

# Water futures

## The vital significance of the Periodic Review 2009

### Now is the time to take more action

The water environment is a very important element of environmental concern in England and Wales today.

The good news is that water companies and others have made significant inroads into addressing many of the issues which threaten our current and future wellbeing. We have invested over £20 billion in environmental improvements. Our water quality is at its highest at any time since the Industrial Revolution. Our water supply is at its most robust.

However, we have new and bigger challenges to overcome. Many rivers in urban areas and some coastal waters remain polluted, and are either deprived of wildlife or potentially harmful to it. Population increases intensify demands and challenges year on year. We still have much to do to safeguard what has already been achieved and to meet the requirements of existing and new legislation.

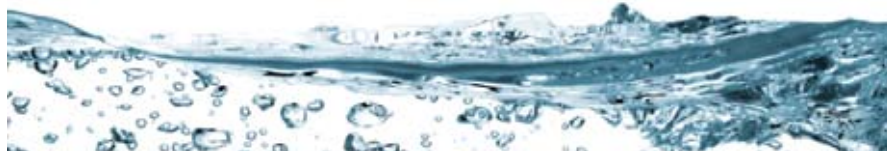
We also have a newer challenge: climate change. Experts believe that it represents a greater single threat to the environment, the economy, society and water supply than any other challenge in modern times.

We believe, therefore, that we not only need to maintain restoration

and improvement work in the water environment, but to increase investment to ensure our future safety. We are mindful of, and sympathetic to, the need to control rises in water and sewerage bills. Our approach is a pragmatic one: we seek changes only where there is sufficient evidence that they are needed. We believe that water companies can continue – and augment – their vital investment programmes, and have the least impact on water bills, through increased water management. Reducing water wastage is not only a sound investment for our current and future needs. It is also one of the most effective ways to reduce greenhouse gas emissions, due to lower levels of processing.

We also believe that the costs of preventing future problems are far outstripped by the costs of remediation, disaster recovery and fines imposed by failing to comply with EU legislation. The cheapest option now is not necessarily the best value in the longer term when striving to secure sustainable solutions.

There is currently a review of the water industry which will have a significant impact on the next five years' investment: Periodic Review 2009 (PR09).



### A note about climate change and PR09

Climate change issues affect all areas of water companies' businesses, and therefore PR09 and its aspirations. We do not believe that the need to achieve a reduction in greenhouse gas emissions should be used as an excuse to compromise adequate supply/demand balance, water quality and infrastructure – or vice versa. They are achievable in tandem.

It is our firm belief that water companies must use the latest scientific understanding of climate change to plan risk-based but realistic investments in protecting their infrastructure and, through this, our homes and environment.

We also want water companies to include the shadow price of carbon (SPC)<sup>1</sup> – that is, the cost of carbon emissions – when evaluating techniques and technologies.

<sup>1</sup> See [www.defra.gov.uk](http://www.defra.gov.uk)

### What is PR09?

The Periodic Review is a control mechanism which ensures that investments by the water and sewerage industry, and the charges made to cover them, represent the best value.

All water companies across England and Wales draw up business plans which outline what they will invest in the environment, infrastructure, a safe and secure water supply and future planning over a five-year period. They also set out what they will charge consumers and businesses for water and sewerage in order to make these investments. The plans have to be agreed by Ofwat, the water industry regulator, whose role it is to ensure that consumers receive value for money.

Periodic Review 2009 (PR09) will set out the water companies' plans for 2010-2015.

This document sets out our primary areas of concern, explains progress made and outlines that which we believe needs urgent attention.

### An overview of the future

The Environment Agency seeks to advise on, and help with, all parts of water companies' business plans which affect our current and future environment. Our goal is to ensure that they produce and implement long-term plans to deliver water and sewerage services across England and Wales which are consistent with long-term social, economic and environmental aspirations and needs of consumers and government.

We have a duty to regulate some areas, and to advise the Government and Ofwat on others. As well as working with the water companies themselves, we work in close collaboration with a number of other government and non-government organisations, creating a cohesive approach to, and shared vision of, water management.

### Our priorities for PR09 fall into four principal areas:

Ensuring: a resilient water and sewerage infrastructure; delivery of the National Environment Programme (NEP); and the right balance of water supply and demand. Our final priority – and one which permeates every area of our work – is climate change.

# Maintain, improve and protect our water and sewerage infrastructures

Maintaining the infrastructure is not only important for reducing and eliminating leaks and pollution incidents. It is also vitally important – and becoming more so – in managing flood risk.

In future, water companies will need to play a greater role in planning for, and mitigating, urban flooding. Climate change experts predict that in future we will have hotter, drier summers, warmer, wetter winters and rising sea levels. We've already witnessed

severe flooding in recent years, which may be as a result of climate change. It can break the back of an already overloaded structure.

We see PR09 as an excellent springboard from which we can work closely and collaboratively with water companies and local authorities.

We call for a transparent, shared understanding of flood risk and combined strength in taking appropriate action to mitigate urban flooding.

## We recommend the following infrastructure priorities for PR09:

- **mitigate the impacts** of future flooding and extreme weather events by addressing those flood risks which most seriously threaten critical assets;
- produce evidence of a **long-term investment strategy** based on calculated risks. This must consider the impacts of flooding on critical assets, and vice versa: for example the potential impact if a single supply source is put out of action;
- take more action to reduce sewer flooding, including securing **sufficient capital maintenance funding** to protect improvements already made;
- secure sufficient funding for **infrastructure replacement**; replace at a rate which will meet our needs for secure, sustainable water and sewerage networks;
- water companies, in partnership with others as appropriate, must address the most serious surface water flooding problems.

## Some good and bad news about our water and sewerage infrastructure

### ✓ Some successes to date

- ✓ Since privatisation in 1989 the industry has invested £70 billion in the water and sewerage infrastructure in England and Wales. This equates to £1,300 for every person
- ✓ From 2005-2010 water companies have pledged to spend £1 billion to reduce the risk of flooding from public sewers for 9,210 properties

### X Still much to do

- X In 2006-07 the number of properties experiencing internal flooding from sewers increased to 5,746
- X In Yorkshire alone, the heavy rains of 2007 led to the flooding of 136 sewage treatment works serving two million people
- X Lots of infrastructure which we take for granted is at risk of flooding. This includes over half of sewage and water treatment sites

## Case study: July 2007: under water

Severe flooding in summer 2007 left many homes and businesses without power and water for days. Gloucestershire was particularly badly hit. Half a million people were threatened with power cuts and water shortages as Walham sub-station and Mythe water treatment works flooded.

Up to half a metre of flood water covered the Mythe site. The treatment works was out of action for 17 days, leaving around 140,000 households without water.



Mythe Works, Gloucestershire

Following the floods, Severn Trent Water installed more defences around the site and extra pumping equipment to help protect against future flooding. It estimates that the overall cost of flooding at Mythe will be £25-£35 million. This figure does not include costs incurred by those affected.

*“As part of the forthcoming and subsequent water industry pricing reviews, Ofwat should give appropriate priority to proposals for investment in the existing sewerage network to deal with increased flood risk.”*

Recommendation 22, Sir Michael Pitt, independent review of the summer 2007 floods, 25 June 2008

## Water companies and greenhouse gas emissions



Water companies have a significant influence on climate change. We believe that they not only need to adapt their operations to cope with likely future flooding and droughts – they must also take measures to reduce their greenhouse gas emissions.

Measures include introducing innovative solutions and technologies such as advanced anaerobic sewage sludge digestion; improved energy efficiency; greater use of renewable energy; and efforts to reduce water demand.

- X Greenhouse gas emissions from the water industry equated to over five million tonnes of CO<sub>2</sub> in 2006/2007
- X Renewable energy only accounts for 13 per cent of what the water industry consumes (2006/2007)

# The National Environment Programme (NEP): safeguarding our natural future

A key component of each periodic review is the National Environment Programme (NEP), which we create. The NEP is a list of environmental improvement schemes, based on evidence, which ensure that water companies meet European and national targets related to water.

Companies incorporate NEP requirements into their proposed business plans, which help Ofwat to make decisions on prices.

## Keeping up the pace of good work

The water industry, in collaboration with us and others, has made tremendous inroads into putting right the damage caused by decades of industrialisation, misunderstanding and pure neglect. But there is still much to be done. We must keep up, and step up, remediation and enhancement activities across all our water environments.

*“About one third of protected wildlife sites are still damaged as a result of past environmental management problems. Despite improving water quality, diffuse pollution affects fish and other wildlife in many rivers, estuaries and coastal waters.”*

Tricia Henton, Director of Environment Protection, Environment Agency

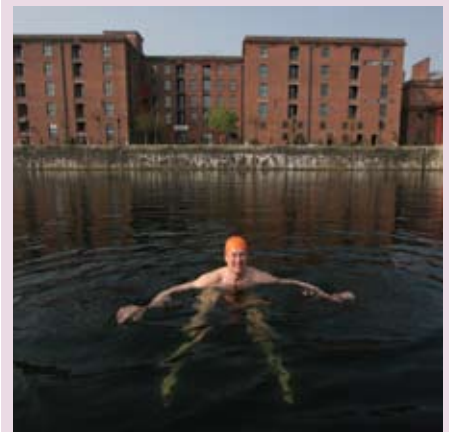
## We expect water companies to adopt the NEP in full in their business plans for PR09:

- progress projects to meet **EU Directives** – without exception. These Directives include Water Framework; Freshwater Fish; Habitats; revised Bathing Waters; Sewage Sludge; Groundwater; and Urban Wastewater Treatment;
- implement changes to their **abstraction licences**, to meet obligations under the Habitats Directive;
- complete the first phase of the **Thames Tideway Tunnel** (Thames Water);

## Case study: From disgrace to showcase: the Mersey Basin

The Mersey was once a thriving fishery. Salmon and trout were so plentiful that they were fed to pigs. By the early 1900s, though, the salmon were dead and all but the most robust aquatic life had disappeared.

The Mersey Basin had turned into a stinking sewer. The Industrial Revolution had brought prosperity to the North West, but at a high cost to the river. Factory discharges were heavy, including toxic chemicals from mercury to lead. Sewage from five million people was deposited in the river, much of it untreated.



Happy to swim in the Mersey

## Repairing the damage

The Mersey Basin Campaign was established in 1985 with a 25-year regeneration remit. Since then, primary, secondary and in some cases tertiary sewage treatment processes have been introduced. Industrial discharges are under control. Diverse water quality schemes are in place.

To date, over £1.1 billion of water company and Environment Agency funds have been spent on improving the Mersey Basin, with stunning results. On 5 November 2001, for the first time in 75 years, live salmon were caught in the Mersey – and by 2005 we could confirm they were breeding there.

Today the Mersey is buzzing with life. It's returned to being home for thousands of species of aquatic life, riverside species and birds. It's also a magnet for swimmers, anglers and water sports enthusiasts.

Frank Lythgoe, Secretary, Warrington Anglers Association, sums up the regeneration: *“If someone had told me when I was a kid that I'd ever fish in the Mersey, I wouldn't have believed them. It's incredible.”*

## Some good and bad news about environment protection

### ✓ Some successes to date

- ✓ Between 1995 and 2006, water companies' compliance with river quality objectives in England and Wales increased by five percentage points (to 91%)
- ✓ Fishermen have caught salmon on the River Don in Yorkshire for the first time since the mid-1800s
- ✓ In 2007, 97.8% of bathing waters in England and Wales met mandatory standards of the Bathing Water Directive. That's a big improvement on the 1998 figure of 90.6%
- ✓ Barry Island in South Wales and Paignton on the Devon Riviera are among popular resorts which have, in the last three years, met the standards for clean beaches – for the first time

### ✗ Still much to do

- ✗ Many waterways remain badly affected by chemical pollution. They also have very low levels of aquatic life
- ✗ Only 43% of rivers as they flow through our cities have enough aquatic life to pass as being good water quality
- ✗ Water companies in England and Wales caused 92 serious pollution incidents in 2007 (although this was a decrease from 131 incidents in 2006)
- ✗ Although we've achieved 97.8% compliance with *mandatory* standards for bathing waters, this still only represents 79.8% of *guideline* (recommended) standards

# Water supply and demand – a delicate balancing act

A substantial amount of good work has already been done to secure water supplies. The last periodic review, in 2004, concentrated heavily on securing supply, and water companies have invested heavily in new water resources.

However, increasing the level of supply has finite possibilities, particularly as climate change increases the probability of drought. There are other considerations, too, such as the Habitats Directive, which will reduce the amount that water companies can abstract in certain locations. It's important to note that demand is set to increase significantly, as well. For example, the UK population

is expected to increase by a further 10 million by 2031. Two million new homes are planned for construction between now and 2016 alone.

Supply is only one side of the equation. **Managing demand** is an equally important mechanism which we believe must be adopted to ensure sustainable supply in the short, medium and longer terms.

The two principal ways to manage demand are

- reduce water wastage in homes and businesses;
- reduce leakage from the supply network.

Reducing wastage has many benefits. The three principal ones are:

- it contributes to water companies' ability to **maintain future supply**;
- if they have a metered supply, reducing wastage **reduces consumers' and businesses' water and sewerage bills**;
- the lower the levels of water processing – for example, purifying and pumping for supply, and treating for sewerage – the **lower greenhouse gas emissions** are, and therefore the impact on climate change.

## Some good and bad news about supply and demand

### ✓ Some successes to date

- ✓ Water leakage has been cut by 30% in the last 10 years
- ✓ Sizeable numbers of people are moving away from the view that water is a cheap and abundant resource
- ✓ Metered households use 10-15% less water than non-metered ones. (But currently only 28% of domestic customers are metered)

### ✗ Still much to do

- ✗ Nearly a quarter of water still leaks from supply pipes – 3.5 million litres every day
- ✗ 35% of catchments in England and Wales have no capacity left for additional reliable abstraction
- ✗ 15% have unsustainable levels of abstraction
- ✗ The average spend per person per year on tackling water wastage is currently just 10.5 pence. This saves 330ml (the equivalent of a can of soft drink)

## We recommend that water companies adopt the following supply and demand priorities for PR09:

- a **two-pronged approach** to meeting future demand: managing demand first and then options for new resources;
- take every opportunity to increase **household water metering** and help their customers to save water;
- **assess solutions** to manage supply and demand for water and sewerage which **minimise greenhouse gas emissions and accommodate growth**;
- ensure that **climate change** is factored in to both supply and demand assessments: climate change is likely to result in more and greater severity of droughts, and more severe flooding.

## Key milestones in the PR09 process

**March 2008** Following consultation, Ofwat published its approach to the 2009 price review.

**April 2008** The Environment Agency submitted its initial NEP to water companies for consideration as part of their draft business plans.

**August 2008** Water companies submitted draft business plans to Ofwat.

**Autumn 2008-spring 2009** Ofwat, the Environment Agency and other stakeholders review draft business plans.

**November 2008** The Environment Agency submits its final NEP.

**April 2009** Water companies submit final business plans.

**July 2009** Ofwat consults on draft price limits.

**November 2009** Ofwat sets the final price limits for 2010-2015.

## Some facts about climate change

- 55,000 homes and businesses in England and Wales were flooded in summer 2007
- The cost of damage from floods already averages £1.4 billion every year. We believe this is an excellent case for prevention being better than cure
- Yet droughts are becoming more commonplace. In 2004-2006 rainfall in some places was the lowest since the drought of 1921
- In 2004-2006, 15.6 million people's water use was affected. That involved eight water companies

## Conclusion

In summary, PR09 will play a vital role in ensuring that water companies safeguard England's and Wales's water resources and environment. The outcomes of PR09 are not confined to the coming five years. They will have far-reaching effects on water supply, water habitats and on our ability to withstand changing weather patterns.

We strongly urge all stakeholders to support our recommendations, and water companies to fully adopt them in their business plans.

## Get further information on PR09 and environmental imperatives

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*“My Government is committed to protecting the environment and to tackling climate change, both at home and abroad.”*  
HM The Queen, queen's speech to lords and members of the House of Commons, 2007