characteristics of any river are determined by the activities, both human and natural, that take place within its catchment. So working on pollution across a catchment area makes good environmental sense.

19 It also makes sense socially. Catchment-sized projects are local projects, making use of local networks, tapping into local enthusiasm, addressing local concerns. Working at a catchment level enables all those with an interest to see how they can tackle water issues together, in a way that not only improves water quality but also delivers benefits to the whole area.

20 There could also be financial benefits. Stopping pollution at source, sometimes through simple measures avoids the need for expensive and carbon intensive water treatment paid for through our water bills.

21 The White Paper explains how we will learn lessons from around 70 catchment scale pilot projects, and provide intensive support to 25 of them, as a precursor to rolling out this approach across the country. We will also work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment. We will provide clearer guidance for farmers on the basic measures required to safeguard local water quality. As well as agricultural sources we will continue to tackle pollution from other sources such as private wastewater facilities and abandoned metal mines.

22 We will consult on a national strategy on urban diffuse pollution in 2012. Part of our approach will be encouraging the introduction of drainage systems that reduce flood risk and the amount of pollution running off our roads and industrial estates and into our streams and rivers, as well as relieving pressure on our sewers. We will consult shortly on national standards and a new approval system for sustainable drainage.

Tackling over-abstraction

23 Many rivers and water bodies in the UK are being damaged when too much water is taken from them. The current system for managing abstraction was set up in the 1960s, and was designed to manage competing human demands for water rather than to protect the environment.

24 The system's inadequacies will become more apparent as a changing climate and increasing demand place greater pressure on our water resources. We need to take remedial action before the health of our rivers is damaged beyond repair.

25 We announced in our Natural Environment White Paper our intention to reform the abstraction regime. This will be a complex task, and we will work closely with abstractors and other stakeholders to deliver it. We plan to consult on proposals in 2013, and aim to introduce legislation to reform the regime early in the next Parliament, implementing the new regime fully by the mid to late 2020s. Our rivers cannot wait until then. We will ramp up our efforts to reduce damaging abstraction now, using our existing tools better.

26 The Environment Agency will report its progress on implementing its Restoring Sustainable Abstraction programme early in 2012. We will develop an action programme for addressing unsustainable abstraction up to 2027 and beyond in the second cycle of River Basin Management Plans.

27 We will work with Ofwat and the Environment Agency to give water companies better incentives and tools to manage their abstraction sustainably.

Water and the green economy

28 The Government's top priority is economic growth: green economic growth. This means businesses growing sustainably, saving money, strengthening their brands and ensuring their longevity by using resources more efficiently, cutting their carbon emissions and reducing their impact on the environment. It also means the business sector taking advantage of the new markets for environmental goods and services, creating green jobs at home and becoming global leaders in these new markets.

29 Water is essential for economic growth, and the water industry has a vital role in the transition to the green economy. The green economy needs a sustainable, resilient, affordable water supply. It also needs an energised, innovative, competitive water industry.

30 The challenge is not just to keep other industries and households supplied with water, while keeping our rivers, lakes and aquifers healthy. It is also to innovate and develop expertise, for example, in leakage detection, water efficient technologies and treatment of water and wastewater; and to take advantage of the US\$300 billion worldwide market in water products and services. To this end a £3.5 million innovation competition in water security will be launched by the Technology Strategy Board in March next year.

A water sector that focuses on its customers

31 Ofwat's regulation of the water sector has ensured affordable bills, secure supplies and good environmental performance. The stable regulatory framework enabled the sector to attract substantial, low cost investment to upgrade infrastructure and improve environmental standards.

32 It is crucial that the sector remains attractive to investors, so that it can maintain and develop the infrastructure we need for the future. But we also need change in the sector to stimulate innovation and growth, encourage efficiency and improve the range and quality of services water companies offer to their customers.

33 We are introducing a package of reforms to extend competition in the water sector by increasing choice for business customers and making the market more attractive to new entrants. This is an evolutionary approach to reform, delivering changes that will benefit customers while maintaining investor confidence in the sector.

34 We are also supporting changes to help developers receive much higher standards of service from water companies, and we will increase the transparency of the infrastructure and requisition charges they pay.

Supporting growth and innovation

35 We know that it can be difficult for a business wanting to start or increase water abstraction to obtain a year-round reliable licence. This could become a significant barrier to economic activity in parts of the country as water availability decreases. A better market in abstraction licences would make it easier for businesses to access water in the volume and the location they want. So we will reduce the barriers to trade in abstraction licences.

36 The planning regime for the water sector is effective, but we need to ensure we are planning for the long term and doing as much as we should to conserve water in the supply system, in business

and at home. Water companies' planning role is limited to the public water supply and many water users draw their supplies from other sources. We need a broader understanding of future demand so we can assess the resilience of our water supplies. Individual sectors and businesses, especially water intensive ones, need to identify the risks to their own operations. The Environment Agency will work with sectors, such as the energy generation industry, to develop a shared understanding of future water demand and risks to both the abstractors and the environment.

Water and you

37 Water is a necessity and must remain affordable to all. At the same time everyone has a role to play in using water more efficiently. This White Paper puts customers at the heart of decision-making in the water sector. It also explains how we can all use water more efficiently and protect ourselves from higher water bills.

Affordability and bad debt

38 For many household customers, the most critical issue is the affordability of their bills. Although water and sewerage services are relatively cheap – on average £1 per day, some households struggle to pay their water bill.

39 This White Paper sets out how we are tackling water affordability in two ways. It explains how we will enable water companies to take action to help households who are having problems paying their bills. Over the longer term, our market reforms to increase competition and innovation will limit future rises in customers' bills.

40 In October we published draft guidance for both water companies and Ofwat on water company social tariffs. This will enable water companies to offer more support to customers at risk by introducing their own social tariffs. We will publish the final guidance to companies early in 2012. This will give companies time to design schemes and consult with their customers to introduce tariffs from April 2013 where they choose to do so.

41 Low income metered customers who need to use lots of water already receive support through the Government's national WaterSure tariff. We will also ensure that water companies have the freedom to offer enhanced terms to WaterSure customers through their social tariffs.

42 Bad debt is a big problem for water companies because households cannot be disconnected if they do not pay their bills. Bad debt forces companies to raise everyone's bills, and currently adds an average of £15 to the bills of paying customers.

43 Reducing levels of bad debt would lower bills and help households who are struggling to afford their charges. We are therefore consulting on measures to help companies recover debts.

Reducing high household bills in the south west

44 Households in the south west of England face the highest water bills in the country because at privatisation the network of water and sewerage pipes and other capital assets was less well developed in the south west than in other regions. Since then South West Water has had to invest around £2 billion to raise sewerage standards to the same standards as the rest of country. This has led to high bills.

45 The Government believes that in order to deal with this historic anomaly it should contribute to the cost of reducing bills. We have therefore decided to fund South West Water to enable it to cut bills by £50 per year for all household customers until at least the end of the next spending review period.

Changing the way we use and value water

46 Keeping water affordable is vital. But it is also vital that we use water more efficiently. The White Paper advocates steps such as installing water butts in gardens to collect rainwater, converting toilets to dual flush, and addressing domestic leaks. We can also avoid water pollution by being careful about what we put down our drains; and by installing modern drainage systems that reduce the risk of surface flooding.

47 The White Paper also explains how Government will encourage and incentivise water efficiency measures, some of which are being supported under the Green Deal. It sets out how we will encourage voluntary water efficiency labelling to enable customers to choose more efficient products.

48 We will use previous successful initiatives to improve our understanding of what motivates individuals to make best use of water; and of what gets in their way. We will apply the lessons we learn to encourage water efficient behaviour.

49 We will also collaborate on a campaign to save water and protect the environment, working with water companies, regulators and customers to raise awareness of the connection between how we use water and the quality of our rivers.

Delivering the White Paper

50 The Government's immediate steps include:

- Publishing a draft Water Bill for pre-legislative scrutiny in early 2012 and introducing a Water Bill as soon as Parliamentary time allows;
- Producing a new strategic policy statement and social and environmental guidance for Ofwat during 2012;
- With the Environment Agency, supporting catchment pilots across the country, with particular focus on the 25 to be evaluated in early 2013;
- New arrangements to work with stakeholders on design of a new abstraction regime in early 2012;
- Stepping up our work on unsustainable abstraction; publishing information on progress on the Restoring Sustainable Abstraction programme in 2012;
- Publishing final social tariff guidance in early 2012; and
- Producing a draft guideline for the next water resources management planning round during 2012.

51 This White Paper includes several proposals for deregulating and simplifying legislation, to reduce burdens on business and stimulate growth. Ofwat's proposals for reducing its regulatory burdens complement these. The Government's Red Tape Challenge will offer another opportunity to identify areas where regulation can be simplified or removed.

52 The future is never easy to predict, but we have solid evidence that the way we use water and manage our water resources needs to change. We must protect the environment, support economic growth and secure supplies for households. We must safeguard our water, so that generations to come can enjoy water for life.

1. Introduction



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1.1 We think of England as a wet country, and rain helps drive our national obsession with the weather. But the truth is rather different. Parts of England have less rainfall per person than many Mediterranean countries. The dry spring this year showed how quickly changes in rainfall can affect our rivers and reduce what we can take from them to water crops and supply homes and businesses. When heavy rain comes it creates its own problems. While it fills reservoirs and tops up our groundwater supplies, it can overwhelm our drainage system, so drains block up and sewers overflow.

1.2 We take water for granted. We assume there is plenty of it, and for most of us it is cheap and affordable. We do not make the connection between the water we use every day for cooking, washing, watering our gardens, and flushing the toilet and the health of our local rivers. Nor do we always take the care we should with what we throw down the drain, blocking sewers and polluting our rivers and beaches. But the actions we take every day can help protect and conserve our most precious resource.

1.3 Our rivers, streams and lakes are the lifeblood of our natural world, enriching us all. This Government wants to leave the natural environment of England in a better state than it inherited. The Natural Environment White Paper *The Natural Choice*¹ sets out the challenge. A healthy natural environment is the essential foundation if we are to enjoy sustained economic growth, prospering communities and personal wellbeing.

1.4 The quality of our water is fundamental to this. The health of our rivers and coastal waters has improved greatly over the last two decades, with most bathing waters now meeting the highest standards. We have seen symbolic changes, with otters now found in rivers in every English county.

¹ <http://www.defra.gov.uk/environment/natural/whitepaper/>

But this is not an issue where progress can be judged through national statistics. The condition of local rivers, streams and lakes remains a deep concern to communities across the country who see the impacts on the places they know and love.

1.5 It is not just pollution that threatens our rivers. We need water to supply our homes and businesses, but we are taking too much water from many of our rivers and from the groundwater that feeds them, damaging natural systems. As the water flow in rivers reduces, the health of the water environment deteriorates because there is less water to dilute pollution and to support fish and other wildlife. As we look to the future, we can expect climate change to reduce the amount of water in our rivers, at the same time as a growing population drives up demand. If we fail to take this challenge seriously, we not only risk irreparable damage to our environment, we threaten our economy.

1.6 Water is not only essential for life; it is critical to this Government's commitment to drive economic growth. We must manage our water resources in a way that supports growth and the wider needs of society. Pressure on water resources would threaten growth by disrupting industrial processes, by affecting agricultural productivity and food security, by restricting the potential for new business start up and development, and by increasing the price we pay for water as we fund new sources of supply. If the power sector cannot rely on secure supplies of water, it could affect energy security and energy bills. Without water supplies and sewers we cannot build the new homes we need.

1.7 We must consider growing demand alongside a realistic picture of the water we have available, and maintain our firm commitment to protecting our natural environment. This will involve some difficult choices. For example, choices about what infrastructure we need; how we balance supply and demand for new housing development in areas where water supplies are stressed; and where businesses with high water demand decide to locate. And in making these choices we must always take account of the cost to customers. Water must stay affordable for everyone.

1.8 Since privatisation in 1989, our water industry has been a success. It has invested over £90 billion to deliver improved infrastructure and higher environmental standards. The cost to customers of this investment has been kept down by the pressure for efficient delivery driven by Ofwat's regulatory system. When all goes to plan, clean wholesome water comes at the turn of a tap, and our sewage is flushed away without a thought. It is only on the rare occasions when there are problems that we become acutely aware what a high value we attach to the smooth operation of our water and sewerage systems.

1.9 The water sector is unlike other utilities as currently only a few large business customers have any choice over who supplies their water. Customers are almost always supplied by their local monopoly company. While this arrangement works well for many household customers, many business customers, especially those forced to deal with different suppliers in different areas, are looking for reform to enable them to negotiate higher standards of performance, a better range of services and lower costs from their suppliers.

1.10 There are fundamental assets we must preserve – high quality drinking water; secure supplies to households and businesses; effective removal of wastewater; and a flourishing water environment. But we need to think differently about how we deliver these outcomes. If we are to manage our water resources responsibly, we must make sure supplies and infrastructure are resilient to conditions we face now and to a changing climate. We only need to look at events over the last few years to understand the impact

weather can have on services we take for granted. The cold winter a year ago led to frozen and burst pipes across the country. We had a hosepipe ban in the north west of England in 2010 and this year a drought in East Anglia, with dry weather continuing through the autumn in the south, east and the midlands. We have seen river flows across the country fall to very low levels, damaging valuable ecosystems and reducing the opportunity for those waterways to be used for leisure, with boating restrictions and fisheries suffering. There were no hosepipe bans this year, but we must not be complacent. While the summer was cool, it was relatively dry and the situation may be more difficult next year if we have another dry winter.

1.11 The following section sets out evidence of how our water resources may change. The Environment Agency has developed new scenarios for water availability in the 2050s. These set out starkly the challenges we face, but also the uncertainty that makes planning so difficult. While we cannot provide firm forecasts of the impact climate change will have on our water supplies, we can be confident that the way we manage and use our water resources will have to change. Demand may well increase, driven by a growing population and a warming climate. At the same time we are likely to have less water available as rainfall patterns change and temperatures rise. The picture we are used to, where water resources are more stretched in the south and east of England, and supplies more abundant in the north and west may also change.

1.12 Our response cannot simply be more of the same – predicting future demand and building capacity to meet it – the financial, environmental and carbon costs would be too high. We must capture more water when it is plentiful and use water more efficiently. Our water use is higher than in many other developed countries, so we know we can cut demand by being more careful in how we use water; choosing water efficient products; and collecting rainwater to use in our gardens. But even with concerted efforts to manage demand we cannot expect water to remain as cheap and freely available.

The case for change

The impacts of climate change

1.13 Our best understanding of the potential impact of climate change on our water resources is based on the latest UK Climate Projections (UKCP09)². However, there is considerable uncertainty in projecting climate change. We are confident that over time average temperatures will increase, but the effects on rainfall are less easy to predict. UKCP09 suggests that on average the UK will experience warming temperatures and changes in seasonal precipitation patterns, while extreme weather events will be more common and more intense.

1.14 This would all impact on our water resources. Hotter weather would be likely to lead to more evaporation from our reservoirs and rivers, while aquifers will not be recharged as efficiently by the more intense rainfall expected. Intense rainfall also leads to surface water flooding and more pollutants running off into our rivers and streams and ultimately affecting our coastal waters. While there is still a significant degree of uncertainty around future precipitation, the current projections suggest less rainfall in summer on average³. As a result, we are likely to have lower river flows in summer too, though the effects in other seasons are much more difficult to predict, with different scenarios showing very different results.

² <http://ukclimateprojections.defra.gov.uk/>

³ For example, for 2040-2069 under a medium emissions scenario, UKCP09 projects an average change in summer rainfall of minus 19 per cent, but with a large range (from minus 41 per cent to plus 7 per cent).



© Environment Agency – Bewl Water Reservoir

1.15 The current projections suggest drought conditions are likely to be more common. The worst case scenario in a Met Office study⁴ suggested that we might have ten times as many significant droughts by 2100 with droughts like that of 1975-76 occurring on average every ten years. Water companies are better prepared now for such droughts, but we cannot be confident that our infrastructure would stand up to the more unusual conditions we might see under a changing climate, such as a run of very dry years.

4 An extreme value analysis of UK drought and projections of change in the future, Met Office, 2010. Journal of Hydrology.

1.16 Climate change is also likely to put more stress on our water environment. Lower water levels in our rivers and lakes would reduce their capacity to dilute pollutants, and worsen water quality, as well as reducing their ability to sustain wildlife and economically important species like salmon and trout. Poor quality water also needs intensive treatment to make it fit for public consumption, raising costs to customers and increasing energy use and carbon emissions.

Demographic change

1.17 Demographic change is likely to increase pressure on our water supplies and infrastructure. The population of England is forecast to grow by just under 10 million by 2035⁵, with much of this increase likely to be concentrated in areas which are already some of the most water stressed parts of the country. Combined with other trends, such as the increasing number of smaller households, this will push up demand for water, with some scenarios suggesting growth of around 5 per cent by 2020 and as much as 35 cent by 2050.

Changing demand

1.18 Household water demand has been increasing since the 1950s while water use by industry has been declining with the move away from heavy industry. As a result, households now use around half of water put into the public supply. Water companies forecast that average personal consumption will drop from 154 litres per day in 2010-11 to 144 litres in 2030-31. The growing population will offset this reduction, with total household demand expected to rise by the equivalent of 3 per cent of current public water supply. But overall demand across the economy is forecast to drop as leakage and non-household demand reduce.

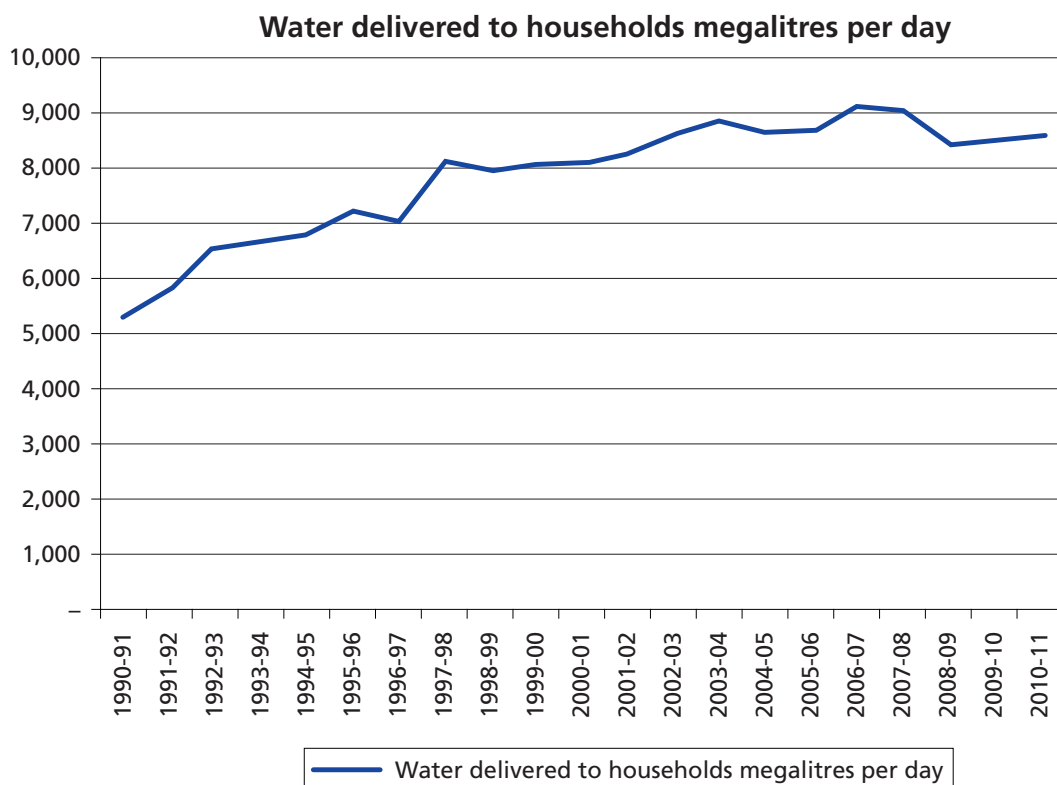


Figure i: Water delivered to households 1990-2011

⁵ See table A1-4 at <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcM%3A77-229866> Released 26 October 2011.

1.19 Climate change is likely to affect future demand as well as supply. We tend to use more water in hotter weather, for example for washing and drinking, or to water gardens. Other effects are harder to predict, for instance whether farmers choose to irrigate more or change the crops they grow. The level of water demand may also change at some power stations because of the drive to reduce carbon emissions. For example, installing carbon capture and storage technology on a power station may increase its water use.

Planning for change

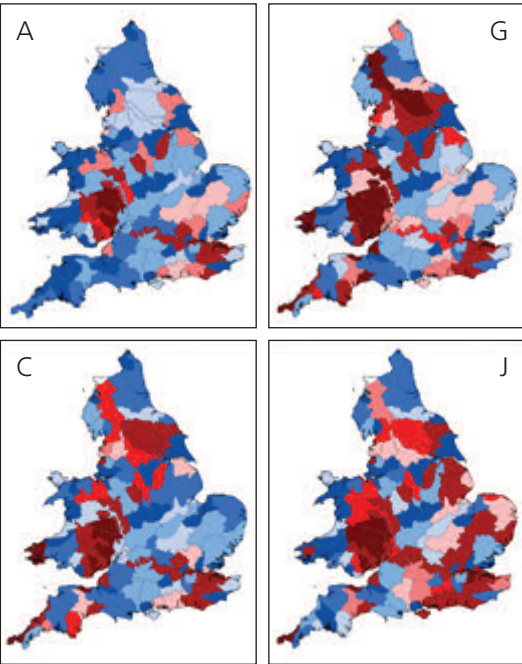
1.20 Planning for such uncertain change is complex. The range of rainfall projections and the difficulty of predicting regional and local effects create challenges for those planning water resources and taking investment decisions.

1.21 The Environment Agency has used the Met Office's Regional Climate Model to assess the possible effects on future river flows and our water supplies in 2050. Using a range of assumptions on future demand and how much water will be needed to protect water ecosystems, it has calculated the impact in different catchments, and what this might mean for new infrastructure build and action to reduce demand if we are to maintain secure supplies. This work is illustrated in the maps below and explained in more detail in the Environment Agency's report, *Case for Change – current and future water availability*⁶, which is published alongside this White Paper.

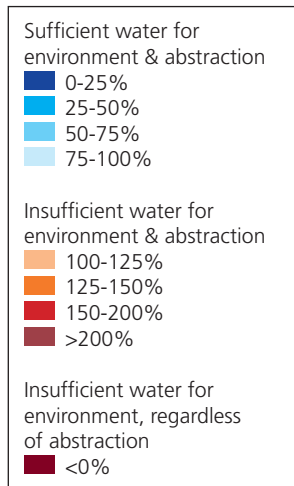
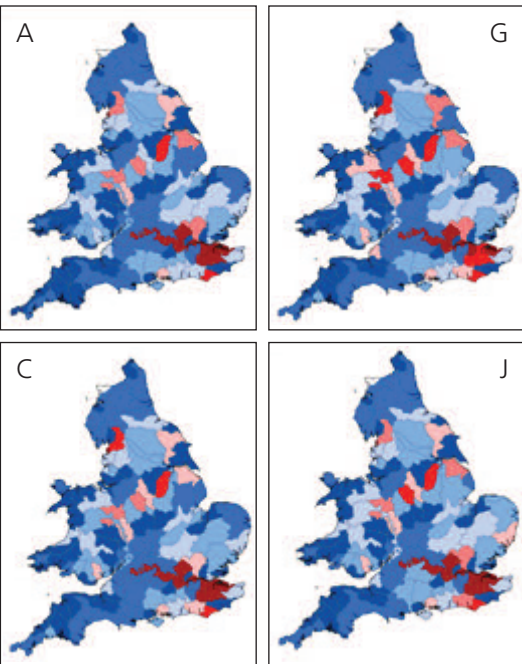
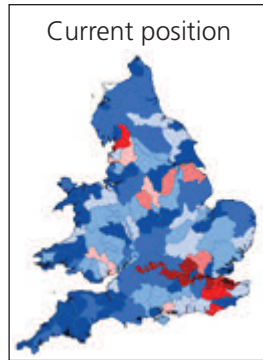
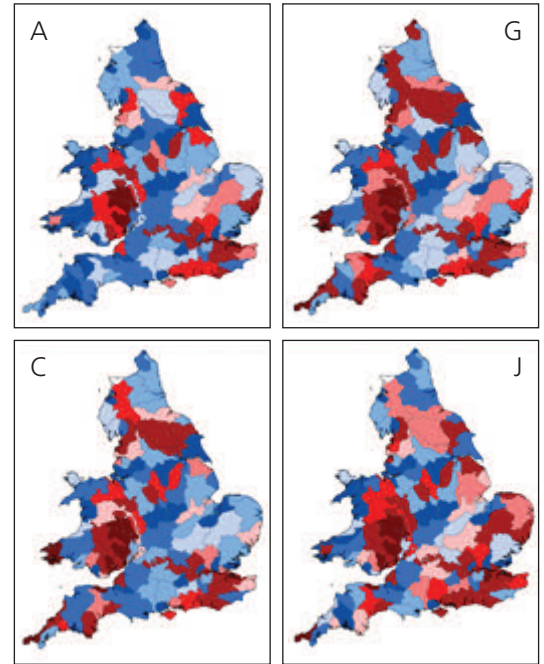
Explanation of water demand maps: *Blue catchments have water surpluses while red catchments have deficits. The 8 left hand maps are based on lower population growth and substantial increase in water conservation, while the 8 right hand maps are based on higher population growth and increased water use. The top 8 maps are based on current levels of water flow protection, while the bottom 8 maps are based on flow requirements that alter as flows are affected by climate change. Lastly, each square has 4 maps based on 4 different scenarios of how climate change might affect future river flows (A, C, G & J). See Figure ii.*

⁶ <http://www.environment-agency.gov.uk/research/planning/33088.aspx>

Demand scenario: Sustainable behaviour
 Environment protection flow thresholds: Fixed at current levels



Demand scenario: Uncontrolled demands
 Environment protection flow thresholds: Fixed at current levels



Demand scenario: Sustainable behaviour
 Environment protection flow thresholds: Reduces in proportion to climate change impacts

Demand scenario: Uncontrolled demands
 Environment protection flow thresholds: Reduces in proportion to climate change impacts

Figure ii: Unmet demand in the 2050s

1.22 Despite the range of results, the Environment Agency was able to draw several conclusions:

- **Water resources are already under pressure.** Current levels of water abstraction are already harming some nature conservation sites or the ecological health of catchments.
- All of the scenarios predicted **a future with less water available for people, businesses and the environment.**
- **Future pressures will not be limited to the south and east of England.** Under many of the scenarios the south west and northern England will see significant unmet demand.
- Over the longer term **climate change could have a bigger impact on available water resources than population growth.**
- **The water environment will change.** Some species will be better suited to future conditions than others. We will need to reconsider the requirements for future water ecosystems and the implications for the amount of water available for abstraction.
- Demand management will have an important role to play, **but we may need significant new water resources to be developed.**
- **Solutions will have to be found at both a local** and strategic level as even where a river basin may have enough water, local catchments within it might not.

1.23 Over the last few years three major reviews have considered these and other challenges faced by the water sector. The issues raised by Martin Cave's *Review of Competition and Innovation in Water Markets in England and Wales*⁷, Anna Walker's *Independent review of Charging for Household Water and Sewerage Services*⁸ and more recently by David Gray's *Review of Ofwat and consumer representation in the water sector*⁹, are central to this White Paper.

1.24 This White Paper is Government's response, and it sets out how we will work with others to drive change, support growth and protect the environment. Our objectives are to:

- paint a clear vision of the future and create the conditions which enable the water sector and water users to prepare for it;
- deliver benefits across society through an ambitious agenda for improving water quality, working with local communities to make early improvements in the health of our rivers by reducing pollution and tackling unsustainable abstraction;
- keep short and longer term affordability for customers at the centre of decision making in the water sector;
- protect the interests of taxpayers in the policy decisions that we take;
- ensure a stable framework for the water sector which remains attractive to investors;
- stimulate cultural change in the water sector by removing barriers to competition, fostering innovation and efficiency, and encouraging new entrants to the market to help improve the range and quality of services offered to customers, and cut business costs;

7 <http://www.defra.gov.uk/environment/quality/water/legislation/whitepaper/>

8 <http://www.defra.gov.uk/environment/quality/water/legislation/whitepaper/>

9 <http://www.defra.gov.uk/publications/2011/07/06/pb13587-ofwat-review-2011/>

- work with water companies, regulators and other stakeholders to build understanding of the impact personal choices have on the water environment, water resources and costs; and
- set out roles and responsibilities – including where Government will take a stronger role in strategic direction setting and assessing resilience to future challenges, as well as clear expectations on the regulators.

1.25 Chapter 2 sets out how we will take forward our commitment in the Natural Environment White Paper to long-term reform of the water abstraction regime. Reform is vital to ensure the system is flexible enough to deal with a more water stressed future in a way that delivers water for households and the economy, and protects the natural environment. We also discuss how we can build more resilience into our water supply network and reduce the cost of meeting future demand through greater interconnection between supply areas.

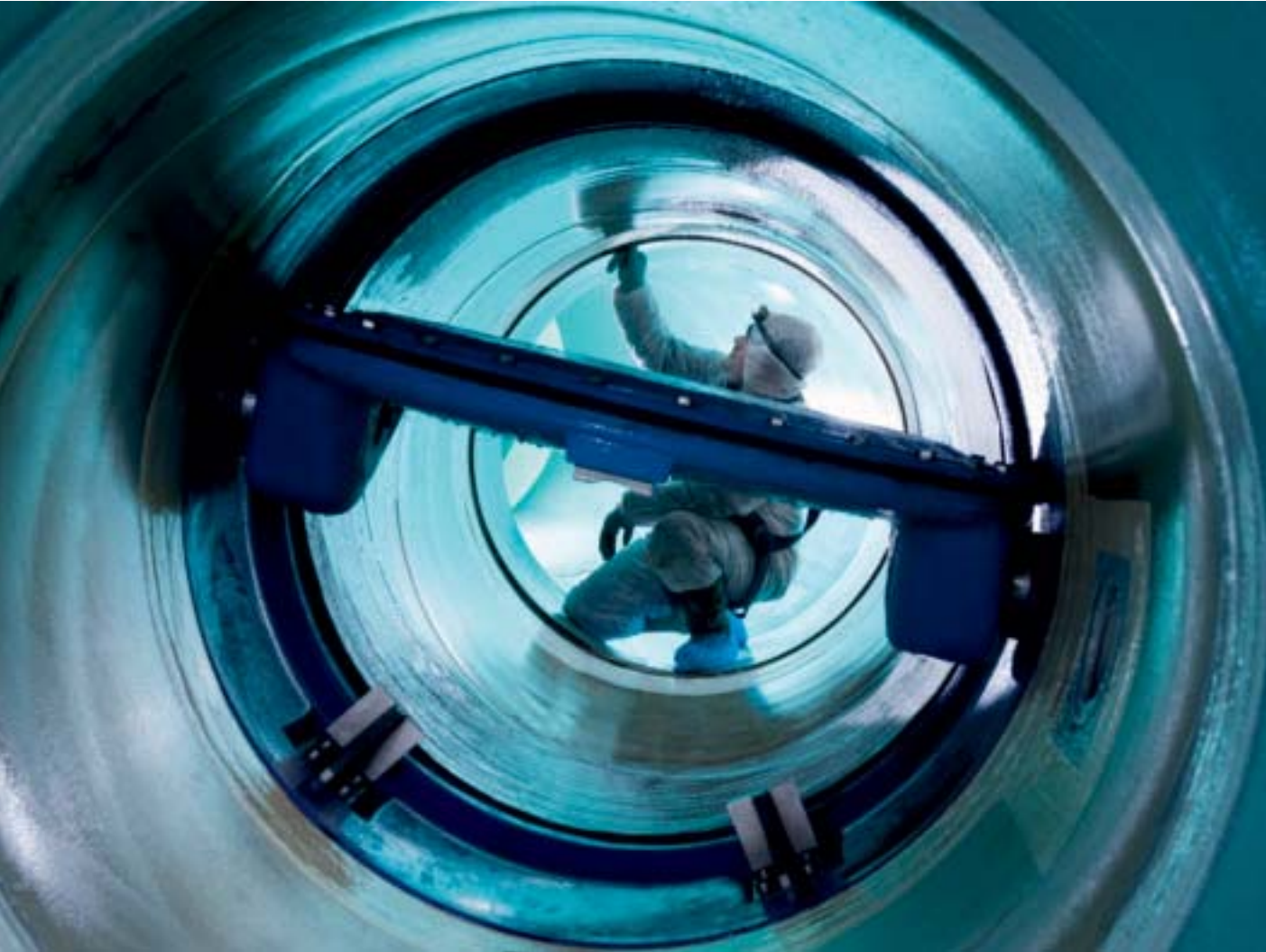
1.26 We must also act now to deal with current threats to our rivers from pollution and over abstraction. We can succeed only by drawing on the enthusiasm and knowledge of those with a clear stake in their local environment. **Chapter 3** sets out how Government and regulators are already starting to make this happen through new catchment pilots as part of our concerted effort to align advice, incentives and regulatory tools to address diffuse pollution and improve the environment. This chapter also sets out our plans for tackling the over-abstraction which is already damaging our rivers and wetlands.

1.27 However effectively we manage demand, we will need new investment in infrastructure to capture more water, use the supplies we have more efficiently and deal with our wastewater. This will mean investment in large infrastructure projects as well as smaller scale projects, such as on-farm reservoirs to store water over the winter and sustainable drainage systems which reduce pressure on the sewer network. We need to connect up our water system more effectively so that we can move supplies to areas where they are scarcer. We also need to properly maintain our infrastructure as it ages and as pressure on capacity grows as the population increases. **Chapter 4** sets out how we expect the water industry and other sectors to plan for and meet these challenges, and how they will be supported by Government, the regulators and the planning frameworks we are responsible for.

1.28 We know that the affordability of water bills is a growing problem for householders. **Chapter 5** sets out how we will enable water companies to target more help on those household customers who need it most by introducing social tariffs. We are also supporting households in the south west of England who face the highest bills in the country because of funding decisions that were taken at the time the water industry was privatised. To create an innovative, efficient, customer focused water sector that keeps costs down over the long term and provides better service, the regulatory framework governing the industry must change. We set out a package of reforms to introduce more competition into the water industry and help business customers and public bodies reduce costs as part of our drive for growth and deficit reduction.

1.29 Chapter 6 reminds us that we each have responsibility to act. Saving water and protecting our local environment begins at home. It can save us money too. We can also join with others and work to protect our local rivers. Water efficiency will also become more important for businesses and the public sector alike in keeping costs down. We also set out our expectations for the regulators and the water industry in delivering the objectives set out in this White Paper.

2. Secure, sustainable and resilient water resources



© United Utilities

Key commitments:

Reform of the abstraction regime

We will introduce a reformed water abstraction regime resilient to the challenges of climate change and population growth and which will better protect the environment. We will work closely with stakeholders in designing the new system and will establish a national advisory group to guide the process. We plan to consult on proposals in 2013, and aim to introduce legislation to reform the regime early in the next Parliament.

Increasing interconnection and the trading of bulk supplies of treated water

We want to increase interconnection in our water supply system so that we can use our resources more flexibly and efficiently. The Environment Agency will look for interconnection options across all licensed water supplies and will consider further whether there are environmental barriers to large scale transfers through existing river and canal systems. We are looking to Ofwat to support this drive for greater interconnection and bulk water trading through its use of incentives for water companies.

2.1 Chapter 1 outlined the scale of the challenge we face in delivering secure, sustainable and resilient water in the coming decades. The Environment Agency's modelling shows us that if we fail to respond to this challenge we may face difficulty in meeting projected demand for water by the 2050s and leaving sufficient water in the environment. We therefore need to take a fresh look at the options we have for managing future supply and demand, and ensure that we build in flexibility and resilience to uncertain and changing conditions. To manage future supply and demand, we need to be smarter in using the supplies we have, develop new sources, and reduce the amount of water we waste. Greater connectivity between different parts of the water network is a priority.

2.2 We will need new technology and new ways of working to improve our resource efficiency and use available supplies as efficiently as possible. We will need to design more innovative ways of capturing and using water into our buildings that maximise the potential of this resource while minimising carbon and financial costs. When all steps to minimise existing water use have been taken, we should consider collecting and reusing rainwater and recycling grey water, particularly in new buildings or those undergoing major renovation. Reusing water can reduce pressure on the supply system and our drainage infrastructure.

2.3 These local tailored solutions can cut costs to households and businesses by reducing the need to invest in new supply infrastructure and to treat water to drinking water standards when it is not needed. We will also need to consider new supply solutions, such as considering how best to reuse treated water from sewage works.

2.4 Water companies, abstractors, industry, farmers and each of us as individuals will all need to make choices about how we use the options available. What Government and the regulators must do is reform the aspects of the current system which institutionalise short term thinking and make it difficult to adopt solutions which would deliver a more joined up resilient water resources system. Incentive structures which ignore the damage supply options can do to the environment, and fail to reward those who choose to take a more sustainable route, should be revised.

2.5 This chapter focuses on two areas Government sees as fundamental to the change we need if we are to build resilience: reform of the abstraction regime; and a greater focus on interconnection in the water supply network.

Reform of the abstraction regime

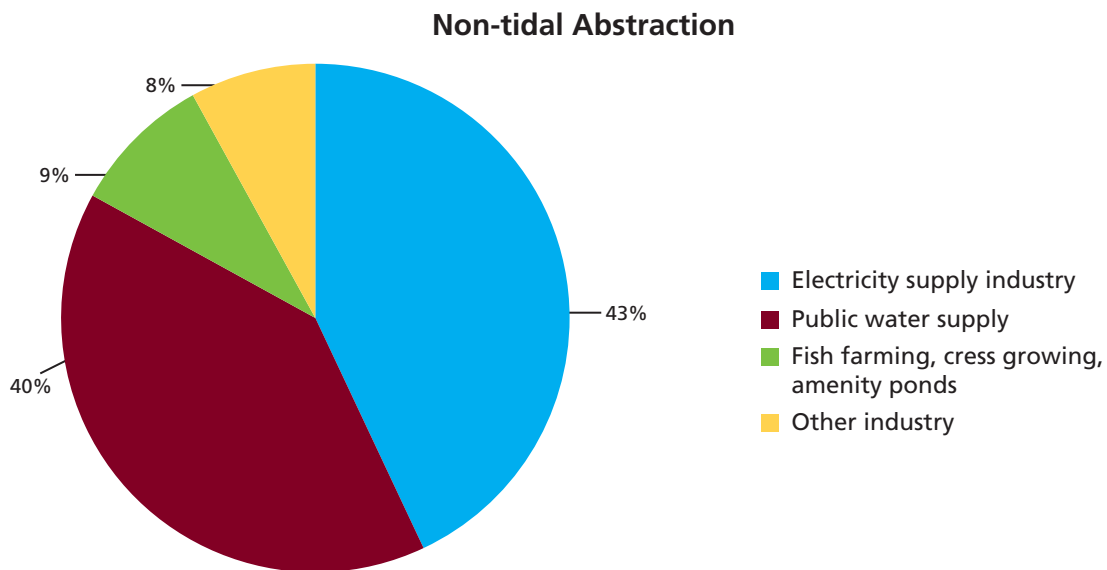


Figure iii¹⁰

2.6 We abstract water from our rivers and from the groundwater that feeds them to supply our homes, farms and businesses and the generation of electricity.

2.7 It is important that we get the balance right between the water we abstract and the water we leave behind to support the natural environment. Over-abstraction reduces the quality of that environment which we all enjoy and the value of our rivers for leisure and recreation. Over recent decades we have begun to understand that in many catchments we may be damaging natural systems. Water flows affect the quality and type of habitat in the river; the ecosystems it can support; the amount and type of sediment that is carried in the water and where it is deposited; and the extent to which the water in the river can dilute pollutants.

The case for reform

2.8 The current system for managing abstraction of water from rivers and aquifers was set up in the 1960s, and was not originally designed to protect the environment or manage competing demands for water. Abstractors were generally given licences to take a fixed volume of water from rivers or aquifers. This means that in some catchments there is not enough water left behind to support the natural environment once abstractors have removed the volumes of water to which they are currently entitled. Although the regime has evolved to some extent to protect the environment, with more modern licences requiring abstraction to be reduced when rivers are under pressure (so-called “hands off flows”), for the majority of abstractors little has changed.

¹⁰ <http://www.defra.gov.uk/statistics/environment/inland-water/iwfg12-abstrac/>

2.9 This chapter sets out our plans for developing a new abstraction regime which will be fit for the challenges of the future; our plans to deal with the unsustainable abstraction we already face are set out in chapter 3.

2.10 There are strong economic and environmental arguments for reform. These are set out in the report from the Environment Agency and Ofwat, *The case for change – reforming water abstraction management in England*¹¹, published alongside this White Paper. In summary:

Too much water is being abstracted from some catchments. More than one in ten of our rivers are abstracted to an extent that may be damaging water ecosystems. While ecosystems can cope with low flows for a time, regular and sustained lower flows can have significant impacts.

Abstraction charges do not send the right price signals. The cost of an abstraction licence does not reflect the relative scarcity or abundance of water, and charges do not vary to reflect competing demands for water. This means that abstractors and water users have little incentive to change their behaviour in response to the availability of the resource.

The current process to change licences that allow damage to the environment will become increasingly untenable as the climate changes. Where abstraction is damaging the environment there is a mechanism for the Environment Agency to investigate the cause and to vary licences, paying compensation to abstractors where necessary. It would be impractical to use this system to vary licences as water availability changes in the future. The system would become mired in bureaucracy at a high cost to charge payers, as we estimate between 50 and 70 per cent of licences would need to be investigated by 2050.

The system fails to incentivise abstractors to manage risks from climate change at least cost. Under the current system abstractors pay into a fund used to compensate licence holders if they suffer a loss when changes are made to their licences to tackle over abstraction. This approach may be able to deal slowly with the legacy of unsustainable abstraction, but it incentivises licence holders to wait and seek the maximum compensation payment rather than adapt quickly to climate change risks at least cost.

The system creates barriers to efficient sharing of water. Where abstractors no longer need licences, or where they use water in different patterns (for example, only at particular times of the year) abstraction licences could be traded so that we get more value from water. For instance, farmers could sell their abstraction licences when they are not growing a crop that needs irrigating. The ability to trade water rights will grow in importance as water becomes scarcer. However, there have been very few trades of abstraction licences and we have found evidence¹² of barriers to trading in our regulatory system.

A new abstraction regime

2.11 The problems with the current regime will become more apparent as it struggles to cope with the challenge of a changing climate and increasing demand. We need to replace it before that happens. **We**

¹¹ <http://www.environment-agency.gov.uk/research/planning/33088.aspx>

¹² Assessment of regulatory barriers and constraints to effective interconnectivity of water supplies Defra (2010) <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=17265&FromSearch=Y&Publisher=1&SearchText=wt0921&SortString=ProjectCode&SortOrder=Asc&Paging=10%23Description>

will therefore introduce a reformed abstraction regime. Reform must reinforce the message on the need to adapt to climate change, giving abstractors clear signals on water availability to allow them to plan effectively and invest for the future. All existing licences will be changed in a phased way in the transition to the new regime, as will new licences issued to abstractors currently outside the regime.

2.12 We are setting clear goals for design of a new regime now to set the framework for this design process and reduce uncertainty and risk to abstractors. We will design the new abstraction system to:

- give clear signals and regulatory certainty on the availability of water, to drive efficient investment to adapt to climate change and meet water needs;
- better reflect the value of water to customers, its relative scarcity, and the value of ecosystems services to ensure our rivers, lakes and aquifers are protected;
- reflect the benefit of discharges to river systems;
- drive efficiency in water use, using market forces and smart regulation to lower costs and reduce burdens;
- be fair to all abstractors, taking into account current licences;
- be flexible and responsive to changes in supply and demand, including providing greater access to water when more is available; and
- meet our water needs for people and the environment at least cost to water bill payers, and the consumers of other products and services which depend on water.

2.13 We will also need to consider how we should protect water ecosystems under different climatic conditions. As water flows and temperatures change, the species found in our rivers and lakes may alter too. We will need to know what water flow requirements must be in place to protect potentially new and different water ecosystems.

2.14 Once these changes are in place, we would expect:

- Water companies to plan to meet their future water needs more efficiently;
- Businesses that rely on abstraction for their water to better manage the risks of reduced water availability and make the necessary investments to adapt to climate change;
- All abstractors to be able to make use of a more dynamic market in water and water rights to meet their needs, thus reducing costs and promoting economic growth;
- All abstractors to be able to make use of a more flexible system that facilitates access to and sharing of available water and which values high quality discharges into rivers;
- Water ecosystems to be better understood and protected; and
- Regulation to be at a minimum, with communities and abstractors working together in catchments to manage water resources and protect the water environment.

The principles for transition

2.15 We will follow agreed principles for the transition to a new regime as we recognise the importance to abstractors of both continued access to water supplies and transparent understanding of their reliability.

- First, the volume, price and reliability of water allocated to abstractors in a new regime will take account of current licences and the actual volumes used. However, we envisage that any new licences will be designed to vary the volume available for abstraction according to overall water availability.
- Secondly, we do not intend to fund compensation for any losses individual abstractors incur in the change to a new system. This would be administratively impractical and not legally justified as the change will be designed to better protect the environment in the future.
- Thirdly, we will not use the transition to change licensed volumes to address current unsustainable abstraction. We will strengthen our approach to using mechanisms in the current regime to tackle this historic legacy in advance of, and alongside, reform. We do though intend a new system to provide stronger protection for the environment when water is scarce.
- Lastly, we want to ensure that the move to a new regime does not create barriers to investment. The Environment Agency will assist abstractors by advising new investors on the risks that climate change may pose for projects that are likely to involve substantial water use at low flows.

2.16 This will be a complex and important process of reform, not least because of the potential need to exchange around 30,000 licences for new types of licence once currently exempt abstractors are brought into the current system. We recognise that reform of a well understood regime for the management of a critical resource creates risks and uncertainty for abstractors, so we will approach change carefully and work closely with stakeholders throughout the process.

2.17 We will develop detailed options for reform, building the evidence base, considering how approaches would work in different types of catchment, and carefully assessing the costs to abstractors. We will also take into account other linked policy objectives, such as food security, energy security, climate change mitigation, and international competitiveness. **We will establish a national advisory group of key stakeholder representatives to guide this process.**

The timetable for change

2.18 We will consult on detailed proposals for reform in 2013, and aim to introduce legislation to implement the changes early in the next Parliament. This should properly inform the consultation on the next draft River Basin Management Plans which must be finalised in 2015. We will move to the new regime in stages to reduce disruption and costs. We will start with catchments which are facing particular risks of increased water stress. The new regime should be in place by the mid to late 2020s.

Increasing interconnection and the trading of bulk supplies of treated water

2.19 The Environment Agency's analysis of future water availability demonstrates the importance of increasing interconnection in our water supply system. Tackling supply deficits within individual catchments will be a high cost approach, increasing the new infrastructure we need to build, or requiring more constraint on our water use than is likely to be acceptable.

2.20 The case for using our water resources more flexibly and efficiently is compelling. We already have evidence that action to improve interconnection within and between water companies on a relatively local scale could offset the need for new resources or infrastructure. Ofwat estimates that savings from improved interconnection across the country could be as high as £960 million over the lifetime of the assets, while the Water Resources in the South East Group¹³ suggested that greater sharing between companies in the region could generate savings of over £500 million by 2035.

2.21 The work of the Water Resources in the South East Group is expanding, and a similar group is being established in East Anglia. The Government expects the Environment Agency to work closely with water companies and Ofwat to ensure these groups make a robust assessment of the resource options available.

2.22 However, water is heavy and pumping it consumes energy, making transfers expensive to deliver relative to the water's value, and increasing carbon emissions. Modelling on the scope for bulk transfers between companies in the Anglian region suggested that the opportunities for new, economically viable water transfers are limited at the moment. Increasing water scarcity would change the economics and may make longer distance transfers a more attractive option, but it is still likely to remain expensive to pump water long distances.

2.23 The bulk transfers we envisage at this stage are over a short distance, with strategic interconnection projects joining up water supply zones within and between company networks and incrementally building a more integrated supply network. Options for interconnection will need to be objectively assessed alongside alternative approaches in Water Resources Management Plans. With the right incentives in place, water companies and new upstream water entrants will be able to assess the commercial opportunities from increasing interconnection.

2.24 Water companies have already started to join up their own networks to build resilience. For example, since the drought of 1995-96, Yorkshire Water has joined up different supply areas. More recently, United Utilities built a 55km long water main between Manchester and Liverpool, allowing both cities to be fed by water from North Wales and the Lake District. Increasing flexibility and resilience by joining networks in this way is lower risk than investing in the infrastructure for longer distance bulk transfers at this stage, particularly in view of the uncertainty over which parts of the country are likely to have surplus water in the future.

¹³ http://www.environment-agency.gov.uk/static/documents/Business/100401_WRSE_Joint_report_Final.pdf



2.25 With Ofwat and the Environment Agency we are addressing the technical barriers to interconnection and trading of water identified in a report we published last year¹⁴. Chapter 4 sets out our plans to ensure companies treat this as a high priority in the next water resource planning cycle. **The Environment Agency will take an overview of interconnection options across all licensed water supplies in order to provide a challenge to a company's assessment in its Water Resources Management Plan of the potential for bulk transfers. It will also consider further whether there are environmental barriers to large scale transfers through existing river and canal systems.**

2.26 We are looking to Ofwat to support this drive for greater interconnection and bulk trading through its use of incentives for water trading in the next price review. We welcome the proposals in Ofwat's Future Price Limits consultation to introduce regulatory incentives to make water trading more attractive for both importing and exporting companies. Its proposals for tackling the actual and perceived bias against options which are scored as operating expenditure, such as water trading, will be critical. Subject to the outcome of the current consultation, Ofwat's detailed methodology for the next price review is expected to include firm plans for incentivising water trading and optimising the use of the water networks. We also welcome Ofwat's efforts to help facilitate trades by developing an upstream market code and a model contract for bulk supplies to clarify the regulatory rules around water trading and make negotiations between companies easier.

¹⁴ Assessment of regulatory barriers and constraints to effective interconnectivity of water supplies Defra (2010) <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=17265&FromSearch=Y&Publisher=1&SearchText=wt0921&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

3. Protecting our rivers



Key commitments:

Improving water quality

We will take forward our new catchment-based approach to water quality and diffuse pollution. We will also work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment. As well as agricultural sources we will continue to tackle pollution from other sources such as private wastewater facilities and abandoned metal mines. We will consult on a national strategy on urban diffuse pollution in 2012.

Current unsustainable abstraction

We will tackle the legacy of unsustainable abstraction in parallel to developing and implementing a reformed abstraction regime. We will develop an action programme for addressing unsustainable abstraction in the River Basin Management Plans up to 2027, and beyond. We are working with Ofwat and the Environment Agency on how best to include water company solutions for restoring sustainable abstractions in the price review process, having first been included in the companies' Water Resources Management Plans. We will reduce the barriers to trade in abstraction licences.

3.1 Chapter 2 set out how we will meet the long-term challenge we face in delivering a resilient water resources regime. While major reform of water abstraction will take time, there are changes we must make much more quickly. By tackling pollution and over-abstraction we will improve the health of our rivers and wetlands. We will also improve the economic value we get from our water resources to support growth.

Improving water quality

3.2 The benefits of a clean, healthy aquatic environment are significant and undervalued: relatively clean water that reduces the need for water companies to carry out costly and carbon intensive treatment processes to make it fit to drink; improved habitats that support greater biodiversity; improved flood protection; good quality waters for bathing, angling and other leisure activities; high quality supplies of fish and shellfish; and many more. The *UK National Ecosystem Assessment*¹⁵ told us that we need to be better at understanding and then realising the benefits that the natural environment can give to society.

¹⁵ <http://www.defra.gov.uk/environment/natural/uknea/>

3.3 Improving water quality so that we make the most of these benefits is a challenge. There has been good progress in improving water quality in recent years. For example, from 1990-2008 under previous standards, the percentage of river length of good chemical quality in England rose from 55 to 79 per cent, while the percentage of river length of good biological quality went up from 55 to 72 per cent. This progress came largely through tackling point sources of pollution, such as discharges from sewage treatment works or from industrial processes. We must maintain our efforts on such source controls, especially in relation to emerging pollutants, but we now face a tougher challenge.

3.4 We must now focus on the pollution from diffuse sources – from our roads, farms and industrial estates, from the detergents we use to wash our cars or from the many products that wash down our drains. We need to be inventive in finding new ways to stop this pollution at source. This could be cheaper than water companies applying end of pipe treatments, and could distribute the costs better among polluters and those who benefit from a healthier water environment, rather than the cost mainly falling on water customers.

The Water Framework Directive

The Water Framework Directive, adopted in 2000, provides the means for us to pursue our desire to have healthy, fully functioning ecosystems. It sets a new range of parameters for determining the status of water bodies, which cover the ecology of our water bodies as well as the biology and chemistry that we were measuring before. Against these more demanding parameters, just 26 per cent of our water bodies achieved “good status” in 2009.

The Directive embodies our own ambitions for improving the local natural environment and like the *UK National Ecosystem Assessment*¹⁶, recognises the value in doing so. It also recognises the need to work in local river catchments, to assess all the pressures from rural and urban land use and to involve local stakeholders in designing and implementing improvements.

The primary requirements are that we must adopt River Basin Management Plans (RBMPs) that prevent class-to-class deterioration in any water body and aim to bring all water bodies to good status by 2015. This is except where costs would be disproportionate, solutions technically infeasible, or the natural conditions do not allow; in such cases we can use two subsequent planning cycles (2015-21 and 2021-27) and in certain circumstances set lesser objectives.

The RBMPs adopted for the first cycle through to 2015 are projected to prevent deterioration and to increase the percentage of bodies meeting good status to 30 per cent, on top of which the Environment Agency committed to delivering an extra 2 per cent.

The Environment Agency is carrying out a programme of investigations, to be completed by the end of 2012, to resolve uncertainties about why particular water bodies are failing and what measures are needed to address that. This will enable us to increase the rate at which our rivers and lakes achieve good status as we prepare and deliver the second planning cycle.

¹⁶ <http://www.defra.gov.uk/environment/natural/uknea/>

PRESSURE	SECTOR RESPONSIBLE											
	Agriculture and rural land management	Angling and conservation	Coal mining	Forestry	Hydro-power	Industry	Mining and quarrying	Navigation	Non coal mining	Urban and transport	Water industry	Still under investigation
Specific Pollutants	20		17	1		21			267	21	31	78
Priority Hazardous Substances	15		4			18		8	30	67	8	106
BOD and Ammonia	376	1	6		1	88		1	3	340	873	457
Nutrients	1552	3		4		101		4	1	433	1635	653
Hydrology	38	1	1	1	3	12	1	5	1	8	98	718
Morphology	288	5	13	5	3	107	3	38	3	392	170	2725
pH	15			39		5			13	50	3	68
Sediment	396	4	7	8		17	2		9	66	9	50
Groundwater pressures	53		19			6			9	10	12	271
Still under investigation	82	10	16	11		29			2	155	106	656

Figure iv – Reasons for failure to achieve “good status”¹⁷

The catchment-based approach

3.5 The new catchment-based approach we announced in March this year is at the heart of our drive to improve environmental water quality. Water systems are complex and interconnected with the land that surrounds them. Activity on land affects the quality of the water environment and the life it can support, as well as the quantity of water available for abstraction and the risk that heavy rainfall leads to flooding.

3.6 Mobilising local players to develop and deliver our goals for the water environment is a new approach for Government. However, there are examples we can learn from, where Rivers Trusts, Wildlife Trusts, water companies, the Environment Agency and others have achieved results by building a local consensus on what actions are needed and by forging partnerships to fund and carry them out.

3.7 The key elements of our approach will be:

- the Environment Agency sharing the evidence to start discussion at local level among polluters, potential beneficiaries and all interested parties to build consensus on the outcomes needed;
- driving immediate action to address pollution found by walking catchments, and securing compliance with existing regulations;
- targeting advice and incentives where they can have the most impact in reducing pollution and safeguarding those water bodies that provide the greatest range of public benefits, for example where agriculture is concerned, Catchment Sensitive Farming and agri-environment payments;

¹⁷ Figure iv is based on the 2011 Environment Agency national Reasons For Failure dataset. The numbers refer to the number of times the pressure or sector appear in the data set. The confidence with which sectors responsible have been identified may vary from ‘suspected’ to ‘probable’ to ‘confirmed’, which is relevant to the level of certainty in the assessments.

- maximising wider sources of funding through payments for ecosystem services from the beneficiaries of a clean water environment – given the scale of the actions needed, it is important to mobilise all available tools and potential funding sources;
- taking opportunities, where possible, to deliver water quality solutions that bring other environmental benefits;
- tracking our progress in achieving “good status” for water bodies; and
- being ready to introduce new mandatory measures where a consensus for action cannot be established.

3.8 We will join up the catchment approach with other landscape scale initiatives – including Nature Improvement Areas – to integrate messages where there is geographical overlap and generally to secure best value for money by adopting measures which deliver multiple environmental benefits as well as the desired improvements in water quality. We will also work closely with Local Nature Partnerships as these start up to ensure we have representation across all interests that want to get involved in improving their environment.

3.9 We want to move away from the idea that the Government and its delivery bodies need to drive all the solutions. Maximising wider sources of funding will be important to the delivery of water quality improvements and to wider environmental benefits. The Natural Environment White Paper highlighted the opportunities for expanding payments for ecosystem services and made a number of commitments to enable and encourage these approaches to be taken forward – including the publication of an action plan in 2012.

3.10 Water companies can play an influential role in tackling pollution at the catchment level, particularly in the drinking water protected areas from which they source their supplies. We welcome the commitment made by Water UK that catchment management will be the first approach companies consider when evaluating options to deliver water quality improvements. We want companies to work closely with the regulators to gather evidence on the effectiveness of the action they take, and remove any disincentives to water company catchment activity when it is clearly in the interest of customers. Building the evidence base will help companies in engaging with customers when seeking their support for catchment management schemes.

3.11 The Environment Agency is already hosting 10 pilot catchments and is building the approach in close discussion with local interests. We have also called for others to come forward to host catchment schemes. We have received 70 expressions of interest at the time of publication (see **Figure v**). The Environment Agency will support all catchment approaches that proceed.

3.12 We intend the pilots to evolve into permanent approaches, but also to serve as the test bed for developing a model for delivering across all catchments for the second river basin planning cycle. **We will draw out the lessons from all the catchment pilots and intensively support 25 of them, including through an evaluation of the initial phases in early 2013.**

Upstream Thinking

Upstream Thinking is South West Water's flagship programme of environmental improvements aimed at improving water quality in river catchments in order to reduce chemical treatment costs. Alongside the Westcountry Rivers Trust, Devon Wildlife Trust, Cornwall Wildlife Trust and the Farming and Wildlife Advisory Group, South West Water is looking at all the issues which can influence water quality and quantity across catchments.



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The aim is to improve land management so that water quality and quantity is improved at source, long before it reaches the treatment works.

The programme helps farmers and land managers to keep peat, soils and natural fertilisers on their land and funds actions to improve water and slurry management.

The capital expenditure in the programme has strong projected benefit to cost ratios (in the region of 65 to 1 or better over 30 years) and will cost just 60 pence per customer by 2015.

South Pennines Ecosystem Services Pilot

An innovative project in the South Pennines has shown how catchment management to improve water quality can deliver multiple benefits.

Yorkshire Water is pursuing a land management based solution to the growing raw water colour problem on Keighley Moor. Tackling the problem at source rather than focusing on expensive and carbon intensive treatment solutions is more sustainable, avoids costs to customers and supports the other ecosystems services that the moor provides such as biodiversity and carbon storage.

A partnership approach balances the needs and interests of tenants, who earn their livelihoods from the moor, with water quality and habitat improvements. The ecosystem services pilot led by Natural England valued the benefits to society of changing land use and restoring habitat as 3 times greater than the costs of delivery.



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Mandatory measures

3.13 The catchment approach must not be a licence for inaction. We want catchment plans that clearly set out actions on which progress can be checked. Should it become clear that new mandatory measures are necessary and would be more effective in delivering environmental outcomes, we will consider their introduction. However, as the circumstances of each catchment are different and the time it takes to build a collaborative catchment approach and measure the benefits it brings will vary, we do not think setting a standard timetable for decisions on further regulatory steps is feasible.

Water Framework Directive Catchments

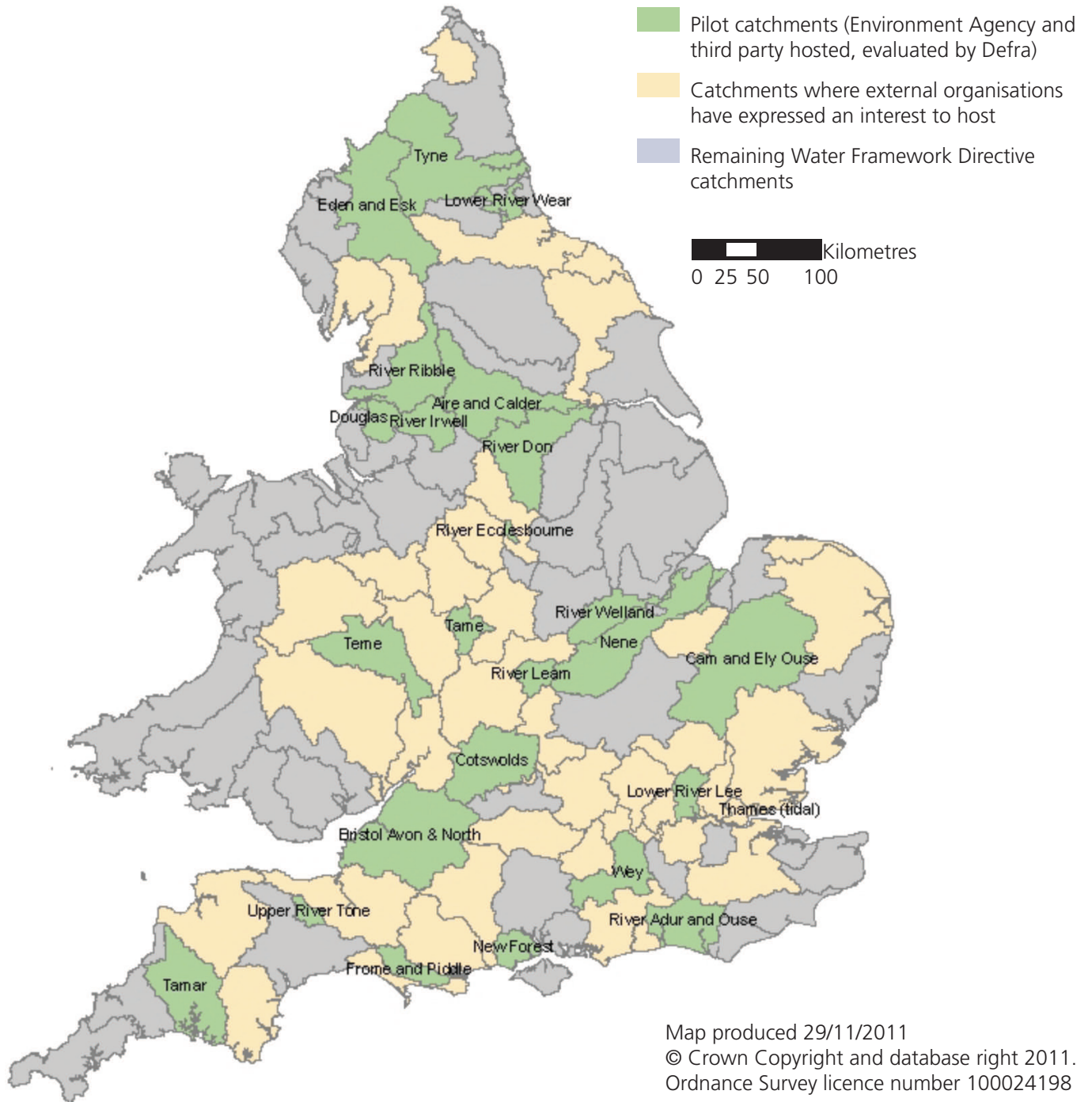


Figure v



© The Rivers Trust

Figure vi

Figure vi shows the impact of changing farming practices on the health of a catchment. Improved practices illustrated on the right have been shown to have a significant impact on water quality, be affordable and in many cases even save farmers money. Examples of good practices include soil management (cultivating across the slope, establishing buffer strips and avoiding high risk crops next to water courses), livestock management (reducing field stocking rates when fields are wet and regularly moving feeders and water troughs), fertiliser management (ensuring soil analysis for nutrient content and using clover in place of grass), farm infrastructure (fencing off rivers, bridges for livestock crossing and farm track management) and manure management (keeping heaps away from water courses and installing covers on slurry stores).

Agricultural pollution

3.14 Work by the Environment Agency illustrates the relative importance of different sectors' impact on the water environment and the reasons for water bodies failing to achieve "good status" (see **Figure v**). While many farmers have worked to prevent pollution, by not over applying fertilisers, manures and pesticides, and by preventing soils eroding into watercourses, pollution from agriculture is significant¹⁸.

¹⁸ See Figure iv (p.30)



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3.15 This year we are investing approximately £11 million in improving our understanding of land and water management. This will help us identify the impacts of diffuse pollution and the best measures to tackle it. We are also developing novel mapping tools to allow for incentives to be targeted to areas of high ecosystem potential; building on work done for the *UK National Ecosystem Assessment* and by third parties like Rivers Trusts and water companies.

3.16 We expect investigations by the Environment Agency, catchment walkovers and local knowledge to identify instances where improvements still need to be made. This evidence will be shared with local interests in catchments, including farmers and land managers, to demonstrate how their activities are impacting on the local environment and how they can come into compliance with existing regulatory requirements, through on-farm action. Some actions will be cost neutral and central to good farming practice, others will be incentivised through targeting of Government advice, grants, agri-environment payments and any other local sources of funding.

3.17 Going forward, the availability of some of the funding and incentives for farmers will depend on the outcome of negotiations on the future of the Common Agricultural Policy (CAP) and on water companies taking forward catchment management plans. **We will work towards a reformed CAP which promotes effective delivery of environmental public goods, particularly by implementing land management uses and practices that mitigate climate change and protect vital natural resources such as water. We will provide clearer guidance for farmers on the basic measures required to safeguard water courses. We will plan how to spread the funds across economic and environmental priorities, and gain better value for money by identifying measures that deliver multiple benefits for water, soils, air quality, climate change and biodiversity.**

3.18 When this approach is delivering, we will consider whether we can merge the requirements that flow from the Nitrates Directive into the integrated set of asks of farmers so that we do not need a separate set of requirements for Nitrate Vulnerable Zones.

Other sources of rural diffuse pollution

3.19 We will continue to tackle sources beyond those from agriculture, for example from private wastewater facilities, such as septic tanks, or abandoned metal mines. Using evidence gathered through local investigations and national data sources, the Environment Agency will target those catchments where these sources are a problem. Through a joint endeavour between the Environment Agency and the Coal Authority we now have a prioritised programme to deal with wastewater from mines and are starting an initial £10 million programme of remediation works.

Saltburn Gill

Overnight the river Saltburn Gill, in Cleveland, turned bright orange, when the nearby abandoned ironstone mine workings started discharging iron ochre. Over 330kg is now deposited into the stream bed every day, stripping the river of oxygen. Over 100 tonnes of iron is subsequently discharged into the North Sea each year and over the bathing beach of Saltburn-by-Sea, impacting severely on the town's tourist trade.

The Environment Agency and Coal Authority established that a treatment plant could remove 99 per cent of the iron. The cost of remediation work would be between £3 – £8 million over 25 years, but the net benefit to the local economy would be around £10.5 million. Once the treatment plant is up and running in 2015, the ecology of Saltburn Gill is expected to recover within six months to a year.



Urban diffuse pollution

3.20 Diffuse pollution arising from the built environment has a significant impact on water quality. However, the pressures are complex and diverse with many different organisations needing to play a part in the solutions. Some of the measures also require a more general shift in behaviour, for example addressing the misuse of drainage systems.

3.21 We will consult on a national strategy on urban diffuse pollution in 2012. This strategy will form part of our refreshed approach to Water Framework Directive delivery. We will focus on several key sources, including runoff from roads and industrial estates; contaminated sediment; and foul-water misconnected to surface water sewers.

3.22 We will work with the Highways Agency to model the risks from road runoff and to prioritise remediation work; with local authorities to amend street cleaning regimes which could reduce pollutants entering the surface water system or the use of permeable asphalt; with industry, to remove harmful chemicals in products; and with the general public on such matters as misconnections to the sewerage system and disposal of fats, to raise awareness and encourage action.

3.23 In this way, we will employ both national level interventions and more locally driven measures within catchments. As part of this, we are encouraging uptake of the catchment-based approach within urban areas too, building on current cross-organisational working to manage local flood risks.

Bathing and shellfish waters

3.24 From 2015, we will introduce more stringent bathing water standards, based on a better understanding of how pollution can affect bathers' health. If these standards were in place now, over half of our waters would achieve the highest standard, but around 10 per cent would fail the new minimum.

3.25 We will also maintain delivery of microbial standards at designated shellfish waters and, as the legislation changes in 2013, ensure that they are afforded the same level of protection as protected areas under the Water Framework Directive.

A summary of our ongoing commitments

3.26 The Government looks to many actors to play their part in securing a healthy aquatic environment, but, with its delivery bodies, will lead the way by supporting and facilitating action. In particular:

- as announced in April, we have made £92 million available over the 4 years starting 2011-12 to fund projects to deliver the Water Framework Directive in ways that lever contributions from third parties;
- continuing Catchment Sensitive Farming, with programme funding anticipated to be £72 million over the three years starting 2011-12;
- maintaining our programme of research and development projects worth £11 million this year (including for example Demonstration Test Catchments, worth £8.5 million), looking to better understand and encourage joint land and water management;
- creating, through the Environment Agency, a high quality evidence base to inform the catchment-based approach and track whether it is achieving what we need or what more is needed;

- contributing to the delivery of outcomes that are sought at catchment level by acting to promote and secure compliance with existing requirements;
- making sure that Defra's delivery bodies join up and work well together to generate a common message to farmers on what is needed to deliver environmental objectives in an integrated way;
- allocating funds under the Common Agricultural Policy in a way that delivers the range of desired environmental outcomes in an integrated way; and
- publishing a strategic approach to addressing urban diffuse pollution during 2012 as part of our wider refresh of Water Framework Directive delivery, and as part of this encouraging greater uptake of the catchment-based approach within urban areas.

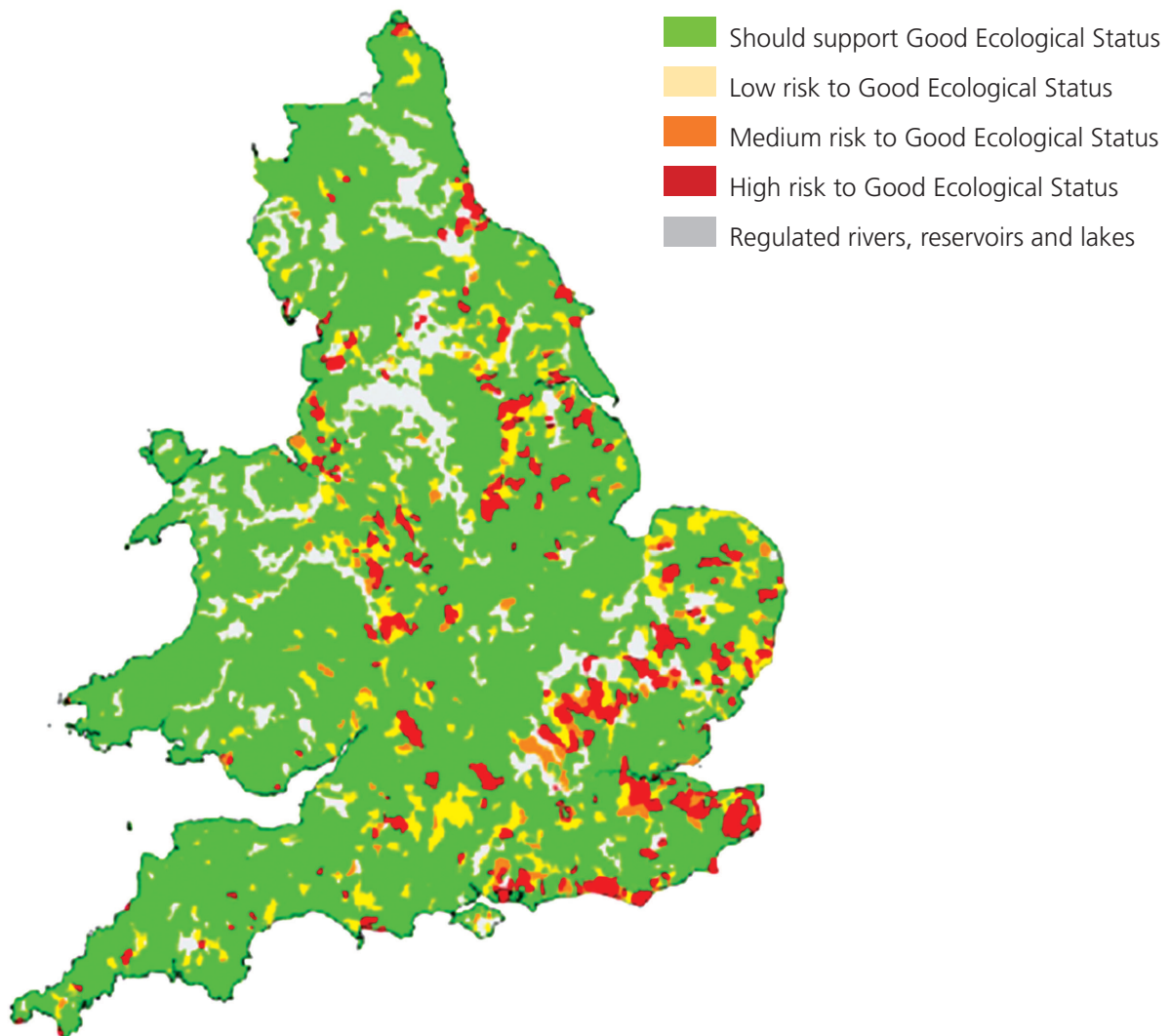


Figure vii – Risk to ecology from current abstraction in England and Wales

Current unsustainable abstraction

© Natural England: Dried-up stream as a result of over-abstraction



Establishing the extent of the problem

3.27 Under the Water Framework Directive, the Environment Agency has begun investigating 1,500 water bodies where the pressure from current abstraction means that the remaining water flow may not be supporting good ecology, including about 300 water bodies at high risk (see **Figure vii**).

3.28 These investigations will build on the experience the Environment Agency has gained under its Restoring Sustainable Abstraction (RSA) programme. Under this programme the Environment Agency is already investigating around 250 sites, which include the country's most environmentally important sites, to see whether abstractions are causing damage and what can be done to tackle the problem.

Tackling over-abstraction

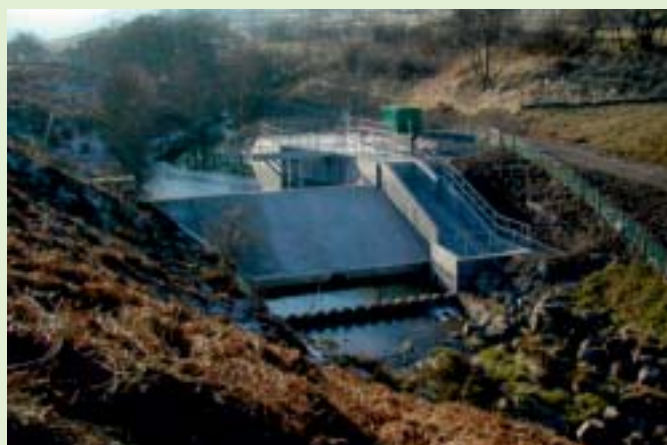
3.29 We will tackle this legacy of unsustainable abstraction in parallel to developing and implementing a reformed abstraction regime. The Environment Agency will be publishing extensive information on progress with implementing the RSA programme early in 2012, which will show how it is addressing locally damaging abstractions. This work, together with catchment scale investigations, will give us early information on the issues we need to tackle in the next round of River Basin Management Plans, starting in 2015. **We will develop an action programme for addressing unsustainable abstraction in the River Basin Management Plans up to 2027, and beyond.** In doing so, we will take proper account of the lessons learnt from our catchment management pilot schemes along with all available data, carefully assess technical feasibility, disproportionate costs and natural conditions, and engage fully with stakeholders.

Restoring Sustainable Abstraction – Heltondale Beck

This beck is a tributary stream of the River Lowther, which is part of the Eden Special Area of Conservation. At this site, there would naturally be a healthy population of salmon and trout, and in the lower reaches possibly bullhead eel, stone loach and minnow.

In the 1950s, a weir was built across the river so water could be taken for public water supply, transferring it from the beck into Haweswater Reservoir. An inadequate flow release 200 metres downstream of the weir left a dry section, and below that, low flows. As a consequence the poor flow blocked the passage of migratory fish both upstream and downstream.

The solution designed under the RSA scheme involved installation of a fish pass, a fish screen to prevent fish being taken along with the abstracted water into the intake into Haweswater, and changes to the licences and conditions to ensure appropriate river flows at all times. When the flows are increased, fish will have a healthier, more natural, water habitat that allows them to follow their natural migratory patterns.



© Environment Agency

3.30 But tackling over-abstraction is not straightforward – water from these rivers is used to supply our homes and businesses, and if water companies or other abstractors were to stop taking this water they would have to find other sources of supply, or work with us all to reduce our consumption. As explained in chapter 2, the abstraction regime responds only slowly and expensively to unsustainable abstraction. Under the current regime, it can take several years to investigate all licences in threatened water bodies, reach decisions on licence changes, and raise funds from abstraction charges to compensate abstractors.

3.31 At the moment the damage over-abstraction causes to the environment is not fully reflected in the price we pay for our water. Nor is it properly reflected in the options appraisal carried out by water companies when they consider how best to balance supply and demand.

3.32 The comprehensive reform of the abstraction licensing system we propose will reduce the risk that the impacts of climate change lead to an increase in unsustainable abstraction. However, there are immediate actions we can take which will improve our ability to tackle the legacy of unsustainable abstraction and prepare the ground for reform. These measures will speed up our ability to investigate and deliver change to problematic licences and make sure we get better value from expenditure used to cut unsustainable abstraction.

3.33 The existing approach of funding changes to water company licences through the RSA Programme does not encourage water companies to plan effectively for managing changes to the volume of water they are licensed to abstract. The arrangements drive a site-by-site approach, do not incentivise companies to examine inter-related sites (where combining action across a number of sites might deliver multiple benefits), and will be slow to deliver sustainable abstraction levels.

3.34 We want water companies to have better incentives and tools to innovate and manage their abstraction sustainably. We want them to focus on delivering long term cost beneficial solutions. And we want water customers to be able to play a role in deciding how this should be done in their region. At the same time we want to ensure that water customers are treated fairly, that the cost to them delivers real benefits, and that they pay only their fair share of the costs of restoring sustainable abstractions.

3.35 We think that a framework where company solutions for restoring sustainable abstractions are included in the price review process, having first been included in the companies' Water Resources Management Plans has the potential to deliver better outcomes for consumers and the right incentives on water companies. We are working with Ofwat and the Environment Agency to identify how best this could be achieved. Ofwat's proposals to change how it regulates and focus on delivery of long term outcomes would fit well with our objective for tackling unsustainable abstraction. And the new customer challenge groups Ofwat is requiring for the next price review would be a good forum for customers to be involved in company proposals. A change of approach would also mean that funds that water customers have, through their water bills, contributed to the compensation fund so far would have to be returned fairly to them so that they do not pay twice.

3.36 Ofwat is also consulting on the Abstraction Incentive Mechanism (AIM) as part of its Future Price Limits proposals. This will incentivise water companies to take into account the environmental impacts of abstraction when considering the use of their water supplies and will avoid the risk that trading of water could increase over-abstraction. Ofwat has developed these proposals with WWF and members of its "Itchen initiative" and is working with the Environment Agency and stakeholders to test how the AIM should work in practice. Experience with developing and using the AIM will also help in understanding the role of price signals in a reformed abstraction regime.

3.37 The Environment Agency will consult in 2012 on changes to its charging scheme to use the Environmental Improvement Unit Charge (the part of abstraction charges that funds the costs of compensation payments) to fund hydromorphological measures, where it is cost effective to do so and where the primary objective is to address unsustainable abstraction. Such measures could protect water ecosystems and restore sustainable abstraction at a lower cost than changing licences, while still enabling abstractors to take the water they need. The Environment Agency will work with landowners and abstractors to assess where hydromorphological options might be used. Hydromorphological measures will only be used in practice in locations where investigation of their costs and impacts demonstrates value for money and protects water ecosystems. The cost of implementing the measure will be funded by the Environmental Improvement Unit Charge and it is intended that there should be no costs to the owners of the land affected by hydromorphological measures.

Hydromorphological measures

Hydromorphological measures look to alter the physical character of channels with the aim of helping to concentrate low flows within the channel, so increasing water depths and flow velocities. There are several methods available to do this including:

- excavating a small “channel within a channel” to concentrate low flows, creating what is known as a two stage channel;
- placing a low berm (perhaps from nearby dredgings) across a significant portion of the channel bed to create a two-stage channel;
- placing deflectors (perhaps log beams or other soft materials) in the channel bottom to focus and concentrate flows; and
- changing channel maintenance regimes by stopping or reducing dredging and/or stopping or changing the way weed cutting is undertaken.

3.38 The Environment Agency will also pilot using reverse auctions as a tool for restoring catchments to a sustainable balance at least cost. This was recommended in the Cave review and can be effective when there are several licences in a catchment that could be varied to protect the environment. Licensees whose abstraction is damaging the environment or which may cause deterioration in Water Framework Directive status, if used, will be able to bid to sell back part or all of their licensed volume to the Environment Agency. The Environment Agency will take the offers that deliver the best value in restoring sustainable abstraction in the particular area.

3.39 A power in the Water Act 2003 enables licences causing serious damage to our rivers, lakes and groundwater to be removed or varied without compensation. We will start using this power from 2012 and will consult shortly on how we do so.

Driving economic growth through better use of our water resources

3.40 We know at the moment that it can be difficult for a business wanting to start or increase abstraction to obtain a year-round reliable licence. On average, in a quarter of water bodies in England, it is only possible now to obtain new licences that provide water for 30 per cent of the time (see **Figure viii**). This could become a significant barrier to economic activity in parts of the country as water availability decreases. An effective market in abstraction licences would make it easier for businesses to access water in the volume and the location they require and for abstractors to make judgements on the relative value of their licences.

3.41 However, the inflexibility of the existing abstraction regime, lack of market information, complex rules around trading¹⁹, and uncertainty over whether licence holders will be required to reduce the amount of water they abstract, are impeding the development of such a market. Only 53 licence trades have so far been identified in England up to November 2010²⁰.

3.42 We will reduce the barriers to trade in abstraction licences.

19 Synovate UK (2008) Exploring views on the potential for more active water rights trading

20 Some trades may have gone unrecorded. For example, there may have been significant sales of land including water rights.

3.43 The Environment Agency published in October 2011 new and clearer rules, introducing a presumption that a trade should be permitted where there is no risk of increasing environmental damage. **The Environment Agency will improve market information (including by publishing information electronically on average trade prices, volumes and locations) to make it easier for willing buyers and sellers to understand the potential value of their abstraction licences. It will publish on the internet data on water licences so that those interested in buying licences can approach potential sellers, encouraging the emergence of market makers and brokers.**

3.44 To encourage trading by increasing the volume of water that may be available to trade, the Environment Agency will examine large unused licences to consider whether it should use its current powers to revoke these licences where the holder does not have a reasonable need for them (which might include holding a reasonable contingency). **The Environment Agency will also identify a number of catchments with potential for increased trading where it will actively promote and test these reforms.** We will use this experience to help design a new abstraction regime more encouraging to trades.

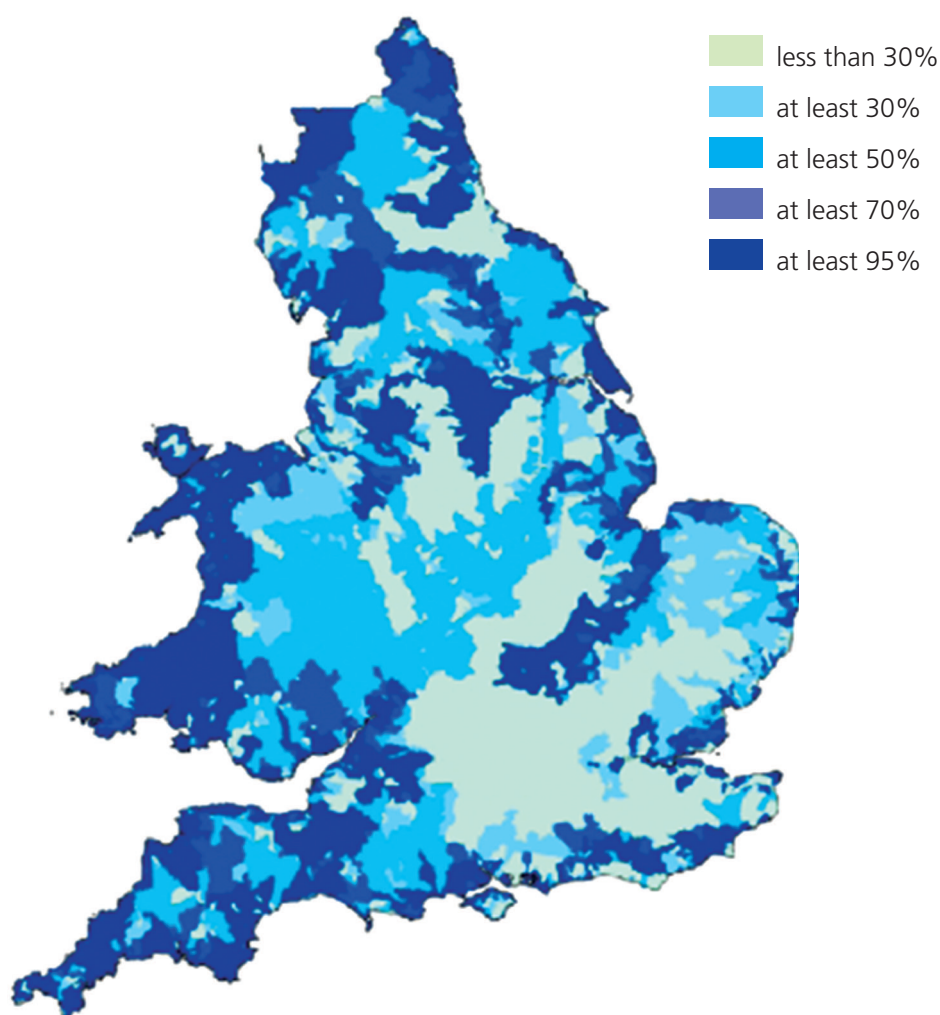


Figure viii – Availability of water in England and Wales – percentage of time water would be available for abstraction under new licences

4. Planning and building for the future



Key commitments:

Aligning plans

Government and the regulators are working to minimise burdens on companies from the separate planning processes in the water sector. We will build on the priorities set out in this White Paper in the guideline for the next water resource management planning cycle and the forthcoming strategic policy statement and social and environmental guidance to Ofwat. The Environment Agency will work with other sectors of the economy with significant dependence on water to advise Government of the future risks to both abstractors and the environment.

Infrastructure

We will take a strategic overview of the quality and capacity of water and wastewater infrastructure, and the robustness of the sector's plans for future service delivery. Government, the Environment Agency and the water industry will consider further whether there are strategic national infrastructure projects necessary to ensure water supplies remain resilient and, if so, whether there are barriers to their delivery that should be removed.

Wastewater and drainage

We will work with Ofwat and Environment Agency to ensure a more strategic approach to drainage planning. We will consult shortly on national standards and a new approval system for sustainable drainage. We will also consult on proposals that new sewers must meet default build standards.

4.1 The previous chapters set out evidence on the challenge that climate change and population growth presents for our water resources, and the need for action to build resilience and enable a good quality water environment. While the scenarios in chapter 1 present different pictures of what the future might look like, their consistent message is that beyond, and perhaps before, 2050 we can expect reduced water availability and increased pressure on the capacity of our drainage systems.

4.2 We must plan and prepare now if we are to reduce these risks. While we should not underestimate the scale of the challenge, we can meet it. We have time to make the significant investments that will be needed and to begin to influence attitudes to the way as a society we use and value water. But we cannot afford to delay. Planning and construction timelines for new infrastructure are lengthy, and real and lasting behaviour change takes time to establish. The longer we leave decisions on how we adapt to the future, the higher the cost is likely to be and the more uncertain the outcomes.

4.3 Our existing water supply and wastewater infrastructure is of varied age and condition, and some of it is well over a century old. But whatever its age, our existing infrastructure also needs a sustained and significant programme of investment in maintenance, renovation and replacement as necessary to ensure a high level of service.

4.4 We are well placed to plan for the future. The water sector has a good track record in long-term planning and has been attractive to investors because of its stability. The statutory framework for the

sector focuses on the long term – through broad ranging River Basin Management Plans and a water resources planning regime which looks at supply and demand over a twenty five year period. Water companies also develop strategic direction statements covering the same period and have conducted climate change risk assessments and produced adaptation plans.

4.5 These are strong foundations on which we can build, but responsibility for planning for the future goes beyond the water sector. Businesses need a better understanding of how patterns of water availability may alter in the future and the impact this might have on their operations and future costs. Government also needs to understand the likely scale and geographical distribution of future demand, and the impact this could have on our natural environment. We will look for assurance that water companies' water resource plans will collectively deliver a water supply system which is resilient to the impacts of climate change. Our approach will need to be supported by streamlined and targeted action by the sector's regulators.

The current water planning framework

The Water Framework Directive establishes a strategic framework for managing the water environment. It requires a management plan for each of England's 10 river basin districts (two of which are shared with Wales and one with Scotland) to be developed every six years. The measures identified for delivery by water companies, for example where reductions in abstraction are needed to restore a catchment, feed into the water resources management planning process. Water companies consider sources of supply and forecast demand over a twenty five year period and assess options for closing any gap between supply and demand. The preferred programme might balance investments, for example, in new supply infrastructure, such as reservoirs, in pipe replacement to reduce leakage, or in metering of water supply to manage demand. The outputs from the river basin planning process and the water resources management planning process will form part of the company's business plan for the price review overseen by Ofwat which decides how much customers can be charged to fund this business plan.

Aligning Plans

4.6 Following the first round of Water Resources Management Plans (WRMPs), Defra commissioned an independent review of the process²¹. This review and the Ofwat review highlighted a lack of co-ordination between the water resources management planning process and Ofwat's 2009 price review. While the plans have different drivers, they are linked.

4.7 Water companies will be able to produce more integrated plans and deliver better outcomes for customers and the environment if the processes are better aligned and regulators co-ordinate their requirements. Both processes require extensive periods of consultation with customers, and a better alignment would also help customers understand how their water bills will change in the future.

4.8 Ofwat, the Environment Agency and the Drinking Water Inspectorate have agreed to strengthen their working relationships to provide clear signals to the companies on delivering outcomes, and the Government is working closely with them to minimise the burdens on companies. This includes bringing forward some of the work for the second

²¹ <http://www.defra.gov.uk/publications/2011/09/30/pb13653-water-resources/>

cycle of River Basin Management Plans to enable delivery through the 2014 price review. Government will also change the statutory timeframe for drought plans to a five year cycle as for WRMPs.

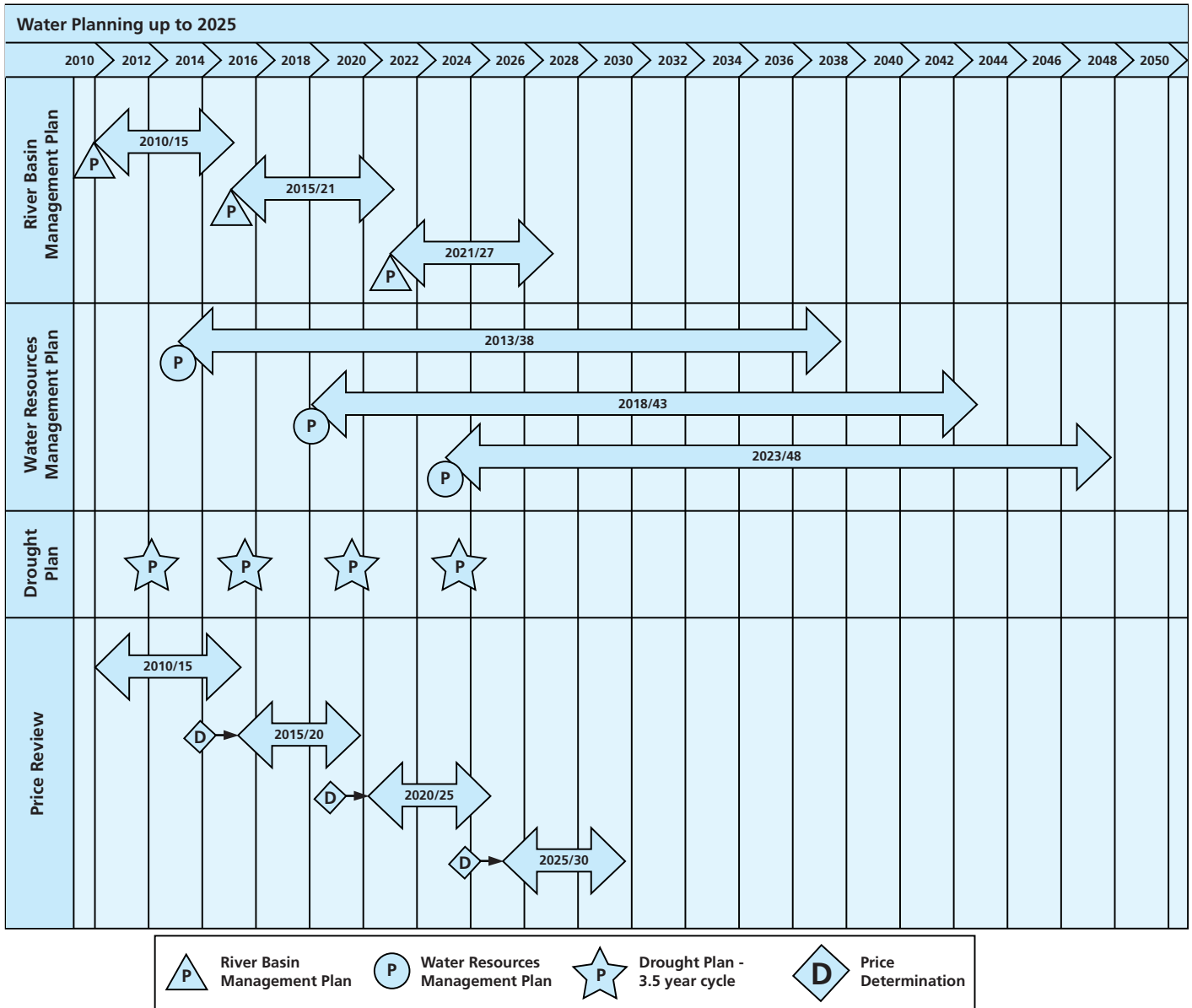


Figure ix Water planning up to 2025

Clearer priorities for water companies

4.9 The Government agrees with the findings of the WRMP review that the water resources planning process has delivered a strong set of plans, but we believe that more can be done to reduce costs to customers and improve environmental outcomes. In particular, we want companies to reflect the broader context of supply challenges through to 2050; to more accurately reflect the cost of abstraction to the environment; to recognise the broad stewardship role they can play within catchments to protect the quality of their sources of drinking water; to consider the scope for improved interconnection and greater use of water trading and bulk transfers; and to set ambitious goals for reducing average water consumption and support them with robust plans for delivery.

4.10 We will therefore use the guideline for the next water resources management planning cycle to translate the policy priorities from this White Paper into a clear direction for companies. These priorities will also be reflected in our forthcoming strategic policy statement and our social and environmental guidance to Ofwat²². These priorities will include:

A long term perspective. We will update our planning guidance to reflect the latest research on how to account for climate change in water resources planning using the UK climate change projections (UKCP09). We expect companies to assess the vulnerability of their resources to climate change, and analyse, in a way proportionate to how susceptible particular areas are, how their supplies might be affected in those resource zones. While the planning horizon in WRMPs is 25 years, our guidance will make clear that this should not constrain companies in looking at the resilience of their infrastructure to climate change or the longer term pressures on their water resources and making business cases for funding through the price review that look at longer timescales.

Better reflecting water scarcity and environmental damage. By better understanding and reflecting the scarcity of water and the social and environmental costs of water abstraction, water companies will identify more sustainable plans for balancing demand and supply. We are reviewing the way in which environmental and social costs are included within the options appraisal in order to improve consistency and transparency in the calculations used and to better reflect the pressures on catchments and the benefits of managing demand. This would be reinforced by Ofwat's proposal to introduce the Abstraction Incentive Mechanism (AIM) through its Future Price Limits framework, making it more attractive for companies to use less environmentally damaging sources of water in their day-to-day operations.

Consideration of catchment management approaches. Government is working with water companies and the regulators to build understanding of the benefits of catchment management approaches and the barriers which may reduce the likelihood that a water company will put forward such an approach, or that it will be funded through the price review. **The strategic policy statement for Ofwat and revised social and environmental guidance will give a strong steer on Government support for approaches that offer good value for customers and the potential to prevent and manage future risks to drinking water quality.** Water companies may also want to work with other stakeholders on such projects, and look for partnership funding, where this will maximise the scope for delivering extra benefits.

The value of water trading. A number of water companies already make use of water transfers to help balance supply and demand. Many of these arrangements pre-date privatisation. Government expects water companies to consider all options for meeting their supply and demand balance when preparing water resources plans, including interconnectivity across company boundaries, opportunities for trading water, or other cross boundary solutions. The water resources planning guideline will provide advice on how this should be achieved. In view of the importance of increased interconnectivity to future resilience, we will expect to see clear evidence that any company proposing to develop a new source of supply has fully considered and costed raw water trading with neighbouring companies, and robustly challenge companies on their approach throughout the planning process. If this approach fails, Government will consider directing a company to take forward

22 Discussed further in 6.46-6.47

water trading. The Government welcomes Ofwat's plans to reinforce this policy direction towards greater use of bulk trading through the incentives it is consulting on for the next price review.

Conserving our water resources. The last round of WRMPs saw an increasing use of demand measures, including metering in water stressed areas and some large scale information campaigns to reduce household and business usage. Delivery of these plans should lead to average demand for water levelling out or decreasing over the planning period. However, we cannot be complacent. Delivering the reduction in demand the plans envisage will be challenging, and it is not clear that all companies will succeed. Further action will be needed to tackle demand pressures, especially in areas of current or likely future water stress.

Ofwat and demand management targets

We recognise that some demand management measures are less well tested than others and deliver less certain results than traditional supply side measures. To help incentivise companies in the current Price Review period, Ofwat has set an incentive for water companies to reduce demand by 5 litres per property per day over the 5 year period, and made provision for water companies to run pilots without fear of penalty if they are less successful than expected. Ofwat will review the success of this incentive ahead of the next Price Review to determine whether it should be continued and/or increased, in light of its proposed move to outcome based regulation and approach to incentives.

Leakage Targets

Since 1994-95 leakage has fallen by 36 per cent, saving enough water to supply the daily needs of over 12 million people. Between 2009-10 and 2015, target leakage in England and Wales is due to fall by a further 3 per cent, saving enough water to fill over 38 Olympic sized swimming pools every day. Ofwat targets move companies to the Sustainable Economic Level of Leakage (SELL). This is the level at which it would cost more to reduce leakage further in a particular company's area than it would to save water in different ways or to develop additional supplies.

The calculation also takes into account environmental factors and the views of consumers. However, the existing guidance to companies on calculating SELL does not fully reflect the long-term sustainability of the water environment. We will work with water companies, Ofwat and the Environment Agency to review SELL, comparing approaches across the industry to valuing the externalities in the SELL calculation, with the aim of revising guidance to ensure its more coherent application. Ofwat will take the conclusions of this review into account when considering how best to incentivise companies to reduce leakage through the next price review.

We will strengthen the WRMP guideline to make it clear that all demand management measures must be thoroughly explored and tested as part of the options appraisal. The last WRMP planning round set the Government's aspiration of reducing average demand to 130 litres per head per day by 2030. This incentivised water companies to include measures in their WRMPs to reduce water consumption. There are wide variations in average consumption across the country, with some resource zones already at or below the 130 litre level. Water companies also face different levels of water stress and risks and uncertainties around climate change. However, all companies will be expected to show how they will reduce water use per person. Where companies are in a designated water stressed area, or where they have demand that is above the national average, we

expect companies to produce a plan that will deliver overall demand reductions in the first five years. Looking further ahead we will expect all WRMPs to demonstrate that the demand trend is significantly downward. Government will reinforce this message about the importance of options to reduce demand over the first five years and beyond in its strategic policy statement to Ofwat.

The costs and benefits of increasing levels of water metering to help reduce demand will vary from region to region, depending on the level of water stress. Because of these complexities, **we will not impose a blanket approach to metering across the country. We believe water companies are best placed to find the appropriate local solution in discussion with their customers.** As the climate changes and the population grows, the case for universal metering may change, but will do so at different times for different areas.

Water Meters

The majority of households in England and Wales are charged for water and sewerage on the basis of the rateable value of their home rather than the amount of water they use; 37 per cent of households have a water meter and pay for what they use. However, this balance is changing. For the last decade uptake of metering has been increasing by just over 2 per cent per year, mainly as households opt for a meter to save money. In the water stressed areas of South East England some companies are rolling out universal metering programmes to help tackle their supply demand balance. Under current water company plans, by 2015 half of all homes in England and Wales would be metered.

Smart Meters

Smart or intelligent water meters may offer further customer benefits. These include more accurate billing and greater control over consumption and better understanding of patterns of demand and levels of leakage.

The Walker review recommended that Ofwat establish a group to advise on the costs and benefits of intelligent metering, and to take advantage of any synergies with the roll-out of smart electricity and gas meters. The Smart Metering Advisory Group brings together Government, industry and regulators and is exploring the business case for smart metering and working to understand how it could benefit customers. Government is interested in the potential of smart water meters to improve water company network management and encourage more sustainable water use by consumers. We look to companies to demonstrate the business case for implementation with the agreement of their customers.

Certainty on sustainability reductions

4.11 The uncertainty around the sustainability of existing abstraction licences has been a significant obstacle to effective long term planning. The Government will help water companies by improving the information which underpins their planning and the Environment Agency will ensure likely sustainability reductions can be included within WRMPs. As well as the decisions outlined in chapter 2 to reform the abstraction regime, and the work to enable company solutions for restoring sustainable abstractions to be included in the price review process, **we will also reduce the uncertainty around further sustainability reductions needed to deliver the Water Framework Directive's objectives. The Environment Agency has speeded up the current round of investigations,**

with water companies asked to complete work by December 2012 to inform the next water resources management planning round. It is also bringing forward work on the second cycle of River Basin Management Plans so that schemes where the need to act is clear, for example to avoid deterioration of protected areas, will be included in the Environment Programme for the next price review and can be reflected in water companies' business plans. This will enable companies to plan strategically to meet public supply needs alongside measures to meet river basin plan objectives for the environment.

Planning for other sectors

4.12 Water companies' planning role is limited to the public water supply and many water users draw their supplies from other sources. Government needs a broader understanding of the likely scale and geographical distribution of future demand to enable us to assess the resilience of our water resources. Individual sectors and businesses need to identify the risks to their own operations, and to consider the level of planning necessary relative to the risks involved. Businesses with water intensive operations need to consider water availability in planning for the future and in deciding where to locate. Effective long-term planning for water will help avoid costs falling on customers from short-term responses to supply problems.

4.13 The Environment Agency has a key role in considering future water needs and is working with sectors, such as the energy generation industry, to do this. **The Environment Agency will develop demand scenarios in partnership with different sectors, and use the outputs to develop a common understanding of the future risks to both the abstractors and the environment and provide advice to Government.**

Energy Generation

Thermoelectric power generation needs significant amounts of water, largely for cooling. This includes coal, gas, nuclear and biomass power stations. Electricity producers are licensed to abstract more water from the environment than any other sector, including the public water supply. Power generation is water intensive, however consumption rates are low and a significant proportion of the water that is abstracted for cooling purposes is returned²³.

In the coming decades, the UK's energy infrastructure will be substantially rebuilt, and its need for water may increase as the sector tackles growing demand and introduces new, lower carbon technology. Legally-binding emissions reduction targets are driving decarbonisation of electricity generation and a transition to low carbon sources of electricity. With an expected increase in electricity demand and a continued reliance on thermoelectric power generation to meet this demand, water use at power stations will continue.

Government, the Environment Agency and the power sector are working to characterise current usage and assess future demand for water. This work will take account of the plausible range of future energy demand, the options for meeting it (including choice of cooling technology) and how much water this might consume. Separate studies will examine the impacts including the cost of policy options responding to changed water availability. Work is also underway to understand the water use associated with carbon capture and storage technology.

²³ Environment Agency data, 2011.

Agriculture

The drought this year has highlighted how fluctuations in water availability at critical times in production can affect the agriculture sector. Farmers can increase their resilience to drought conditions by developing their own supplies, for example by building farm reservoirs or installing rainwater collection systems. Demand for water can be reduced by using more efficient irrigation technology and precision farming techniques, improving the management of water resources, or considering crops and varieties that need less water or are more resilient to drought.

Around one third of farms in England which are equipped to irrigate already have winter storage reservoirs. The Government encourages farmers to invest in building safe reservoirs, and will develop technical guidance to help farmers to do so. The Environment Agency can also provide advice on positioning and construction methods for reservoirs to help farmers ensure that they are safe and fit for purpose. Funding from the Rural Development Programme for England (RDPE) has supported the construction of 41 on-farm reservoirs as well as training on irrigation and soil management. The package of reforms in this White Paper may make it more attractive for water companies and other licensees to work with farmers on economically and environmentally attractive options for abstracting and storing water at peak winter flows.

Water management is one of the measures supported by the Farming and Forestry Improvement Scheme, a small grants scheme launched in November 2011, which forms part of a suite of new nationally consistent schemes under the socio-economic elements of the RDPE. The Rural Economy Grant, a scheme of grants for larger projects is expected to be also announced at the end of 2011 in November, will give grants of between £25,000 and £1 million for micro businesses and SMEs to boost farm competitiveness and support significant growth in the rural economy. The scheme will be launched early 2012.

From 1 January 2012 the Farming Advice Service, which will provide farmers with guidance on how to meet the environmental obligations placed on claimants of Common Agricultural Policy subsidy payments, will include advice on abstraction licensing and on climate change adaptation, including water management. This will help raise farmers' awareness of the challenges and support them in their decisions.

We welcome the inclusion of water management measures in the proposed EU Rural Development Regulations published by the European Commission in October 2011 as part of the discussions on the Common Agriculture Policy 2014-20, which will set the framework for the next Rural Development Programme.

Infrastructure

4.14 The water and wastewater sectors provide important national infrastructure. The *National Infrastructure Plan*²⁴ first published in autumn 2010, and updated in November, set out Government's role in ensuring key networks are reliable, resilient and integrated, and recognised that continued, substantial investment in infrastructure is essential to sustainable economic growth.

24 http://www.hm-treasury.gov.uk/national_infrastructure_plan2011.htm

A national strategic overview

4.15 While the primary responsibility for water resource planning and providing an effective wastewater system must continue to rest with the water companies, **Government will take a strategic overview of the quality and capacity of water and wastewater infrastructure, and the robustness of the sector's plans for future service delivery.** This will enable Government to assess whether there are barriers to delivery of infrastructure projects critical to the resilience of the networks. **Government, the Environment Agency and the water industry will also consider further whether there are strategic national infrastructure projects necessary to ensure water supplies remain resilient.** However, responsibility for delivering any projects identified will continue to rest with industry, working proactively with project promoters, developers, the local authority and other relevant public bodies.

Planning for future infrastructure

4.16 More houses and commercial properties are needed to meet the needs of a growing population, changing lifestyles, and to enable economic growth. However, houses and offices should not be built until the water and sewerage infrastructure serving the development is sufficient to ensure the environment is not placed at risk. This requires close dialogue and collaboration between local authorities, the Environment Agency, developers and water companies so that the parties can balance the needs of the economy and society for new development, the environment, and the bills to customers.

4.17 This need for dialogue is reflected in our amendments to the land use planning regime. The proposed new National Planning Policy Framework sets out for local authorities the strategic priorities they need to address positively in their Local Plan. Those priorities include the provision of infrastructure needed to support development, such as infrastructure for water supply and water quality. Local planning authorities and other public bodies, that play a strategic role in local plan making have a new Duty to Co-operate which requires them to engage constructively, actively and on an ongoing basis as local plans are prepared. Once Local Plans are drawn up, local authorities are required to notify the relevant water and sewerage providers and invite representations on the contents of the Plan. We are ensuring through workshops and discussions that all parties are fully aware of the changing planning framework and how it and the water and sewerage planning framework can be mutually supporting.

4.18 The companies providing water and wastewater services for their part will determine their need for investment in infrastructure through their WRMPs and the final price review business plans submitted to Ofwat. Both these should be based on robust data that draws on both Local Plans and the latest available housing and demographic projections.

4.19 The water efficiency of new housing has improved with the introduction of Building Regulations which have set a calculated whole building performance standard of 125 litres per head per day. The Code for Sustainable Homes has also established a series of performance levels and standards for new homes, including water efficiency standards. Publicly funded housing has to meet 105 litres per head per day.

Nationally significant infrastructure

4.20 The Planning Act 2008 allows for the Secretary of State to designate National Policy Statements covering the need for new or expanded infrastructure of national significance. National Policy Statements remove the need for lengthy planning inquiries on fundamental policy questions at the application stage and help inform decisions on Nationally Significant Infrastructure Projects (NSIPs) covered by that Act – including dams or reservoirs holding over 10 million cubic metres of water.

4.21 Whilst a number of draft WRMPs contained reservoir proposals, none of the published final plans include a proposal that would meet the threshold for nationally significant infrastructure. We do not therefore have plans at the moment to produce a National Policy Statement for water but we will keep this under review during the next WRMP round. **We have consulted on a National Policy Statement for Waste Water²⁵ and anticipate laying it before Parliament for approval shortly.**

Thames Tunnel

The national policy statement on wastewater provides the framework for development consent for major wastewater projects, such as the Thames Tunnel. The Thames Tunnel, in combination with other improvements to London's sewerage system, would reduce the current unacceptable level of sewage overflowing into the tidal Thames, bring the water quality up to a standard that meets international benchmarks, and help ensure that the system has the capacity to meet the future needs of a growing population and changing rainfall patterns caused by climate change.

Infrastructure resilience

4.22 We must also make sure our existing infrastructure can continue functioning efficiently. A changing climate is not just a threat to the amount of water available. It also threatens our supply systems, for example through increased flood risk. During the 2007 floods Mythe Treatment Works in Gloucestershire was flooded with the loss of piped water supply to 350,000 people, while Yorkshire Water's pumping stations in Hull were overwhelmed leading to surface water flooding.



4.23 Over the current five year price round, water companies are planning to spend £400 million on making their treatment works and other assets more resilient to flooding and other hazards, thus protecting customer supply.

Climate Change Act 2008

The Climate Change Act 2008 requires the Government to carry out an assessment every five years of the risks and opportunities for the UK from climate change. The first report is due to be laid before Parliament by January 2012. The Climate Change Risk Assessment (CCRA) will draw together evidence to make a cross-cutting comparison of the risks and opportunities that climate change presents to our economy, wider society and the environment over the next century.

The Climate Change Act also requires Government to prepare a National Adaptation Programme setting out the objectives, proposals and policies Government will pursue in response to the risks raised by the climate change risk assessment. Given the prominence of water related risks in the risk assessment, the White Paper and follow-up action will form an integral part of the National Adaptation Programme.

Through the Adaptation Reporting Power, the Climate Change Act enabled Government to require public service organisations, including all water companies, Ofwat and the Environment Agency, to report on how they are addressing risks from climate change.

Water company reports were published in May 2011 and can be read at <http://www.defra.gov.uk/environment/climate/sectors/reporting-authorities/reporting-authorities-reports/>

Wastewater and drainage

4.24 Each day, water and sewerage companies in England and Wales collect and dispose of over 10 million tonnes of wastewater. Our extensive sewerage network would cost over £200 billion in total to replace – reflecting the large scale and hidden value of these assets. Approximately 184,000km of former private sewers and 36,000km of lateral drains connect to the rest of the public system. The Government decided to transfer the ownership of these private sewers to water and sewerage companies from October this year to enable integrated management of the sewerage system and address a range of problems associated with the previous ownership arrangements. These sewers are thought to be in a worse condition with a higher blockage rate than existing public sewers.

4.25 Our sewerage infrastructure is ageing. For example, the average age of a London sewer is 63 years old. Between 2000 and 2008 just over 3,000km, or 1 per cent of public sewers in England and Wales were replaced or rehabilitated. That reflects the condition assessments made by sewerage undertakers as reflected in the Price Review settlements for each company. However, at that rate it will be about 800 years before the whole system is covered which suggests that at some point we or future generations will need to increase that rate of investment if those networks are to continue to function at the same standard. Investing at a rate which maintains the long-term serviceability of the network must remain a priority.

4.26 Failures of the sewerage network can result in significant environmental impacts and sewer flooding of properties. In 2010, over 60 per cent of serious pollution incidents were caused by the failure of the sewerage network (such as sewer collapses and combined sewer overflows).

4.27 We recognise that planning, and in particular longer term planning, for sewerage infrastructure has had less focus than that for water supply. A recent review by Ofwat, to be published shortly, found considerable variation in companies' thoroughness in this area. **We will work with Ofwat and Environment Agency to ensure a more strategic approach to drainage planning and that planning standards are brought up to a consistent level of best practice so that both customers and investors have a better understanding of future plans.**

Olympic Innovation

The Olympic Delivery Authority (ODA) had an Olympic Park-wide target to reduce drinking water consumption by 40 per cent compared to equivalent developments. The **Aquatics Centre** houses two 50m pools, and a 25m diving pool. The building is water intensive, not only as the pools require regular top ups, but swimmers are often showering before and after swimming.

Water efficiency techniques produce great savings – through the incorporation of low-flow showers, hand wash basin taps and low flush WCs, a water-saving of around 29 per cent could be achieved over the lifespan of the building. Covering the pools is assumed to save around 30 per cent of evaporation losses and small quantities of rainwater will be stored for localised irrigation.

The design team also introduced a £53,000 system to recycle the swimming pool backwash water to flush WCs and urinals. This should save 2.7 megalitres each year, bringing the lifetime savings up to 32 per cent.

For more information go to www.learninglegacy.London2012.com



The largest 'black-water' recycling centre in the UK – Thames Water's **Old Ford Water Recycling Plant** – produces non-potable water for the Olympic Park.

Rather than taking fresh water from the environment and treating it to the high standards required for tap water, the Old Ford Plant treats wastewater for non-potable use.

The Plant takes Londoners' wastewater from the northern outfall sewer, designed in the 1860s by Sir Joseph Bazalgette, and turns it into water suitable for irrigation, flushing toilets and as coolant in the Energy Centre. Water from the Plant is pumped into the Park's network of pipes, which are separate from those supplying drinking water to taps.

As a large scale trial to test the technical and commercial viability of establishing community-scale water treatment and recycling facilities this project represented both an important research opportunity for Thames Water and an innovative solution to help the ODA with its 40 per cent reduction target. The 574 cubic metres of water the Plant will produce per day will save the equivalent of 83 Olympic swimming pools' worth of water in a typical year.

The site is also a designated nature reserve and the operational building blends in with its natural surroundings, using sustainable methods, wherever possible. The use of a 'green roof' and permeable surfaces, for example, ensure a variety of environmental benefits while reducing the impact of surface water run-off on the site.

4.28 Not all of our drainage networks are currently able to cope with extreme rainfall. Surface water flooding is complex and often includes flooding from water courses, sewers and drainage networks at the same time. Given the pressures on our infrastructure capacity and the risks from climate change, we want to encourage the use of Sustainable Drainage Systems (SuDS) wherever they will be effective. SuDS are a range of measures designed to mimic as closely as possible natural drainage, and its advantages in providing habitat, filtering pollutants, recharging groundwater – particularly important in water stressed areas, and in slowing water down – thus reducing flood risk.

4.29 To achieve this we are looking at removing the automatic right for developers to connect to existing sewers systems to ensure they consider more effectively where and how to drain surface water. **We will consult shortly on national standards for SuDS and a new approval system for sustainable drainage. To encourage the use of SuDS by water and sewerage companies we will work with Ofwat to improve dissemination of cost and benefit data and look at removing regulatory incentives for water companies to implement traditional piped drainage solutions. This may involve amending the Water Industry Act to ensure water companies are able to build SuDS to meet their statutory duty to effectually drain an area. We will also consult on proposals that new sewers must meet default build standards.**

Sustainable drainage at Matchborough First School, Redditch

The Matchborough School is a retrofit that shows how SuDS can be used in community areas. The school's surface runoff now flows into a range of SuDS including swales, detention basins and a constructed wetland.

The wetland provides wildlife habitat and a valuable resource to teach the pupils about environmental sustainability and stewardship, water conservation and the hydrological cycle.

More information on this case study can be found at:
http://www.ciria.com/suds/cs_matchborough_school.htm



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Anaerobic digestion

4.30 Anaerobic digestion has been used in the water industry for many years to deal with sewage sludge, but growth has been slower in other areas. The Government's Anaerobic Digestion Strategy and Action Plan published in June and the more recent Office of Fair Trading (OFT) market study looked at the barriers to co-digestion – using anaerobic digestion to treat sewage sludge alongside other types of waste. The OFT final report made a number of recommendations and observations, including changes to the economic and environmental regulation of water and sewage companies to foster efficiency and encourage greater harmonisation of the treatment of sewage sludge and other organic waste. The European Commission is currently assessing whether the Sewage Sludge Directive should be reviewed. We will take this work forward on publication of the Commission's report.

5. Developing a customer focused water industry



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Key commitments:

Affordability

We want everybody to have access to an affordable water supply. We will publish final guidance to companies on the introduction of social tariffs which would enable water companies to offer more support to customers at risk of affordability problems. We will ensure that water companies have the freedom to offer enhanced terms to WaterSure customers through their social tariffs from April 2013.

Reducing high household bills in the south west

Households in the south west of England face the highest water bills in the country. We have therefore decided to fund South West Water to enable it to cut bills by £50 per year for all household customers until at least the end of the next spending review period.

Reforming the market for business customers

We are introducing a package of reforms to extend competition in the water sector by increasing choice for business customers and public sector bodies and by making the market more attractive to new entrants.

5.1 The previous chapters of this White Paper have explained how the Government plans to approach the long-term water supply and drainage challenges we face from the twin pressures of climate change and population growth. In order to deliver the sustainable and resilient water supplies which are essential for society, the economy and the environment we need to reform our water resource management system; ensure long planning horizons; drive innovation; and maintain a stable regulatory framework to encourage cost-effective solutions and maintain investor confidence in the sector. We also need to listen more to customers and deliver affordable and innovative services that reflect their changing expectations.

5.2 We want to drive change in the water industry so that companies become much more sharply focused on the needs of their customers. We are looking to companies to target new support at households struggling to pay their bills and offer domestic customers practical advice and help to reduce their water consumption. And we will reform the market for business customers by removing barriers to competition in the sector to drive efficiency and innovation.

Affordability

5.3 For many household customers, the most critical issue is the affordability of their bills. While water and sewerage services are relatively cheap and good value, costing on average £1 per day, some households struggle to pay their water bill, either because they are on a low income or because they live in an area where bills are higher than average.

5.4 We are taking a dual approach to tackling affordability pressures. This White Paper sets out measures which enable water companies to take action to reduce the affordability problems households are facing now. Over the longer term, the package of reforms we are introducing to increase competition and innovation and drive cost-effective responses to future challenges will limit the future impact on customers' bills. Customers will have to meet the cost of financing new

infrastructure so it is essential that the regulatory regime incentivises companies to select low cost options and only invest in measures that are needed to deliver the secure and sustainable supplies that customers want.

5.5 Everybody should have access to an affordable water supply, but we know that an increasing number of customers are struggling to pay their bills. Ofwat's latest analysis shows that 23 per cent of households spend more than 3 per cent of their income (after housing costs) on water and sewerage bills and 11 per cent of households spend more than 5 per cent of their income – some 2.4 million households across England.

5.6 In April, Government published a consultation paper setting out proposals designed to address affordability problems. In October we published draft guidance for both water companies and Ofwat on water company social tariffs.

Water Company Support Schemes

Water companies already run a number of schemes to help customers struggling to pay their bills. For example:

Yorkshire Water customers who have a low income and are experiencing financial difficulties can clear their debt through the Resolve scheme. Customers who have arrears of at least £500 are eligible to join Resolve. Customers must maintain a payment arrangement and Yorkshire Water writes-off the remaining arrears. During 2010-11, 5,000 customers paid £650,000 and the company wrote off £1 million of water debt. 75 per cent of customers maintain regular payments after their debts are cleared. This is complemented by the *Yorkshire Water Community Trust* which helps individuals and families in real need who are unable to pay their water charges. During 2010-11, 1,400 customers received £660,000 of awards to clear water debts through the Community Trust.

Wessex Water launched their *Assist Tariff* in 2007 and 8,000 customers currently benefit. The company works with independent debt advisers, such as local Citizens Advice Bureaux, who provide customers with independent debt advice, full benefit checks, and assess their ability to pay. They can then recommend to Wessex Water that a customer should receive a lower bill. Wessex Water has found that customers on the tariff get into a regular payment routine, benefitting the company and other customers.

Wessex Water make the partnership work by funding the provision of debt advice and giving advice agencies access to a dedicated team in their billing centre, a direct free phone into the team, education and training and annual workshops to share learning. In 2009 Wessex Water won the Citizens Advice award for best customer service in the UK and recently won the Best Partner award from Wiltshire Citizens Advice Bureau.

5.7 Once finalised this guidance will enable water companies to offer more support to customers at risk of affordability problems by introducing their own social tariffs. Water companies are best placed to design support schemes targeted at local needs that will be more effective than any national one-size-fits-all approach. Company social tariffs will enable water companies to design tariffs that help those customers most in need of support and fund these through cross subsidy between customers. This new approach reflects the fact that the previous system of cross subsidy is unwinding as more customers opt for meters and the conclusion in the Walker review that property values are a poor proxy for identifying those most likely to face difficulties affording their bills. Companies will need to work closely with their customers in designing social tariffs so that they reflect local circumstances and local views, considering who should be eligible for help and how much cross subsidy would be acceptable.

5.8 We will publish final guidance to companies on social tariffs early in 2012. This will give companies time to design schemes and consult with their customers to introduce tariffs from April 2013 where they choose to do so. The Government welcomes the commitment from Water UK that companies will develop social tariffs, and looks forward to the early introduction of such schemes.

5.9 Some water companies have expressed a wish to be able to access Government data on customers in receipt of benefits to help them target their social tariffs. However, 60 per cent of households with affordability problems do not receive means-tested benefits. Customers on benefits are at high risk of not being able to afford their bills, with over half of those customers spending more than 3 per cent of their income on water and sewerage bills and one fifth spending more than 5 per cent of their income. We will continue to work with the water industry in their development of social tariffs, including by making information available, wherever this is legal and feasible. However, Government takes the security of sensitive data (such as that held on benefits recipients) extremely seriously and the circumstances in which any personal data may be shared are very limited and tightly controlled by law.

WaterSure

Low income metered customers with a high essential use of water already receive support through the Government's national WaterSure tariff. This caps the bills of metered households in receipt of a qualifying means-tested benefit at the average bill for their company if the household either has three or more children living at home under 19 or somebody in the house who has a medical condition which necessitates a high use of water. The cost is met by other water customers at company level who provide a cross subsidy to qualifying households.

In 2010-11, 45,336 households in England benefitted from the WaterSure scheme. Around 40 per cent of those qualified for medical reasons and 60 per cent by having 3 or more children. These customers benefit from an average discount of £120 for water and £125 for sewerage, paid for through an average cross subsidy of 35 pence per non-eligible household.

5.10 The consultation on options for addressing affordability challenges also explored the potential for providing additional support for vulnerable customers through enhancements to the WaterSure tariff. In their responses to the consultation several key stakeholders emphasised that WaterSure only helps some of those households with affordability problems, and that a number of potentially vulnerable groups, such as pensioners or lone parents, are not eligible. Some water companies also

raised concerns that changes to WaterSure would impose additional levels of cross subsidy on non-eligible customers and would consequently limit the ability of companies to design the most locally appropriate social tariffs in consultation with their customers.

5.11 We have therefore decided to focus on enabling water companies to offer support to the full range of customers at risk of affordability problems through their social tariffs. We want to see water companies bringing forward the most generous package possible, based on consultation with their customers and an understanding of the particular affordability issues in their area. To support this, Government will ensure that water companies have the freedom to use their social tariffs to offer a more generous discount to WaterSure customers than the cap mandated by the existing scheme. Where companies design a social tariff that offers equal or better terms to their WaterSure customers, they will be allowed to incorporate WaterSure within the social tariff. This will simplify the administration of the scheme and improve transparency about levels of cross subsidy between groups. We will amend the Vulnerable Groups Regulations so that these changes can be introduced from April 2013.

Keeping bills affordable

The Government recognises that rising household bills are a concern to many people and, together with Ofwat, keeps the cost of water bills under review. The current average combined water and sewerage bill is £356. This will rise in future. The level of increase will depend on a range of factors including efficiency and innovation, how companies meet regulatory requirements, the need to improve water quality and the challenges of meeting changing supply and demand. Modelling based on a range of different scenarios shows that by 2030 bills may increase by an average of approximately 14 per cent, which is below the expected increase in the rate of inflation. The reforms stemming from this White Paper will increase competition and innovation in the market, and drive cost-effective responses to future water resource challenges to limit the impact on customers' bills. We will work with Ofwat, the Environment Agency and the Drinking Water Inspectorate over the next two years to develop tools for estimating the likely impact of policies on water bills.

Affordability and metering

5.12 Traditionally water charges have been linked to property values, enabling cross subsidy, which has helped to protect some lower income households. However, the Walker review demonstrated that the rateable value charging regime did not target cross subsidy effectively at those on the lowest incomes, and that the cross subsidy was unwinding as the number of households opting to switch to a water meter increased. Over a third of households are on a meter already, which will rise to over half by 2015 as households continue to switch voluntarily to meters and several water companies in water stressed areas roll out metering programmes.

5.13 Metering can have advantages for customers and help tackle affordability. It is a fair way of charging for water because metered customers pay only for the water that they use. Metering also provides a direct incentive to reduce water usage, which can help to reduce a household's bills and control prices for all customers by reducing the need for investment in new water supply infrastructure. Meters can also help identify leakage in customers' and water companies' pipes.

5.14 Many householders who would benefit from switching to a meter are unaware of the savings they could make or do not act on that information. Evidence from Ofwat²⁶ suggests single adults and pensioners are at high risk of water affordability problems, and these are groups who might be most likely to benefit from opting for a meter, but may choose not to because of concerns about the uncertainty of future bills. Water companies can overcome this by explaining likely benefits, making sure that customers at risk of affordability problems are on a suitable payment plan and by demonstrating a sample bill.

5.15 Whilst many households would receive lower bills if they opted for a meter, others, particularly large households in properties with low rateable values, would be likely to see their bills increase to reflect their actual water consumption. As levels of metering increase over time, water companies will need to support households that have traditionally been protected by the cross subsidy in charges based on rateable value. The new flexibility to introduce social tariffs will be a valuable tool for addressing these problems.

5.16 Government wants water companies to do more to actively promote metering to those who would benefit, and to make switching as simple as possible for those who choose to do so. This should form part of wider programmes designed to help those with affordability problems and link to advice on water efficiency. Trusted third parties, such as environmental groups and those working with older people, and agencies like Citizens Advice can also advise on the benefits of metering as part of their own work.

5.17 Government expects water companies who choose to roll out metering programmes to handle the transition extremely carefully, working closely with customers to explain the purpose of the metering programme; and ensuring transitional tariffs are in place to cushion the transfer to the new system. From 2013, companies will also have the option to support this with a well-targeted social tariff, coupled with packages of advice and other help for vulnerable and low income customers who may struggle to pay their bills.

²⁶ *Affordable for all: How can we help those who struggle to pay their water bills?* Ofwat (2011)
http://www.ofwat.gov.uk/future/customers/metering/affordability/prs_inf_afford.pdf

Southern Water's universal metering roll out

Southern Water is installing water meters for half a million households by 2015. Before the installation began, Southern Water launched a wide-scale newspaper, radio and online advertising campaign to raise awareness of the metering programme, explaining how the south east was under water stress and offering top tips for customers to "Save Water, Save Energy, Save Money".

Southern Water held briefing meetings with local councils and community organisations including Age UK, Citizens Advice Bureaux and Neighbourhood Watch.

Customers are alerted via signs on lamp posts, and information packs about their new water meter and bills and the support available to them are hand delivered before the meter is installed giving customers an opportunity to ask questions. Customer Information Points are also parked in the street and advisors answer questions, give advice on water and energy savings and offer free water saving devices.

More than 100,000 customers are being offered an enhanced service: a home visit to discuss bills, a free water and energy audit with water saving devices and a free consultation with *Income Max* who offer a financial assessment and advice on benefits and grants. This also includes advice on support tariffs for water bills.

Southern Water has agreed two tariffs with Ofwat following customer workshops. All customers can opt for the Changeover Tariff which takes them from rateable value to metered charges over three years. Customers whose bills go up on metered charges and who cannot afford to pay a higher bill can go on the Support Tariff and have their bills capped at rateable value. Citizens Advice Bureaux act as an independent arbitrator for the tariff.

Six months after switch over customers receive their first metered bill and information on ways to pay their bill and to save water, energy and money. New bills are colour-coded – a green bill means their water use has gone down and a purple bill shows that water use has increased.

Working in partnership with Waterwise and the Energy Saving Trust, the company has developed tools to provide practical information to help customers save: an interactive website; 'how to' films for installing water saving devices and discount vouchers for B&Q.

Bad debt

5.18 Bad debt adds an average of £15 to all customers' bills. Reducing the cost of bad debt would help lower bills, benefitting those households that are struggling to afford their charges. Bad debt is a particular problem in the water sector because households cannot be disconnected if they do not pay. Occupiers of properties are liable for water charges but cannot be legally required to pass their details to water companies. It is difficult for water companies to pursue debtors from rented properties as there is no obligation on landlords to pass on the names of the occupiers of a property and no way of pursuing unnamed debtors.

5.19 Water companies are already taking action to tackle the problem and reduce everyone's bills. All companies have debt codes of practice and the industry, through Water UK, shares good practice. Water UK has also developed a new web portal for launch in 2012 so that landlords can quickly and

easily enter the details of tenants in their properties and submit these to water companies. The most successful companies have strategies for identifying occupiers so they can be billed, for example through recording details from landlords, using credit agency data to identify occupants and visits by field officers to properties. Ofwat's proposal for a separate retail price limit will increase the incentive on companies to address bad debt.

5.20 The Government will consult on different approaches to helping water companies access occupier details. The consultation will consider the role regulation could play through implementation of the provision in the Flood and Water Management Act 2010 which would require all property owners to provide the details of their tenants to water and sewerage companies or to assume liability for bill payment. The consultation will also consider whether non-regulatory alternatives could deliver similar or better outcomes in view of the Government's commitment to minimising the burden of regulation wherever possible. **We will take a decision on the way forward next year in the light of the evidence gathered from this consultation.**

5.21 Debt problems can often be linked to customers' ability to pay. Support for struggling households and affordability measures should help reduce levels of bad debt. Many water companies already use credit referencing and contact with customers to assess who cannot and who will not pay. They can then actively pursue those they believe are choosing not to pay and offer support and advice to those struggling to do so. Where a company introduces a social tariff it will be able to extend this support, and work in partnership with independent agencies who can provide holistic debt, benefits, affordability and efficiency advice.

Reducing high household bills in the south west

5.22 Households in the south west of England face the highest water bills in the country because of decisions that were taken when the water industry was privatised in the late 1980s. At privatisation the network of water and sewerage pipes and other capital assets was less well developed in the south west than in other regions. Since then South West Water has had to invest around £2 billion to raise sewerage standards to the same standards as the rest of country. Customers in the south west have had to pay for this investment through their water bills, and the cost has been high because there are a relatively low number of households in the region and high proportion of customers are rural, making it relatively expensive to serve them.

5.23 The Government believes the circumstances faced by customers of South West Water are exceptional, and that in order to deal with this historic problem it should contribute to the cost of reducing bills. **We have therefore decided to fund South West Water to enable it to cut bills by £50 per year for all household customers until at least the end of the next spending review period.** This payment will be made transparently so it can be clearly demonstrated that all the benefit from this payment is passed through to customers. **The Government will legislate to enable bills to be reduced from April 2013.** As with other water companies, it will be for South West Water to consult with its customers on whether to introduce a social tariff to target those in the region facing the greatest affordability problems.

Reforming the market for business customers

5.24 The case for reform of the water industry to develop a more vibrant and competitive market was set out in Martin Cave's report to Government: *Competition and Innovation in Water Markets*. While recognising the successes of the sector since privatisation, he concluded that change was needed to deliver higher levels of customer service and tackle the challenges facing the industry. He recommended a package of changes to increase competition and bring new approaches and ways of working to the sector.

5.25 This White Paper responds to the recommendation in the Ofwat review that Government should provide greater clarity to the sector on its plans for the extension of competition. It sets out our plans for reform, building on the strengths of the current industry structure and regulatory regime and reflecting the Cave review's recommendation that change should be evolutionary and introduced step by step. We have decided not to introduce fundamental structural change to the industry such as through requiring legal separation of companies' retail operations. We do not want to take risks with a successful model given the challenges we face in building the resilience of the sector. The water and sewerage sector has proved attractive to investors looking for reliable, low risk returns, with its stable regulatory system a key factor in building confidence; we have heard persuasive arguments that mandating structural change would undermine this confidence. We know that the level of investment required in the coming decades will continue to be significant, and that the market for capital is becoming increasingly competitive. We want to preserve the features of the current regime which have proved so attractive to investors. Attracting new equity investors will help reduce the risks around the financing of the sector given its heavy dependence on debt financing. Ensuring the sector remains an attractive prospect for investors will enable water companies to deliver continued investment at costs that customers will find acceptable.

5.26 We also want to maintain other strengths of the existing regime. This structure has delivered benefits for customers and the environment. Water companies take ownership of provision of wholesome drinking water from source to tap, and have real strengths in long-term resource planning, as well as being connected to their end customers. These skills will be essential in building resilience for the future.

5.27 However, there are features of the industry where change is needed and where we believe there are gains to be had from increased competition. The Government's objective is therefore to capture and build on the strengths of the existing regime, and introduce evolutionary reforms which will strengthen the water sector's ability to respond to the challenges of the future, and improve the deal it offers to its customers. This package of reforms is also designed to drive innovative and less risk-averse behaviour in the sector; stimulate water companies to find more cost-effective solutions and minimise costs to customers; and make the market more attractive to new entrants by removing regulatory barriers and burdens.

Developing a retail market for water

5.28 The Water Act 2003 put in place a framework for a limited retail market for water, enabling very large water customers to switch suppliers and new players to enter the market. The regime has not worked well. Restricting the ability to switch – to very large water users – has meant the competitive market is too small to develop effectively. Barriers in legislation make the market unattractive to new entrants and have frustrated customers that want to switch suppliers. Only one customer has changed suppliers in six years.

Competition regimes in the Water Sector

Non-household customers in England with premises that use 50 million litres of water or more a year can replace their local water and sewerage company with an alternative supplier under the so called “inset regime” or “new appointments and variations regime”. These suppliers can purchase a bulk supply or use their own resources. An example of this is an arrangement to manage the water supply of a Kodak site in Harrow where various water companies have been appointed over the years to manage the borehole serving the site.

Non-household customers with premises in England and Wales that use 50 million litres or more of water a year can also switch to a new water supplier under the “water supply licensing regime”. However, they cannot currently switch their sewerage provider. To date just one customer has switched supplier.

The inset regime also allows developers of greenfield sites to choose an alternative supplier to lay down water and sewerage infrastructure and to stay on as the local water company. These new entrant suppliers often also provide the developers with energy and telecoms infrastructure too. Albion Water secured an inset appointment to provide sewerage services to Knowle village in which it not only set prices below that of the local water company, but maximised the use of existing assets, minimised the carbon footprint and enhanced the site’s biodiversity.

5.29 In Scotland an alternative regulatory regime has seen around 42 per cent of the market renegotiating the terms of their supplies – receiving either better prices or more tailored levels of service, and in many cases both. The competitive pressure from a functioning retail market has encouraged the existing supplier to offer better services to its customers in order to keep their business, allowed customers to negotiate improved terms, and led to improvements in water efficiency. The Scottish public sector is set to save around £20 million over three years from collectively tendering its water and sewerage services.

5.30 The Scottish experience has demonstrated the range of benefits business and public sector customers can get from more customer focused suppliers with an incentive to improve the services they offer. While some have simply looked to reduce their bills through simple measures such as discounts for direct debits or aggregated purchasing; others have benefitted from improved information on their water use which has enabled them to benchmark against others and introduce changes which cut operating costs significantly. Other organisations have been helped by their retail supplier to introduce more innovative measures such as rainwater harvesting.

5.31 We want to see the market develop so that water suppliers work with their business and public sector customers in England to get the benefits from a competitive market that Scottish customers already enjoy. Customers want to be able to manage their water and sewerage costs in the same way that they manage other utilities, choosing their supplier (including a single supplier country wide), specifying services that are tailored to their needs, and cutting their costs. The current arrangements are a burden on companies, increase their costs and limit their ability to become more efficient and grow. For example, recent research²⁷ cites an example where one multi-site customer’s costs for handling 4,000 paper bills could be reduced by £80,000 or more a year if it was to receive one electronic bill.

27 <http://www.policyexchange.org.uk/publications/publication.cgi?id=247>

5.32 Taking an evolutionary approach to reform, the Government will introduce deregulatory legislative changes to make the existing competition regime work more effectively. This will increase competition in the market for water and sewerage customers and expand opportunities for innovative new entrants to enter the market. Market entry is needed to bring in new players and new ideas, and as a spur for existing companies to rethink their service offer to customers. It will also help shift the focus of companies from the requirements of the regulator to their customers, a problem highlighted by the Ofwat review. While our reform package focuses on competition in the business market, domestic customers may benefit as well. Water companies will need to become more customer focused and develop new skills to compete in the new retail market. Offering a range of tariffs and service packages should become part of their core business. They will also be incentivised to increase the efficiency of their retail operations if Ofwat implement the separate retail price limit proposed in their Future Price Limits consultation.

5.33 We will not introduce changes that risk unsettling investor confidence in the stability of the water sector, particularly at a time when new investment will be essential and as competition for capital gets tougher. The water sector must remain an attractive prospect for long-term investors if the cost of capital, and the cost to customers, is to remain affordable. It must also remain able to deliver key Government objectives on future resilience and support for customers to improve their water efficiency and tackle affordability.

5.34 The Government has therefore decided not to take forward the proposal for separation of the retail businesses of water companies that was proposed by the Cave review. In view of the challenges facing the sector over coming decades, we are adopting an evolutionary approach to reform which seeks to deliver benefits from increased competition while minimising costs to business and avoiding the risks and uncertainties linked to options involving separation. We believe that a healthy competitive market in the water sector can be achieved without mandating separation of these businesses, and will instead reform the existing Water Supply Licensing (WSL) and inset regimes to deliver change in a lower risk way. Nor do we believe there is a case in the foreseeable future for opening up the household market to competition. We will introduce legislation at the first opportunity to implement these reforms.

5.35 As a first step to reform, we have expanded the size of the market by increasing the number of business and public sector customers able to switch suppliers. We have introduced legislation to increase the size of the WSL market by lowering the water consumption threshold to five million litres per annum from the current threshold of 50 million litres. As a result, the number of customers able to choose their water supplier, cut their costs and get the service they want will have increased by the end of this year from around 2,200 to 26,000. **We will then deregulate further in a future Water Bill by reducing the threshold to zero so that any non-household customer can tender their water and sewerage services.** The Welsh Government has confirmed that their current switching threshold shall remain the same.

5.36 We plan to establish a new market for retail water and sewerage services in partnership with the Scottish Government. This will enable Ofwat and the Water Industry Commission for Scotland to mutually recognise each others' licensees, removing the need to be licensed by two separate regulators; share information; and produce joint market codes. Licensed water and sewerage suppliers will be able to compete for customers across England and Scotland (and eligible non-household water supply customers in Wales), and customers will be able to contract with a single supplier for operations across most of the country.

5.37 Meaningful choice is only likely to develop with the entry of new market players. We will make it easier for businesses to enter both the WSL and inset markets. **A future Water Bill will introduce a new, regulated approach to market entry and remove the need for a new entrant to negotiate terms with each of the 21 incumbent water companies across England, which has acted as a major barrier to entry. We will remove the requirement for retail licensees to set up ring-fenced limited companies to qualify for a licence, enabling new entrants licensed in Scotland to enter the market without setting up a new company, and other utility or service providers to be able to apply for a licence to enter the water market.**

5.38 We will also legislate for the first time for Ofwat, together with other regulators and market participants, to establish statutory market codes to increase transparency and set clear rules and timetables to help the new competitive markets run more effectively and efficiently. These documents will clearly set out the rights, roles, duties and responsibilities of all market participants, Ofwat, the Drinking Water Inspectorate and Environment Agency. Standard terms and conditions, such as template contracts, will remove uncertainty, make customer switching simpler and be enforceable by Ofwat.

5.39 We will make it more attractive for customers to consider switching their suppliers by using a future Water Bill to extend the WSL regime to sewerage services. This will enable customers to tender for water and sewerage services at the same time, and choose to deal with a single or multiple suppliers. It may be particularly helpful in those parts of the country where customers receive separate bills for water and sewerage. Extending the scope of WSL could also stimulate a market for recycled water as an alternative to that produced to drinking water quality and provide opportunities for new entrants to offer alternative treatment and disposal services for wastewater and sewage sludge.

5.40 Large multi-site businesses, such as retail chains, would like to deal with a single supplier for all their water and sewerage needs and significantly reduce their administrative costs. The current in-area trading ban prevents a licensee set up by an existing water company from supplying water in the area covered by its parent or associate company, which means they cannot offer the joined up national service that multi-site customers want, while new entrant licensed suppliers are free to do so. **We will legislate to remove the in-area trading ban and put all market players on a level footing.**

5.41 We will work with Ofwat to reform the wholesale access pricing regime to allow for efficient market entry. This reform will preserve the ability of integrated water companies operating their business in an efficient manner to earn an appropriate return on their assets, so that investor confidence is fully maintained. Increasing transparency in wholesale charges will make it more attractive for businesses to enter the water and sewerage market and sharply reduce the risk of discriminatory pricing. The current wholesale access pricing arrangements are governed by the costs principle²⁸, which has been widely criticised as anti-competitive and giving little incentive to incumbent water companies to become more efficient. **We will use a future Water Bill to remove the costs principle from legislation and instead introduce a transparent wholesale access pricing regime that will allow efficient entry by new entrants.** This approach will be reinforced by Ofwat's proposals to introduce a separate wholesale price control as part of its Future Price Limits work.

²⁸ The costs principle is set out in the Water Industry Act 1991, as amended by the Water Act 2003.

5.42 We will introduce a similar transparent wholesale charging mechanism for the inset regime where developers choose a new entrant to be the water company for a new development. The WSL charging regime will also include a right for new entrants to negotiate discounts for non-household customers that reduce pressure on networks, for example through investing in a sustainable drainage solution that reduces discharges into the public sewer system.

5.43 We will also introduce a “self-supply” licence which will enable suitably qualified customers to become their own new entrant, buy water direct at wholesale prices and reduce the need to use a retail licensee as a middleman. This has been an attractive route for some businesses in other utility markets, for example in the postal sector where businesses with large postal needs are able to supply mail further downstream at lower cost, and we expect some businesses to see this as a chance to cut costs and increase efficiency in management of their water services.

Ensuring fair and competitive markets

5.44 The retail market for water and sewerage services will remain a regulated market. Ofwat will need to use its licence or concurrent competition powers smartly, to prevent incumbent companies from discriminating against new entrants either through the prices they charge for wholesale water supply or by other non-price forms of anti-competitive behaviour. The Government would expect Ofwat or the Office of Fair trading to take firm action where there is evidence of discriminatory pricing or behaviour, and will shortly announce proposals for improving the way concurrent competition powers are used by the competition authorities.

5.45 The development of the market will need to be monitored carefully. Forcing companies to separate and sell their retail businesses is ultimately the only way of removing risks of discrimination. However, the Government does not believe that the risks associated with such a forced restructuring of companies are acceptable. We do not believe that retail separation is essential for the growth of a healthy competitive market, and we recognise the other challenges water companies are facing during the next price review period and beyond. Any other approach to retail competition, whether through legal separation of retailers or the approach Government proposes based around reform of the WSL regime, will require Ofwat to introduce safeguards and monitor market activity closely. Ofwat already has some of the tools in place, with its approach to accounting separation improving the information available on the costs of different elements of companies’ operations. The reforms to increase charging transparency will also help ensure fair access to the market.

Increasing upstream competition

5.46 We also want to encourage new entrants who may have raw or treated water that they wish to sell into an incumbents’ network at a lower cost than that for developing new supplies, or who may have new and innovative ways of treating and disposing of sewage, to be able to do so under the WSL regime. This will help stimulate a more vibrant wholesale market for alternative water resources and sewerage services, and incentivise incumbent water companies to look at alternatives to expensive capital projects in meeting future demand. The WSL regime should also allow new entrants to offer specialised services to other new entrants, as well as their own customers.

5.47 We will unbundle the combined WSL licence so that a new entrant wishing to provide upstream water supply services, such as inputting its own water resources into a water company's system, will no longer be obliged to provide retail services to its customers. Currently holders of combined licences are required to provide both retail and upstream services. This change will therefore enable all new entrants to specialise in the services they wish to provide to customers. For example, those with their own water resources will be able to concentrate their efforts on wholesale activities and leave the provision of retail services to other new entrants better placed to provide such services.

5.48 In part, because water resources tend to be more limited in water stressed areas of the country where the cost of developing new resources is highest, large users of water have had little choice but to go to incumbent water companies for their supplies. The proposals we set out in chapters 2 and 3 to increase water and abstraction trading will help new entrants to identify new and cheaper water resources to support upstream competition.

5.49 To maximise opportunities for new entrants to provide efficient and innovative wholesale water supply, we will extend their access rights to the water companies' treatment and storage systems rather than just the mains and pipes. This will allow alternative suppliers, such as landowners or farmers with spare water, to input water into any part of the network (for example, directly into a reservoir) to supply new entrants or their own customers. **We will also introduce a network licence to enable new entrants to own and operate their own infrastructure (mains, pipes, storage and treatment) which is connected to an incumbent's network and used to provide water supply and sewerage services to its own customers and other new entrants. In doing this, we will also strengthen the role that the Drinking Water Inspectorate has in approving new entrants before they are issued a water supply licence by Ofwat. We will also give the Environment Agency a similar role in relation to new sewerage licences.**

5.50 The inset regime has been successful in bringing new and innovative entrants into the water market. Developers have choice around the supplier of water and sewerage infrastructure for new developments, but are frustrated about the time it can take to negotiate terms for an alternative supplier to obtain the necessary connections and negotiate the terms of bulk water supplies and sewerage services with the incumbent water companies. As with WSL, **we will introduce a requirement for Ofwat to produce statutory market codes and regulated wholesale charges to make this market work more effectively.**

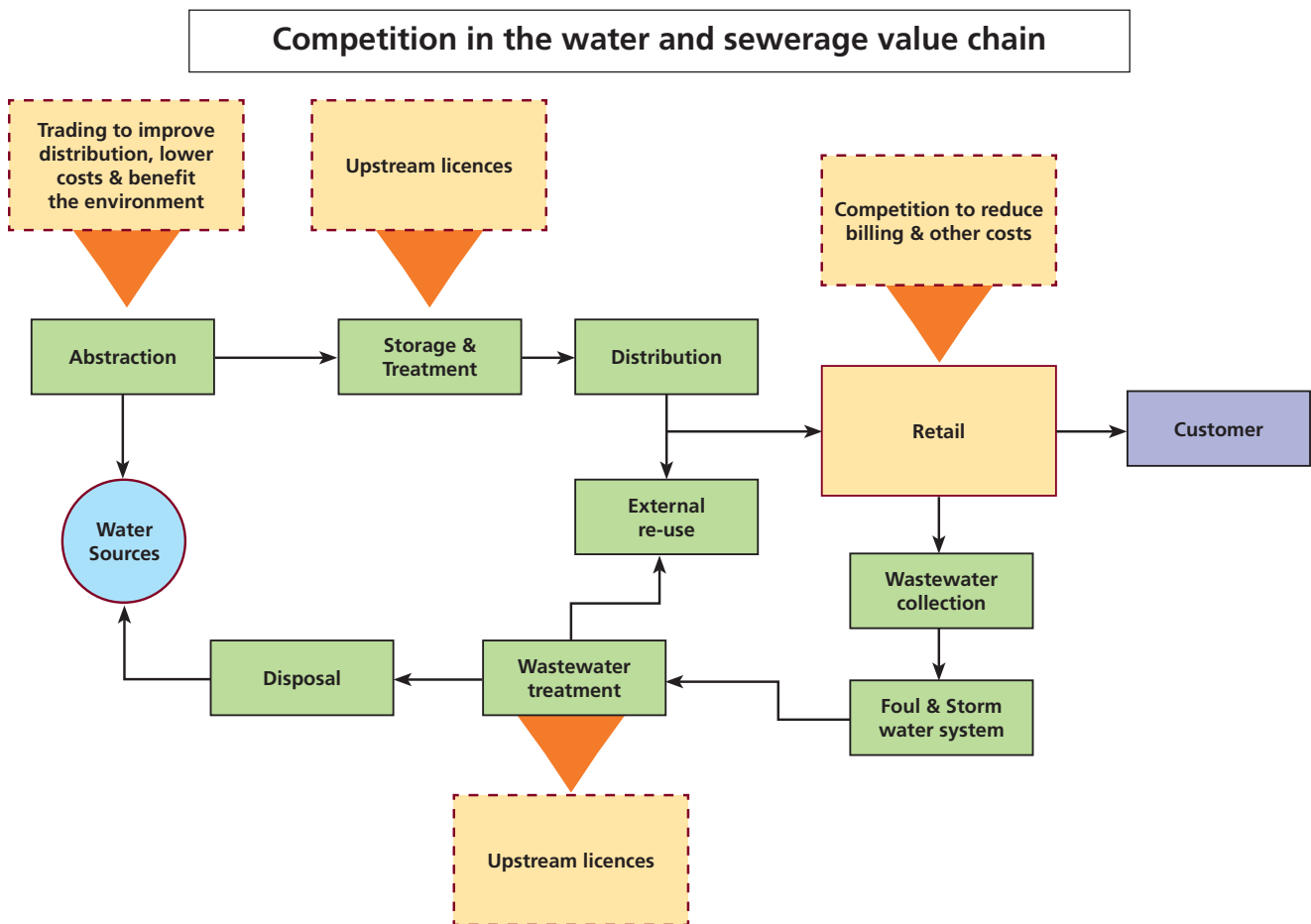


Figure x This diagram shows the water and sewerage supply chains and the points at which competitive pressure will be applied under our market reform proposals.

Reforming the special merger regime

5.51 In most sectors, companies are generally free to merge and acquire one another unless serious competition concerns arise. This can be a strong driver for improving the efficiency of companies, leading to improved service and lower costs that can be passed on to customers. The water sector is one of a few sectors that has a special merger regime, under which a merger needs to be referred to the Competition Commission if the turnover of the acquiring or acquired water company exceeds a threshold of £10 million. This reduces the likelihood of any potential mergers between water companies and the scope for water companies to be taken over by more efficient operators and any benefits that might be derived from this.

5.52 The purpose of this regime is to protect the way Ofwat regulates the water companies. Ofwat identifies the best performing water company for certain activities and requires the other water companies to improve to meet its level of performance. Mergers obviously reduce the number of comparators available.

5.53 Ofwat's recent Future Price Limits consultation noted that the effectiveness of the existing comparative regulation approach may be diminishing. The Cave review noted that other regulatory authorities used alternative approaches to support a comparative regulatory approach. Adopting such an approach would allow for the loosening of the merger regime. **We are strongly minded to use a**

future Water Bill to reform this regime, but will be consulting further with water companies and others to inform a decision on a higher £70 million threshold to exclude more mergers from automatic referral to the Competition Commission. There is also a strong case for reducing uncertainty and burdens around mergers that meet the threshold referral test and **we intend to use a future Water Bill to introduce a two-tier referral system, allowing water companies seeking to take over another water company to make undertakings in lieu of an expensive referral to the Competition Commission;** these might include continuing with separate price controls or divesting part of the business.

The role of Ofwat in supporting competition

5.54 Successful delivery of the Government's objectives for increasing competition in the water sector is only possible if the reform package set out in this White Paper follows through into Ofwat's regulation of the water sector. Ofwat's proposals in its Future Price Limits consultation would complement this package by increasing incentives for companies to consider the customer facing end of their business by introducing a separate retail price limit, while the network plus sub-limit they propose within the wholesale price cap would increase the transparency around upstream access prices. Ofwat's monitoring and regulation of the new expanded retail market for business customers will also be critical to ensuring fair and transparent access for new entrants.

5.55 Government's strategic policy statement to Ofwat will reinforce the strong steer in this White Paper on the Government's objectives on competition, and how these should be balanced against the priorities of maintaining a stable regulatory environment attractive to investors and the strengths of the current industry structure.

Licence reform

5.56 During the Ofwat review it became clear that there are several differences between existing water company licences; and that many contain archaic language and would benefit from modernisation to ensure that they are clear and transparent. Ofwat is undertaking a project on modernising the licences in partnership with the water industry to bring them in line with modern drafting practices. Modernisation of the licences also provides an opportunity to address other issues raised through the Ofwat review; such as the need to ensure better standards of service for housing developers and landowners. In order to facilitate the process of keeping the licences up to date and to ensure that they continue to promote the best outcomes for customers the Ofwat review recommended that once licences are standardised, legislation should be amended to enable changes to the licence to be agreed by a qualified majority of companies. The Government is working with Ofwat to explore the case for such changes and will continue to support Ofwat and the industry in this work.

Protecting customers

5.57 The Consumer Council for Water (CCWater) is the organisation which currently represents water and sewerage customers in England and Wales. It represents the views of customers to Government, the regulators and water companies, playing a particularly important role during the price review. It also handles complaints about water companies where customers are not satisfied with a company's response.

5.58 As part of the wider review of arm's length bodies, Defra and the Welsh Government asked David Gray to consider how effective the current arrangements were in protecting water consumers and ensuring that their views influence the way the water sector is managed and regulated. After his review began, the Government announced its intention to make changes to the institutional landscape for consumer representation, while leaving open the question of whether sectoral bodies, such as CCWater would be covered by this change. For the water sector, the proposal would mean transferring the consumer advocacy and complaint handling functions to Citizens Advice and requiring water companies to set up a water ombudsman scheme for resolving customers' complaints.

5.59 David Gray's final report supported the retention of CCWater, recognising that there were risks in making substantial changes to the approach to consumer representation in the water sector at a time when significant changes to the regulatory arrangements, such as Ofwat's Future Price Limits proposals, are being considered.

5.60 The Government believes that in principle there would be benefits for consumers in a single body, with strong brand recognition and extensive customer reach, representing them in all regulated sectors. However, it shares David Gray's concerns around the timing of any change in relation to the next price review. Defra and the Welsh Government will therefore maintain the role of CCWater to 2014. Before that, the UK Government will further consider the benefits of moving CCWater to a new single consumer body with any change taking place after the price review. Considerations will also include how this move could be made in a way that would retain CCWater's expertise and deliver improved outcomes for customers. Leading up to 2014, CCWater will be asked to explore how they could join up more closely with Consumer Focus and Citizens Advice on cross-cutting areas of interest, such as reducing the level of customer debt. CCWater will also be asked to take forward the efficiency savings it has identified. The Welsh Government intends to retain CCWater to provide a clear focus for the interests of water customers in Wales.

5.61 We must ensure that the expansion of competitive markets does not create problems for non-household customers that decide to switch suppliers. Ofwat's proposals to set default tariffs for charges to non-household customers and our proposal to legislate to require Ofwat to produce the first statutory code of practice on mis-selling for a utility market will, in particular, protect small and medium sized businesses from becoming less competitive because of a decision to switch suppliers. As with other sectors, we will introduce mandatory "cooling-off" periods for those customers that consider switching suppliers, but subsequently change their mind.

5.62 Guaranteed service standards ensure that all customers receive a minimum acceptable standard of service. We will require all licensed water suppliers and new entrant sewerage service providers to meet these standards, but we expect increased competition to incentivise all players in the market to provide higher levels of customer standards than those laid down by Government.

5.63 **We will legislate in a future Water Bill to improve the statutory enforcement regime so that Ofwat has the powers it needs to gather information from water companies about compliance with these guaranteed standards of service. We will also allow financial penalties to be applied for infringements over a five year period as opposed to one year as is currently the case.** This will allow Ofwat to investigate potential breaches discovered in the course of gathering annual performance information and remove the incentive for water companies to delay reporting infringements.

Supporting developers

5.64 Development is central to this Government's agenda for stimulating economic growth. Getting access to water and sewerage infrastructure is essential for developments to proceed. Where developers' plans have reflected the concerns outlined in the previous chapter the Government wants to facilitate this access and ensure it is charged for equitably.

5.65 The Ofwat and Cave reviews looked at the issues housing developers faced in dealing with water and sewerage infrastructure and found areas in need of improvement. The reviews identified problems with the level of service that water and sewerage companies provide to developers, how developers are charged for connecting to water and sewerage infrastructure and the way Ofwat has handled disputed cases and complaints.

5.66 The Government agrees with the recommendations from both these reviews. **We want developers to receive much higher standards of service, and we will increase the transparency of the infrastructure and requisition charges they pay.**

5.67 We agree that water companies' licences should be modified to help improve the service that developers receive and would like to see this implemented quickly. This would enable Ofwat to take enforcement action when companies fail to meet Guaranteed Service Standards. We will support Ofwat in its discussions with water companies on introducing these changes and would expect water companies to work constructively with Ofwat on this approach.

5.68 **We will also introduce market codes and charging schemes for the inset regime to increase transparency and streamline negotiations around bulk supply and sewerage service arrangements for new building developments.** This will be of particular value to developers of greenfield sites.

5.69 The independent Penfold Review²⁹ into non-planning consents made a number of recommendations designed to reduce burdens on developers, in particular by improving the interaction between the planning and non-planning consent systems. The Review commended the Environmental Permitting Regulations (EPRs) as the basis for environmental permissions. The EPRs have been expanded over the past four years to encompass a wide range of related, but previously separate, Environment Agency and local authority consenting regimes, to deliver a flexible, risk-based single framework for business and others. Last month, the Government announced its intention to expand upon the Environmental Permit programme and add more consents into it. **We will include provisions in a future Water Bill to allow for the framework to be expanded to include water abstraction and impounding licensing, flood defence consents and fish pass approvals.**

²⁹ <http://www.bis.gov.uk/penfold>

6. Taking action



Key commitments:

Using water wisely

We must use water more efficiently and be careful to avoid pollution in using our drains. We will encourage and incentivise water efficiency measures, for example under the Green Deal. We will encourage voluntary water efficiency labelling to enable customers to choose more efficient products.

We will also collaborate on a campaign to save water and protect the environment, working with water companies, regulators and customers to raise awareness of the connection between how we use water and the quality of our rivers.

Delivering the White Paper

We will produce a new strategic policy statement for Ofwat and revise our social and environmental guidance to reflect the priorities in this White Paper. We will publish a draft Water Bill for pre-legislative scrutiny in early 2012 and introduce a Water Bill as soon as Parliamentary time allows.

6.1 In previous chapters we have discussed how water companies might use water more wisely, might plan and invest in new and refurbished infrastructure, respond to customers' wishes better through the threat of competition and protect the more vulnerable members of society unable to afford their water bills, while making those simply unwilling pay their share. But it cannot just be the water companies, their regulators and Government who act. We all have a responsibility to use our most precious of resources wisely.

6.2 If we do not play our part in reducing water demand, in reducing pollution in our rivers and streams, and in reducing the flood risk from surface run-off from our driveways and gardens, we pay. We pay as competing demands force the price of water up; we pay for the new infrastructure needed to supply water; we pay to repair damage from sewer and surface water flooding; and we pay for the treatment processes needed to clean our water to a drinkable standard. We also face other costs; we must find space for new reservoirs and our rivers and their wildlife will be under greater pressure.

6.3 So if we save water, reduce the pollution going down our drains and if we invest in sustainable drainage systems, we are not only helping society and the natural environment – we are helping ourselves.

6.4 This presents us with some hard choices. Building new infrastructure is expensive, and as water customers we will all pay for it through our bills. New reservoirs may well be opposed fiercely by the communities affected. If we use less water we reduce our need for new storage capacity and the costs we face. As a country we need to decide how to balance our need for water with protection of the environment, and reach a collective judgment on the resources and standards of supply we want – and are prepared to pay for – in the future. Currently, we build capacity in the system to try to meet peak demand in the summer and not have hosepipe bans when we want to water our gardens, fill pools and wash cars. Typically, most water companies plan for temporary restrictions once every 10-20 years. Maintaining these service standards will cost more than reducing our peak consumption of water or choosing to accept more frequent water restrictions.

6.5 The challenge is not just about using less water; it is about using water differently. We waste too much of our drinking water, treating it as a limitless resource. But many of the uses we have for water do not need it to be treated to such a high standard – over a third is flushed down our toilets or used outdoors. We can collect and recycle water ourselves, for example for watering our gardens. And we can design buildings in a different way so that they do not use high quality drinking water as a default.

Using water wisely

6.6 Lower levels of consumption are achievable. Average water consumption varies across the country, in some areas it is already lower than 130 litres per person per day while in others it is as high as over 160 litres per person per day. The reasons for this vary, including household type and average income, the extent to which households are charged on a metered basis for their water use, and the impact of work by water companies and others to reduce demand. Water use is often highest, for example, in relatively affluent areas where more homes have gardens.

Average water consumption in litres per person per day 2010-11

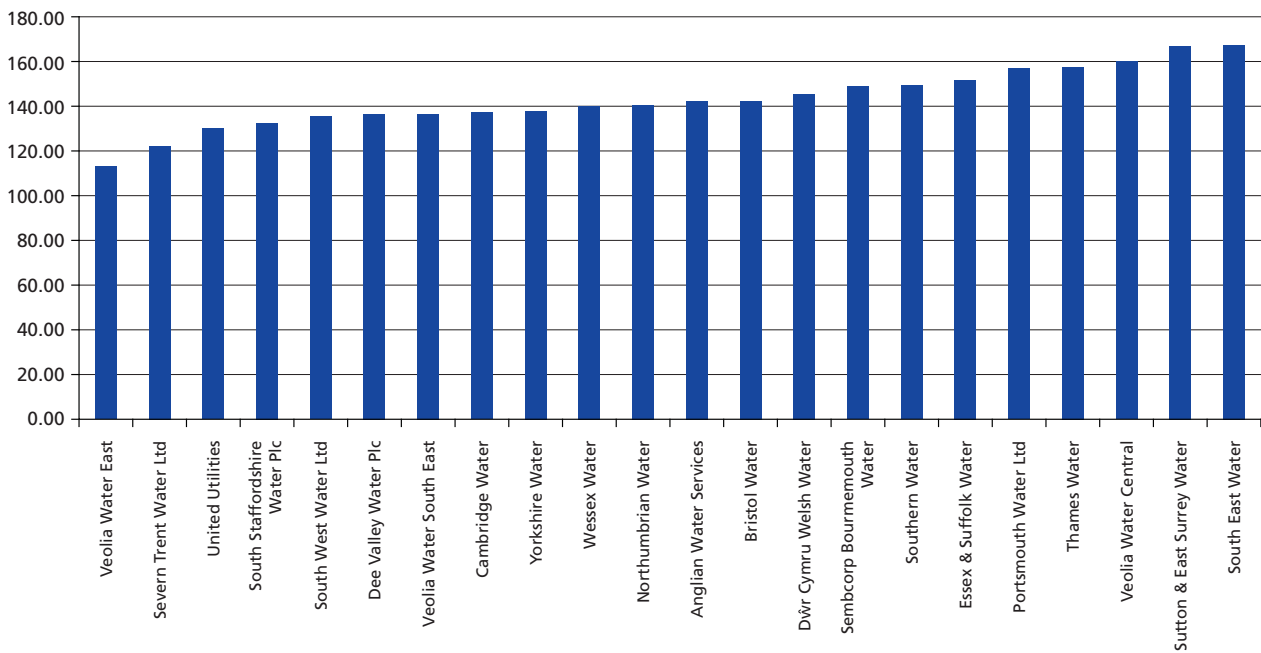


Figure xi

6.7 We know we can reduce water use by changing the way we use it, by choosing products which use less water, such as efficient showers, or by collecting rainwater to use in our gardens.

Using less water in the garden



© Thinkstock

In hot and dry weather, water used outdoors can amount to half of total UK usage. It is still possible, however, to have a beautiful and productive garden using less water:

Install a water butt

Thousands of litres of rainwater fall on the average roof every year. Putting a water butt in your garden is easy, and quite cheap. Many water companies sell reduced-price water butts. Check with your water company to see what they can offer.

Everyday watering tips

Use a watering can instead of a hose. If you do use a hose, use a trigger to control the flow. Watering early in the morning or late at night means less water evaporates.

Leave plants and shrubs dry until they show signs of wilting – watering too often can keep roots shallow and weaken plants.

Saving water while keeping your lawn healthy

Lawns are usually the thirstiest part of a garden. A sprinkler can use as much water in an hour as a family of four uses in one day. Infrequent soaks are more effective as they encourage roots to search for water deeper in the ground. Let the grass grow longer in dry spells to help keep moisture in the soil

Make use of greywater in the garden

You can use water left over from washing up, water used to wash the windows, or the car, as well as shower and sink water. But make sure it is cool and do not use bathwater on edible plants!

Plan a water-efficient garden

As the climate changes, so will the plants that do well in your garden. Some traditional plants may struggle with less water, you can keep your garden looking good by choosing drought-tolerant plants.

6.8 We often think saving water should be the responsibility of water companies and point to water lost through their leaking pipes. But in 2009-10, almost a quarter of water lost through leakage was lost in the pipes householders are responsible for which connect their properties to the water company mains. Metering makes it easier to identify these leaks so they can be quickly fixed. All water companies offer some degree of free or subsidised repair and replacement for domestic customers' supply pipes.

Quick tips for saving water in the home

In the bathroom

- Turn off the tap while brushing your teeth or shaving – a running tap wastes over 6 litres per minute.
- About a quarter of all the clean, drinkable water we use in our homes is flushed down the toilet. Buy a water efficient toilet or one with a dual flush, or put a hippo or other displacement device into your cistern to save some water. Throw cotton wool, sanitary products and other waste in the bin, not the toilet.
- A bath typically uses around 80 litres, while a short shower can use as little as a third of that. But beware as many power showers can use more.
- You can fit an aerated shower head, flow regulators or spray ends on your taps.

In the kitchen

- Fill a jug with tap water and leave it to cool in your fridge. This way you do not have to run the tap for ages just to get a cold drink.
- A dripping tap wastes at least 5,500 litres of water a year: that is enough water wasted to fill a paddling pool every week for the whole summer. Mending your dripping tap washer could save you over £18 a year.
- Wash your fruit and vegetables in a bowl rather than under a running tap.
- Check your dishwasher. Many dishwasher settings provide the same cleaning power as a normal cycle, but with less water and energy.

6.9 Programmes to improve existing buildings with new water efficient devices and sustainable drainage systems (retrofitting) can also include the provision of individually tailored advice on water efficiency. We welcome any initiatives in this area, as well as the creation of schemes which give confidence to customers about the competence and recognition of those carrying out the work.

Thinking more carefully about drainage

6.10 We also need to think more about our wastewater and drainage. Many of us are not aware that drains at the side of the roads, or rain water drainage from our homes, tends to drain directly into our rivers and streams. In some places this is having a serious environmental impact. We can also unknowingly pollute the environment from poorly maintained septic tanks or misconnected drains from our homes. And by putting fats, oil and grease down our drains we cause blockages and cost ourselves and other water customers' money.

6.11 Surface water flooding is an increasing problem in our communities, while we continue to face problems from combined foul and surface water sewers overflowing when it rains heavily. We will increase awareness among households and businesses of the benefits of retrofitting sustainable drainage systems (SuDS) to reduce this risk. We know that households are more likely to retrofit SuDS when making changes to their properties, for example replacing or laying a new paved driveway, building conservatories; landscaping; installing a new bathroom or rainwater down pipes or putting right misconnections. **We are working with the water industry and retailers to provide better information at point of sale to explain the benefits of SuDS and promote their use. This might include basic blueprints and templates for how to ensure that effective connections to drains and sewers are made, and how to choose and lay permeable paving. We will also foster a consortium of sustainable drainage ambassadors or champions, who can provide advice and information on the options available.**

Yellow Fish



A wide variety of pollutants end up in the surface water system in our towns and cities. These come from everyday actions: detergent from washing cars; waste from an oil change; or washing out paint brushes for example.

Many local issues can be solved through local action. The Yellow Fish Campaign involves a community group stencil painting yellow fish on to the drain grill and then raising awareness that these drains are designed to carry only rain water and that anything polluting that gets put in them will damage their local environment.

© Environment Agency

Changing attitudes to water

6.12 Our attitude to water – where it comes from, what it costs, and how we dispose of it – is too casual. It is causing problems now, damaging our rivers through over-abstraction and pollution and, without change, will cause much more significant problems in the future. Poor water quality is a social issue, not just an environmental one. People in disadvantaged areas are more likely to live in close proximity to more heavily polluted rivers. And the Natural Environment White Paper showed the benefits that connection with our natural environment can bring in terms of our health and well being.

6.13 If we are to deliver our vision for the future we must change the way we value water. This will not be easy or quick. It will require action across society. Government will play its part, but we will only succeed if this is supported by action by businesses, communities and organisations throughout the voluntary sector. We will not be starting from scratch. Action by groups such as Waterwise, WWF and Rivers Trusts has already shown how better information and practical help can galvanise support and deliver significant reductions in pollution and improvements in water efficiency. Building connections that matter to individuals is powerful – whether a connection to their water bill and opportunities to save money or to their local river. We need strong and consistent messages that speak to individuals, and to give them the tools that help them to make a difference.

Thames21



© Thames21

Thames21 is an environmental charity working with communities to clean up London's waterways. Thames21 aims to transform neglected and littered waterways into areas that everyone can use and enjoy. As well as continuing to tackle the hundreds of tonnes of litter in London's waterways, Thames21 is working to secure long-term change by working with thousands of Londoners and promoting respect for their local waterways.

The programme is supported by a wide range of funders. Most of the work is carried out by volunteers and the programme attracts around 9,000 volunteers per year. Only specialised work is carried out by contractors, such as non-native species removal.

The key is to make volunteering easy. The charity take responsibility for equipment, supervision, health and safety procedures, impact assessments and first aiders so that the volunteers just have to turn up on the day.

To take part and find out more go to www.thames21.org.uk

6.14 Not everyone will be easy to convince. Water is relatively cheap compared to many other household bills, and we want it to stay that way. But this means that financial incentives to cut water use are weak. Almost two-thirds of households do not have meters. Some water companies in areas of water stress are rolling out universal metering programmes, though half the households in the country will still not be metered by 2015. But water metering alone will not drive changes in behaviour, even when meters are installed, customers need to be supported with advice on reducing water use, and information on why it is important. Making the connection between our use of water, our local rivers, and the bills we pay now and in the future is critical.

6.15 The Government is already funding a number of projects to promote water efficiency, while organisations across the country are giving practical advice and help to householders. The *Plug-It* project, for example brings together plumbing installers, retail outlets, consumers, water companies, as well as designers to co-design, develop and test engagement processes to promote water efficient purchasing and behaviour.

6.16 Water companies, via the Water Efficiency Network, are developing a set of common messages on water efficiency. These focus on a range of household behaviours such as showering, washing and installing water efficient appliances.

6.17 **We will use the experience of the Water Efficiency Network, Plug-It and other successful projects, such as Waterwise's Tap into Savings work, to improve our understanding of what motivates individuals to adopt water efficient behaviours and the barriers to them doing so. This work will include developing and testing messages around why saving water is important and considering how these can be applied to encourage more water efficient behaviour.**

6.18 **We will also make our own contribution to a campaign to save water and protect the environment, working with water companies, regulators and customers to pass consistent messages and raise awareness of the connection between our water use and the quality of our rivers and the ecosystems they support, and to deliver lasting change in the way we use water.**

Incentives to save water

6.19 Water companies have other routes to encourage more efficient water use. Customers generally pay a flat rate for their water, even when metered. There is no incentive to reduce water use at the times when sources are under the greatest stress and the cost of water is highest. As meter penetration increases, companies could start to offer a greater variety of tariffs, incentivise greater reductions in water use and make charges fairer, for example by reducing costs for winter use and attaching a higher value to the most costly peak summer use. Reducing this peak load on the system will be critical if we are to reduce the need for investment in new infrastructure.

Seasonal Tariffs

We all tend to use more water in the summer when temperatures are higher and rainfall generally lower. This high summer demand has an effect on year-round water bills. Seasonal Tariffs are one way in which water companies can reflect the extra costs of summer water supply without setting the volumetric element at a high rate all year round. This can promote responsible water use in the summer without unduly penalising households which have to use a lot of water.

Wessex Water is in the third year of a seasonal tariff trial designed to manage both demand and affordability. In 2010 it found that overall consumption fell by 6 per cent when customers were charged more for every 1,000 litres used during the summer and less during the winter. This ensured that the average customer was no worse off. However, Wessex Water also found that whilst seasonal tariffs encouraged a step-change in water conservation, some customers assumed that the changes were motivated by a desire to increase profits rather than to conserve supplies. However, the prices charged by all water companies are regulated by Ofwat to ensure good value to customers. This means that they cannot increase their revenue by introducing new tariffs.

Green Deal

6.20 Being more efficient in our use of hot water also saves energy and reduces carbon emissions. The Government's "Green Deal" is a market mechanism designed to deliver energy efficiency improvements to the building stock, funded by private capital, at no up-front cost to the consumer. Hot water saving measures that also save energy may be eligible for finance through the Green Deal, enabling consumers to save money, save energy and save water at the same time. As both domestic and non-domestic properties will be eligible, Green Deal finance could also be available where, for example, businesses want to upgrade to more efficient hot water fittings.

6.21 The Green Deal is an opportunity to get targeted advice to households on steps they can take to improve the sustainability of their properties, including measures to improve water efficiency. The Government is working with industry and other stakeholders to develop water efficiency advice which will be available when a household or business is looking to find out more about the Green Deal or undergoing a Green Deal assessment. Water companies have an opportunity to promote water efficiency by working with Green Deal assessors who are visiting homes and workplaces.

Save Water Swindon

Save Water Swindon was launched in June 2010 as a partnership project between Thames Water, Waterwise and WWF. Swindon is in a water stressed area. Its water supply is abstracted from the Thames and a groundwater source that feeds the River Kennet. The River Kennet is one of England's iconic chalk streams, but also one of the most heavily abstracted rivers in the country. The project aims to build understanding of the connection between water use and the local water environment and encourage the community to use less water.

The target of the campaign is to reduce Swindon's demand for water by 20 litres per person per day. During the first year the campaign offered advice on water-saving behaviours, as well as free 'water saving home makeovers' (retrofits) or free water efficiency devices for residents to install themselves. Over 2,200 residents signed up to the 20 litre challenge in the first year and achieved savings of around 130,000 litres per day.

The next phase of the campaign will promote a whole town approach, looking along the water supply chain from its source to the point of discharge back to the environment. The project aims to make additional savings of 300,000 litres per day by the end of the second phase, which could save residents of Swindon £400,000 on water and energy bills.

Tap into Savings: Working in partnership to help communities save water, energy and money

The *Tap into Savings* programme was launched to help residents, including those in social housing, save water, energy and money. During 2010 and 2011, over 4,500 home visits were carried out in Surrey, West Midlands and Essex during which free water and energy efficiency devices were fitted and advice on making further savings given. More than 180 local residents worked in small EcoTeams, to take action in their homes on water, waste and energy.

The programme delivered average water savings of 40 litres per day per home visited (based on the devices installed). Nearly half of residents who had home visits went on to talk to their friends and family about saving water and energy.

Overall the programme saved more than 57 million litres of water per year and reduced emissions of climate changing gases by more than 185 tonnes of CO₂e annually. It was the first water efficiency programme to build in energy efficiency and recycling too.

For more information visit: www.waterwise.org.uk

Product labels and standards

6.22 Product labels that are clear, accurate and widely understood, can allow customers to make informed choices about the products they use in their homes, at the point of sale. Product labelling also enables the development of procurement standards which can be used to secure a stronger market for water efficient products.

6.23 There are a large number of different labels on water efficiency in use internationally, but no single approach to labelling in England. Some comparison between the water efficiency of products is possible through the information on water consumption on washing machines and dishwashers included on the EU energy efficiency label. A similar single A-G label specifically for water use would be likely to confuse consumers faced with two labels in the same format. However, there is some appetite across the EU for developing a distinct Europe-wide label reflecting the water efficiency of products.

6.24 Meanwhile, the development of the Bathroom Manufacturers Association's water efficiency labelling scheme could deliver the benefits of a mandatory scheme without the associated regulatory burden. Government is working with stakeholders to harmonise labels and standards to minimise confusion in the marketplace.

6.25 The Water Supply (Water Fittings) Regulations set standards for the amount of water used by key fittings, including WCs, urinals, baths, washing machines and dishwashers. We will consider the case for reviewing the Regulations, but are not convinced that this will provide an effective way of

supporting the uptake of the most water efficient fittings compared to changes in behaviour and the right overall economic and planning framework.

Water efficiency in the public sector

6.26 Government is committed to leading by example in the way we manage our own estate (our operations and procurement). In 2009-10 Government operations used 36 million m³ of water. In February we announced an ambitious package of commitments to cut our water use as well as our greenhouse gas emissions and waste, and to buy sustainable and efficient goods, while continuing to deliver value for money.

Water efficiency on the Government Estate

Thames Water is installing automatic water meter reading (AMR) equipment at various central Government buildings.

The AMR equipment is being installed as part of a project to:

- improve accuracy of billing in order to support Government departments' financial planning;
- identify quick win opportunities to reduce costs;
- identify waste for example customer leaks, in order to further reduce costs and support both Government and Thames Water sustainability programmes; and
- allow Thames Water to test the methodology for delivering an enhanced water management service to customers.

The AMR trial will operate for 12 months. The AMR equipment will provide on-line water use data that will be used to monitor against site specific benchmarks of daily consumption. Once these benchmarks have been established they will be used to identify opportunities for reducing the cost of water charges. A trial service will include leakage alerts, regular information on performance against benchmarks and data on-line.

Feedback from departmental staff will be used to inform the design and development of a supporting web based data reporting portal. The portal will simplify ease of reporting and facilitate water efficiency behaviour change. Different levels of reporting are envisaged including publically available performance reports.

Water efficiency in business

6.27 Given the pressures on our water resources it is crucial that businesses adapt to these new circumstances and manage the risks they face from changes in water availability as efficiently as possible. Industries have a range of options to do this such as investing in water storage, industrial water re-use, or air cooling. It is also important that businesses measure and manage their water use, and adopt new technologies over time to improve their water efficiency, such as those available on the Government's Water Technology List³⁰.

³⁰ http://wtl.defra.gov.uk/product_search_landing.asp?

6.28 The Government expects that the extension of retail competition will increase the incentive for water companies to work with their business customers to help them reduce their water consumption and cut wastage. This has been one of the clearest benefits from the introduction of a competitive market in Scotland.

Water impacts in product supply chains

6.29 But businesses also need to take a broader view of water use. Around two-thirds of all water we use is imported in the form of water used to make the goods we buy. The pressures on water supply from population growth and climate change that we face in England will also be felt across the world. Today's global population of about seven billion is forecast to rise to around eight billion by 2030 and probably to over nine billion by 2050. Total global water demand could rise by 35–60 per cent between 2000 and 2025. Water will become an even more precious resource as aquifers are exhausted, rainfall patterns change, sea levels rise and river flows alter. The Final Report of the Foresight Future of Food and Farming Project: *Challenges and choices for global sustainability*³¹, highlighted that this pressure is likely to be the first issue to impact on the competition for inputs for food production. This is not an argument for self-sufficiency, but rather for taking advantage of the export opportunities for growing global demand for food and to make ourselves more resilient to potential short-term food supply shocks caused by a more volatile climate. And if we are to compete in the global market place then we must make the most efficient use of our own water.

6.30 "Water footprinting" is a concept that can help businesses consider any risks to their supply chain by considering the hidden use of embedded water. To support a commitment in the Natural Environment White Paper *"To develop an agreed approach to water footprinting by 2012"* we are currently commissioning research to analyse the different types of tools available to business to understand, reduce and manage the impacts of their water use.

6.31 WRAP (Waste and Resources Action Programme) is working on behalf of Government on integrating the measurement of direct and embodied water use into business and consumer decisions. WRAP works with food and drink manufacturers to contribute to a sector-wide target to reduce water use (not in product) by 20 per cent between 2007 and 2020. WRAP is also working with developers and facilities managers to embed water efficiency into new and refurbished buildings and with DIY retailers and builders merchants to increase the sale of water efficient products. Building on the previous *Rippleeffect*³² initiative (free water efficiency on line tools and resources), WRAP is developing pilot partnerships with water companies to promote the *Rippleeffect* tools to their customer base including SMEs.

³¹ <http://www.bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf>

³² <http://www.wrap.org.uk/business/sme/rippleeffect/>

McCain Foods Limited

McCain Foods, manufacturers of frozen French fries and other potato products, has stated that seeking opportunities to reduce environmental impacts has increasingly become a primary focus of their business. Key achievements include reducing energy consumption, improving raw material utilisation, redirecting 98 per cent of food and packaging waste from its manufacturing operations to recycling activities, and returning cleaned process water intake back to local water courses following treatment.

The company aims to continuously reduce the amount of water used in its manufacturing operations by identifying and stopping leaks and spillages, monitoring water use at all processing stages and optimising its efficient use.

At McCain's Whittlesey factory, a reverse osmosis plant has been installed. This equipment can take used process water and clean it to a level suitable for re-use. This can be repeated many times allowing continuous recycling of water.

The reverse osmosis plant has the potential to reduce the site demand for mains water supply by a quarter – about 250,000 cubic metres or the equivalent of the water use of over 1,300 homes in Britain per year.

Water efficiency in agriculture

6.32 Increasing the efficiency of water use in agriculture is in farmers' best interests to improve the sustainability, competitiveness and profitability of their businesses. Some farmers are already taking action, with one third of farms with winter storage reservoirs and farmers forming Water Abstractor Groups to help them manage water resources collectively. Data from the Farm Business Survey³³ indicates that around 85 per cent of farmers are taking action to conserve water when irrigating, 55 per cent of whom did so for financial reasons. Tools such as the LEAF (Linking Environment and Farming) Water Management Tool³⁴ to help farmers identify key water uses on their farm and find new ways of saving money and protecting this resource.

6.33 In the livestock sector, the Dairy Roadmap³⁵ measures on-farm water use efficiency on an annual basis and has targets for processors to meet to reduce on-site water use in 2015 and 2020. The English Beef and Sheep Product Roadmap³⁶ includes initial research into the water footprint of beef and sheep production, and the Product Roadmap for the English Pig Industry³⁷ published earlier this year acknowledges the importance of good water management and promotes knowledge exchange and local benchmarking of water use. As awareness of the issues is extended, we may see these and other supply chain initiatives increasingly reflect the importance of resilience through the extension of target setting for water efficiency.

33 <http://www.defra.gov.uk/statistics/foodfarm/farmmanage/fbs/>

34 <http://www.leafuk.org/leaf/farmers/watermanagementtool.eb>

35 <http://www.dairyco.net/library/research-development/environment/dairy-roadmap.aspx>

36 http://www.eblex.org.uk/documents/content/news/p_cp_testingthewater061210.pdf

37 <http://www.bpex.org/KTRandD/environmentHub/PigIndustryRoadmap.aspx>

Delivering the White Paper

Innovation

6.34 Our new catchment approach and the opening up of opportunities for new entrants in the water market are just part of our efforts to involve local people more in the decisions that directly affect them, to harness the power and knowledge from voluntary action and free up the private sector to deliver innovative solutions to the challenges we and other countries face.

6.35 Responding to the challenge of constrained water resources both home and abroad will create opportunity for ambitious companies with innovative ideas. The global market for water products and services is worth in excess of US\$300 billion a year. With strong environmental regulation and world class science, research and engineering capability, the UK's environment and water sector is already at the forefront of global environmental thinking and is helping international markets solve complex environmental challenges and reach their carbon reduction targets. Government through UK Trade & Investment assists the water sector by developing and promoting international business opportunities for innovative goods and services.

6.36 We want to create a water sector in which innovation can flourish. The Government supported Water Sector Innovation Leadership Group will provide leadership and direction to drive innovation to meet future challenges. The Water UK Innovation Hub will help take forward the priority areas identified by the Leadership Group.

6.37 Under the leadership of Sir John Beddington, the Government's Chief Scientific Adviser, public, private and third sector stakeholders with a strong interest in water recently published *Taking Responsibility for Water*³⁸. This sets out priority actions for research and innovation in both the UK and global water security context over the next 20 years. Its findings and recommendations will be taken forward by a Water Research Partnership.

6.38 An innovation competition in water security will be launched by the Technology Strategy Board (TSB) in March 2012. This will be jointly funded by Defra, Natural Environment Research Council and TSB. The intention is to invest up to £3.5 million in the competition. The target of the competition will be step-change solutions that have the potential to recover 1,000 megalitres per day from within the blue water cycle. All aspects of the water cycle will be included; from resource management, through demand management to wastewater treatment and recycling. The plan is to support both technical and commercial feasibility studies, and practical demonstration of solutions in use.

³⁸ <http://www.bis.gov.uk/assets/bispartners/goscience/docs/t11-1390-taking-responsibility-for-water-research-and-innovation-framework>

Supply chain

Whether it is making new pipes, developing products that help people save water, or thinking of new ways to reduce the number of service interruptions, the supply chain plays a crucial role in maintaining our water and sewerage services.

The UK water industry comprises over 500 companies, employs around 80,000 people and generates over £3 billion of overseas business each year.

The second *National Infrastructure Plan*³⁹ set out how the supply chain can benefit from the continued need for investment in water and other utilities. We are working on innovation across the utilities sectors, focussing on what we can learn from the supply chain and how Government and utility companies can work to help make the UK a key player in international innovation. The Government will also work with Ofwat and the water companies to consider measures to smooth out investment cycles in the water sector to reduce costs.

The water company role

6.39 The water industry has a key role in delivering our vision. It is responsible for providing reliable and affordable services to customers, and is an important steward of our natural environment. We expect high standards from the water sector, and will continue to do so. Water companies have a critical role in planning for the future. They can ensure water is affordable by developing social tariffs and providing help and support to those struggling to pay their bills. They must help drive change in the way we use water through the advice and support they offer to customers and the way they design tariffs. Their responsibilities and local and regional reach means they are well placed to facilitate action by others, such as catchment-based approaches to reducing water pollution.

6.40 The water sector, through Water UK, continues to work with Government to respond to future challenges and the policy priorities identified in this White Paper. Government and the water sector have a shared goal of continuing to provide a sustainable, secure water supply and wastewater service for all customers at an affordable price. Water UK has made a range of detailed commitments to Government on action for the future and set out practical steps water companies can take to respond to policy priorities, some of which are highlighted in this White Paper. It will publish an updated set of commitments next year to build on Government's policy direction. We welcome this positive response from Water UK and will continue to work closely with the sector to implement the commitments in this White Paper.

The role of the regulators

6.41 The Environment Agency, Ofwat and the Drinking Water Inspectorate together provide a strong regulatory drive for delivering the objectives of this White Paper. The Ofwat review recognised that the balance between the different regulators, each with clearly defined roles, was one of the key strengths of the sector, enabling trade-offs between different objectives, such as improvements to water quality and impact on customer bills, to be made relatively transparently. However, the review also noted that lack of co-ordination between regulators could increase uncertainty for water companies and regulatory burdens. Chapter 4 sets out the regulators' commitment to improving co-ordination and action to improve alignment between the different planning processes.

³⁹ http://www.hm-treasury.gov.uk/national_infrastructure_plan2011.htm

6.42 All the regulators have a role to play in delivering our objectives around resilient water supply, improved water quality, affordable bills, and improved customer service.

6.43 The Environment Agency is committed to playing its part in delivering the White Paper's objectives alongside its work in helping to deliver the Natural Environment White Paper. We expect the Environment Agency to continue to strengthen its relationships with other regulators and work to ensure long-term, sustainable water management that addresses current and future pressures whilst seeking to reduce regulatory burdens wherever possible. We expect the Environment Agency to use its experience and evidence in working closely with others (including the water and energy sectors, water users, farmers, land managers and local authorities) to tackle the quality, quantity and morphological challenges we face to deliver more natural functioning of our water environment. There is more to do in its role of understanding future demand and risks, and advising on planning future water management. To this end we expect the Environment Agency to continue to develop and share evidence on the state of the environment.

6.44 The Drinking Water Inspectorate is committed to ensuring that robust water supply arrangements exist from source to tap to protect public health and deliver clean safe drinking water. These requirements are consistently reported as priorities for consumers, and they continue to be a core objective for Government in promoting a sustainable economy. The risk management approach embedded in the regulatory regime provides water suppliers with a clear focus for sustaining outcomes efficiently, dealing with operational uncertainties, the consequences of climate change and market reform.

Ofwat review

The Government's recent review of Ofwat considered whether Ofwat's regulatory approach was fit for purpose in the light of the future challenges discussed in this White Paper. The review concluded that regulation in the water sector had worked well since privatisation. The stability and predictability of the regulatory regime, and Ofwat's role within it, had enabled significant investment in the sector since privatisation, delivering benefits for customers and the environment.

The review identified a number of areas where Ofwat needed to improve its approach, particularly to reflect the challenges the sector faces for the future. The key findings were:

- Ofwat had placed too great a burden on the water companies through the way it regulates. A substantial change of approach was needed to reduce the cost of regulation and drive culture change in the companies – making them less focused on the regulator and more focused on their customers.
- More joined up working between Ofwat, the Environment Agency and the Drinking Water Inspectorate was needed, particularly during the price review process.
- Ofwat needed to engage more effectively with the companies it regulates and other stakeholders, and be more transparent about how feedback from its consultation and engagement processes influences its decisions.
- Government needed to provide greater clarity on the longer term objectives for the sector to provide a coherent framework within which Ofwat can regulate.

Ofwat has welcomed the review, and is taking forward the recommendations as part of its Future Regulation programme. It has already made progress in several areas, for example:

- The Regulatory Compliance project has proposed a new, risk based approach to regulation which will substantially reduce the burden on water companies.
- The Future Price Limit proposals include a new focus on outcomes, and a number of measures to incentivise companies to take a more innovative approach, whilst focusing on delivering the things that matter most to their customers.

Ofwat

6.45 The review of Ofwat led by David Gray was published in July 2011. Government has welcomed the report, and agrees with its conclusion that Ofwat's role has been central to the stability and effectiveness of the regulatory framework for the water sector. Many of the review's recommendations are for Ofwat to take forward, and we welcome the action they are already taking in response; others are for the water companies and other regulators. The review challenged Government to give much greater clarity on its objectives for the sector, its expectations of Ofwat, and better guidance on the respective roles of Government and the different regulators. We accept this recommendation: Government must set a clear direction for regulators, and take a lead on contentious policy issues, such as the extension of competition in the sector. The review's conclusions mirror the approach set out in the Government's *Principles for Economic Regulation*⁴⁰. These emphasise the benefits of independent economic regulation, as well as the need for it to be conducted within a coherent policy

40 <http://www.bis.gov.uk/assets/biscore/better-regulation/docs/p11-795-principles-for-economic-regulation>

framework set by Government. Government committed in the Principles to put in place for each regulated sector, strategy and policy statements to provide context and guidance about priorities and desired outcomes. It expects to do this no more frequently than once a Parliament.

6.46 We will deliver this commitment through a new strategic policy statement for Ofwat and a revision of our social and environmental guidance, both of which will be published in 2012 in good time to inform decisions on Ofwat's approach to the next price review. These will reflect our policy priorities for the sector and for Ofwat set out in this White Paper.

6.47 This new strategic statement will set a clear expectation that Ofwat will use its regulatory powers to deliver the longer term imperatives set out in this White Paper, with assumptions and funding decisions looking beyond the immediate five year planning period. It will emphasise Government's priorities for the regulator, including incentivising a more sustainable approach to water resource use; facilitating the delivery of new and innovative approaches, such as catchment management, which offer the potential for delivering benefits to customers and the environment cost-effectively; and continuing to protect customers' interests, looking to keep bills low in the short-term, as well as taking a longer term perspective on the impact its decisions will have on affordability and resilience in the future. Ofwat's recent Future Price Limits proposals are consistent with this broad approach, and Government wants the final plans to continue to reflect these priorities.

6.48 The Ofwat review identified clearly that a change of approach in the way Ofwat regulates is needed, confirming evidence from elsewhere that the way that Ofwat has regulated the sector has contributed to the industry's risk averse nature. While keeping costs to customers affordable remains critical, water companies must have both the incentive and freedom to try novel approaches; they must believe it to be worthwhile to take risks, benefitting from success rather than being penalised for failure. Ensuring traditional capital projects are not more financially attractive than operational spend must be part of this reorientation of the incentive structure if we are to see the growth in activities such as water trading that are essential for the delivery of the Government's vision for the future of the water sector.

Ofwat's contribution to sustainable development

6.49 The Ofwat review recognised that different sectoral regulators helped balance environmental and water quality improvements against the impact on customer bills. It recognised Ofwat's commitment to delivering sustainable outcomes as efficiently as possible, but concluded that action was needed to carry this commitment through into regulatory policies and decisions, for example to reflect longer term priorities or support activity on water efficiency. Some stakeholders have argued that elevating Ofwat's statutory duty to contribute to the achievement of sustainable development from a secondary to a primary duty would help. The review argued that there were better ways of achieving this. Ofwat could revise its regulatory approach to use incentives more effectively and ensure that its decisions reflect a broader assessment of benefits. Government could also provide a stronger steer to Ofwat on how it should interpret its sustainable development duty.

6.50 Government agrees that sustainable development must be fully reflected in Ofwat’s regulatory decisions, and agree with the review that it would be beneficial for Ofwat to explain more clearly how decisions have taken into account the long-term challenges facing the industry. This will be central to our new strategic policy statement for Ofwat, and the revised social and environment guidance. We also welcome the work Ofwat already has in hand to deliver more sustainable outcomes from its activity, such as the revision to its regulatory approach and development of a range of incentives and changes to the price control to better address the long-term challenges facing the sector and encourage better outcomes for customers and the environment.

6.51 The Government’s *Principles for Economic Regulation* emphasise the importance of stable and predictable frameworks to enable economic regulation to deliver investment in the regulated sectors, but also recognise that the framework for economic regulators needs to evolve to reflect changing circumstances to remain relevant. The challenges the sector faces makes a strong argument for a change of approach and an unambiguous statement from Government that sustainable development must be central to everything that Ofwat does. **We will provide the clear statement of priorities demanded by the *Principles for Economic Regulation* and use these to set out our expectations of Ofwat in relation to sustainable development. We will carefully consider the case for giving Ofwat a primary sustainable development duty to reinforce this.**

7. Conclusion



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7.1 We have set out the challenge for the future: making the transition to a resilient and sustainable water sector. This White Paper sets out a new framework to help prepare for and deliver the actions we need.

7.2 The extent of the change we face is uncertain. The weather, financial markets and people's behaviour are never easy to predict, especially over the long-term with a changing climate. We can be confident that the way we manage and use our water resources will need to change, but we must still ensure continued secure supplies for households and to support economic growth, and that enough water is left in the environment to support a healthy and high quality natural environment. We must safeguard our natural inheritance. We owe it to the next generation.

7.3 But in looking to the future we must not overlook the challenges of today – the over-abstraction of our rivers which is damaging valuable ecosystems now; pollution of our water environment; waste and inefficiency in our use of water; and ensuring water customers receive high quality and affordable service from the water industry. The most effective responses to these issues will be those which set us on the right pathway for the future.

7.4 There are immediate steps for Government to take in implementing this White Paper, particularly:

- **We will publish a draft Water Bill for pre-legislative scrutiny in early 2012 and introduce a Water Bill as soon as Parliamentary time allows;**
- **We will produce a new strategic policy statement and social and environmental guidance for Ofwat during 2012;**
- **With the Environment Agency, we will support catchment pilots across the country, with particular focus on 25 which will be evaluated in early 2013;**
- **We will put in place new arrangements to work with stakeholders on design of a new abstraction regime in early 2012;**
- **We will intensify our efforts to deal with the legacy of unsustainable abstraction, publishing information on progress on the Restoring Sustainable Abstraction programme in 2012;**
- **We will publish final social tariff guidance in early 2012; and**
- **We will consult on a revised draft guideline for the next water resources management planning round in spring 2012.**

7.5 This White Paper includes several proposals for deregulating and simplifying legislation, to reduce burdens on business and stimulate growth. Ofwat's proposals for reducing its regulatory burdens complement these. The Government's Red Tape Challenge offers a further opportunity to identify other areas where legislation can be simplified or removed. Water legislation will be under the spotlight from February 2012 as part of the "Water, Marine and Fisheries" theme and we welcome ideas on how we can go further to reduce burdens on business. However, Government alone cannot deliver the vision in this White Paper. It will need to be carried forward through the regulatory regime by Ofwat, the Environment Agency and the Drinking Water Inspectorate, and be central to future decision making by the water industry, other abstractors and large water users and each of us as individuals. The scale of the challenge requires a shift in culture. At the heart of this shift must be a new approach to how we all value and use water.

7.6 Delivering change in our homes and wider society will not be easy, but action will be most effective where we deploy clear messages about the challenges we face and why this matters to each of us as individuals. We need to harness the enthusiasm and knowledge of everyone who understands and values their local environment; the drive of those organisations which are trusted to deliver impartial advice and lead change in their local communities; the ingenuity of business in finding solutions which make it easier for us to change our behaviour and reduce our water use; and our own self interest. We each have a responsibility to ensure water resources are used sustainably and we believe through partnerships between Government, the water companies, regulators, third sector organisations and customers we can find the right solutions to deliver water for life.



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