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A good deal for water

The view of the Environment Agency, the Countryside Council for Wales and English Nature on the priorities for the environment that require action by water companies



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EA - Water Resources



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The Environment Agency, English Nature and the Countryside Council for Wales advise the Secretary of State for the Environment, Food and Rural Affairs in England and, in Wales, the Welsh Assembly Government Minister for Environment, Planning and Countryside on the environmental priorities for the price review. This document gives such advice.

The Environment Agency wrote this document, with English Nature and the Countryside Council for Wales as partners on issues of nature conservation.

We propose a five-year programme of environmental improvements for 4000 sites. This will benefit 6500 kilometres of river and over 2000 square kilometres of wetlands, still waters and coastal waters. We estimate the value of the benefits in a range from £5 to £8 billion. We expect the benefits will exceed Ofwat's estimate of cost of delivering them.

Foreword

Improving the environmental performance of water companies

A clean environment and good water supplies are vital to our health, quality of life and economic well-being. Opportunities for better public health, business, food production, leisure, and conservation are all advanced by the investments made by the water companies. Cleaner rivers and beaches enhance tourism. Wetlands filter out pollution and act as sponges to reduce flooding. The quality of waterways can have a powerful effect on regeneration, especially for run-down parts of towns and cities.

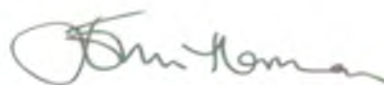
The actions of water companies can have a big impact on the environment and wildlife, and on people who enjoy or depend on water. Companies have to take vast amounts of water from rivers and underground to provide enough to supply our everyday use. After suitable treatment, they discharge most of this into rivers or the sea.

In doing this, companies must protect the environment, promote the efficient use of water, and meet legal requirements. What they have to do to improve the environment, is decided by Ministers as part of the reviews of price limits by the Office of Water Services (Ofwat). These are called periodic reviews – Ofwat decides the prices the companies are allowed to charge their customers. In November 2004, Ofwat will set limits on prices for 2005 to 2010. We are now at the stage where the water companies are costing proposals for action. Guidance from Ministers is scheduled for January, 2004.

We propose a five-year programme of environmental improvements for 4000 sites in England and Wales. This will benefit 6500 kilometres of river and over 2000 square kilometres of wetlands, still waters and coastal waters. We estimate the value of the benefits in a range from £5 to £8 billion and, based on our analysis of the costs of the schemes in the last review, we believe that the water companies should be able to deliver our programme at a cost that is less than these benefits. We estimate, based on information available at this stage of the process, that the programme will contribute a modest portion of the household bill for water and sewerage – by 2010, no more, on average, than the cost of a can of fizzy drink in the weekly shopping for each household.

Our programme is designed to ensure that:

- treatment works, pipelines and sewers perform well and so underpin the improvements to the environment made in the last 10 years;
- companies have sound plans to provide enough water, consistent with the needs of all water users and the environment;
- the environmental impact of abstractions and discharges is reduced;
- legal requirements are met; and,
- the actions proposed are good value for money and promote sustainable development.



Sir John Harman, Chair of Environment Agency



Sir Martin Doughty, Chair of English Nature



John Lloyd Jones, Chair of Countryside Council for Wales

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The quality of waterways can have a powerful effect on regeneration, especially in run-down parts of towns and cities.



Introduction

Maintaining achievements

The management of water in England and Wales changed in 1989. The creation of the water and sewerage companies and a new regulatory framework ushered in an era of environmental improvement, and greater clarity of roles. Companies could get on with their businesses, while the Office of Water Services (Ofwat) ensured that customers got value for money, and the Environment Agency, working with English Nature and the Countryside Council for Wales, made sure that the environment was being protected and, where appropriate, improved.

The benefits include less pollution and reduced risks from discharges and abstractions. The impacts of many decades of under-investment have been steadily reversed since 1990. River water quality has improved across England and Wales. We have salmon migrating up the River Trent, 119 species of fish in the Thames, and tri-athletes at last year's commonwealth games swam safely in Salford Quays. Water quality at our beaches is much improved.¹ The water supply system works more efficiently. Leaks have declined since the mid 1990s, and water mains have been improved.²

The challenge is to maintain these achievements, and, where necessary, deliver further improvements. In particular, we must improve the quality of nature conservation sites. These sites, and the interventions needed to protect and enhance their wildlife, were considered substantively in the price review process only from 1999.

In the past 100 years or so, we have lost over 90 per cent of lowland raised bogs and 75 per cent of our ponds and floodplain grasslands. Those wetlands which remain are precious, and it is vital that we protect them.

The Environment Agency wrote this document, with English Nature and the Countryside Council for Wales as partners on issues of nature conservation. It states our case on the priorities for the environment that require action by water companies.

¹ See www.environment-agency.gov.uk. Results for 2002 were the best ever for bathing waters. There were no failures of mandatory standards for Wales, for example.

² The quality of drinking water has also improved. This is regulated by the Drinking Water Inspectorate.



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The **Environment Agency** is the main environmental regulator for England and Wales. Its job includes safeguarding rivers, estuaries, underground waters and coastal waters from pollution and other damage. The Agency also has a statutory duty to make sure water resources are used wisely and to ensure there is enough water for everyone and the environment. The Agency has to ensure that work is in hand, as necessary, to improve sewerage standards and the cleanliness of rivers and coastal waters. In doing all this the Agency aims to support sustainable development and protect wildlife, fisheries, recreation, water supplies and water resources on behalf of current and future generations.



English Nature is the statutory body that champions the conservation and enhancement of the wildlife and natural features of England. Similarly, the **Countryside Council for Wales** is the statutory advisor to the Welsh Assembly Government on sustaining natural beauty, protecting wildlife, and providing opportunities for outdoor enjoyment throughout Wales and its inshore waters. Both bodies advise Ministers on obligations and priorities for nature conservation and are working with the Environment Agency and others to turn these priorities into positive action on the ground.

Risks and opportunities from the water industry

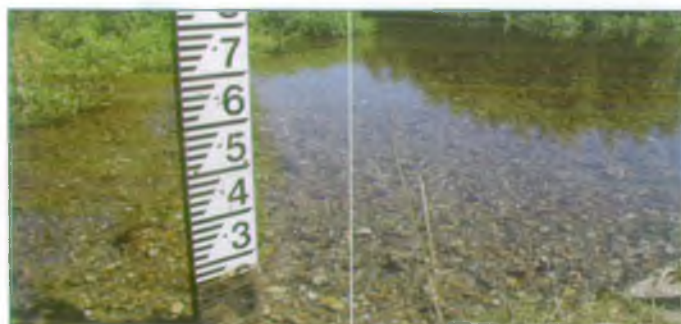
Every day, the water industry supplies 15 billion litres of water to the people of England and Wales, and disposes of more than 13 billion litres of waste water.

Ensuring that the 10 water and sewerage companies, and the 12 water supply companies, manage the environmental impacts of this huge undertaking effectively is the business of the Environment Agency. By providing people with wholesome and reliable supplies of water and dealing with sewage, the water companies protect public health and assist economic growth. The water companies invest around £3 billion capital a year. On average, one-third of this contributes directly to environmental improvements.

Water companies have to take vast amounts of water from rivers and underground. They have to return most of this to the environment as treated sewage effluent. This means that companies can have a big impact on wildlife, for example in rivers, lakes, and estuaries, and on people who use, enjoy or depend on water. The water companies' work also helps determine the quality of our marine environment and beaches.

Abstractions of water by water companies and others reduce flows in rivers and the levels of underground water. We are concerned that, without action to protect them over 500 wetlands and rivers are either in danger of drying out or having too little water to sustain the wildlife that depends on them.

The Environment Agency, English Nature and the Countryside Council for Wales will also act to reduce impacts by others in parallel with action on the discharges and abstractions made by water companies. This will be done in an even-handed manner, proportional to the risks posed.



Improving flows in the Little Stour, Kent

Over-abstraction from groundwater for public water supply contributed to low flows on the Little Stour, and the loss of many invertebrates and plant life. Mid Kent, Southern and Folkestone and Dover Water companies are investigating ways to improve these flows. When flows resume in sufficient quantity, a healthy chalk stream community is expected to flourish again on the Little Stour.



Cleaning up Northumbrian beaches

Ultra violet treatment systems were recently installed by Northumbrian Water Ltd to disinfect effluent from two of its large sewage treatment works. The improvements included those at the Howdon works, serving more than one million people in Tyneside, and at the Hendon works in Sunderland. These new facilities will help ensure compliance with bathing water quality standards at several beaches in the area.

What people want

People need a plentiful supply of healthy clean water to meet their basic needs and a clean environment for their leisure and recreation.

A recent survey *Public Attitudes to Angling (2001)* showed that four million people in England and Wales had been freshwater fishing in the previous two years. More than one million currently have rod licences, which makes angling the most popular informal outdoor sport in the UK. One in five lapsed anglers said they would be persuaded to take up the rod again if there were more fish in the rivers. Anglers spend around £3 billion on their hobby each year, and angling supports tourism and jobs.

Improvements in the quality of rivers, bathing and coastal waters, and better protection of important wildlife sites topped the list of customers' priorities for the water industry in a MORI poll of more than 2,000 people in England and Wales.³ Removing the risk of homes flooding with sewage, and improving the taste and smell of tap water came next on the list. However customers were divided on the degree of improvement needed, the amount they are prepared to pay, and on the urgency of any improvements. When asked to choose from a list of quality of life issues facing the country (health, crime, education etc.), 6 per cent cited water and sewerage services as being in need of urgent attention and improvement; and 20 per cent cited 'the environment'. When asked to consider a list



of specific environmental issues, more than one-third (36 per cent) considered the water environment – streams, rivers, lakes, canals, wetlands and coastal waters – to be in most urgent need of improvement.

3 The 2004 Periodic Review: Research into Customers' Views. MORI. Sponsored also by Ofwat, Defra, Welsh Assembly Government, Water UK, WaterVoice and the Wildlife and Countryside Link. October 2002. The same organisations are also carrying out further research into customers' priorities, and how much they would be willing to pay. (http://www.environment-agency.gov.uk/commandata/105385/2004_periodic_review_customers_)

Delivering improvements

The environmental improvements required to be delivered by water companies over a 5 year period are decided by Ministers as part of Ofwat's reviews of price limits (periodic reviews). Periodic reviews take place every five years. Ofwat is required to set price limits that are sufficient for well managed companies to finance the delivery of services but no higher than this. As part of this Ofwat works to ensure that the costs are as low as possible consistent with achieving the required outcomes. In November 2004, Ofwat will set limits on prices for 2005 to 2010. Ofwat has stated that it will take into account:

- the cost of providing, maintaining and running all the pumps, pipelines and other assets;
- ensuring companies meet their customers' demands for water supplies;
- standards for drinking water;
- legal obligations such as environmental legislation; and,
- better services for customers.

Each company must submit to Ofwat draft and final business plans outlining the services and improvements it intends to provide; how it plans to meet its environmental responsibilities; what it believes its customers want and how much the company thinks people are willing to pay. These plans help Ofwat set a ceiling on what companies charge their customers.



The agencies have set out a five year programme of environmental improvements that will require over 5000 actions at around 4000 sites from 2005 to 2010.

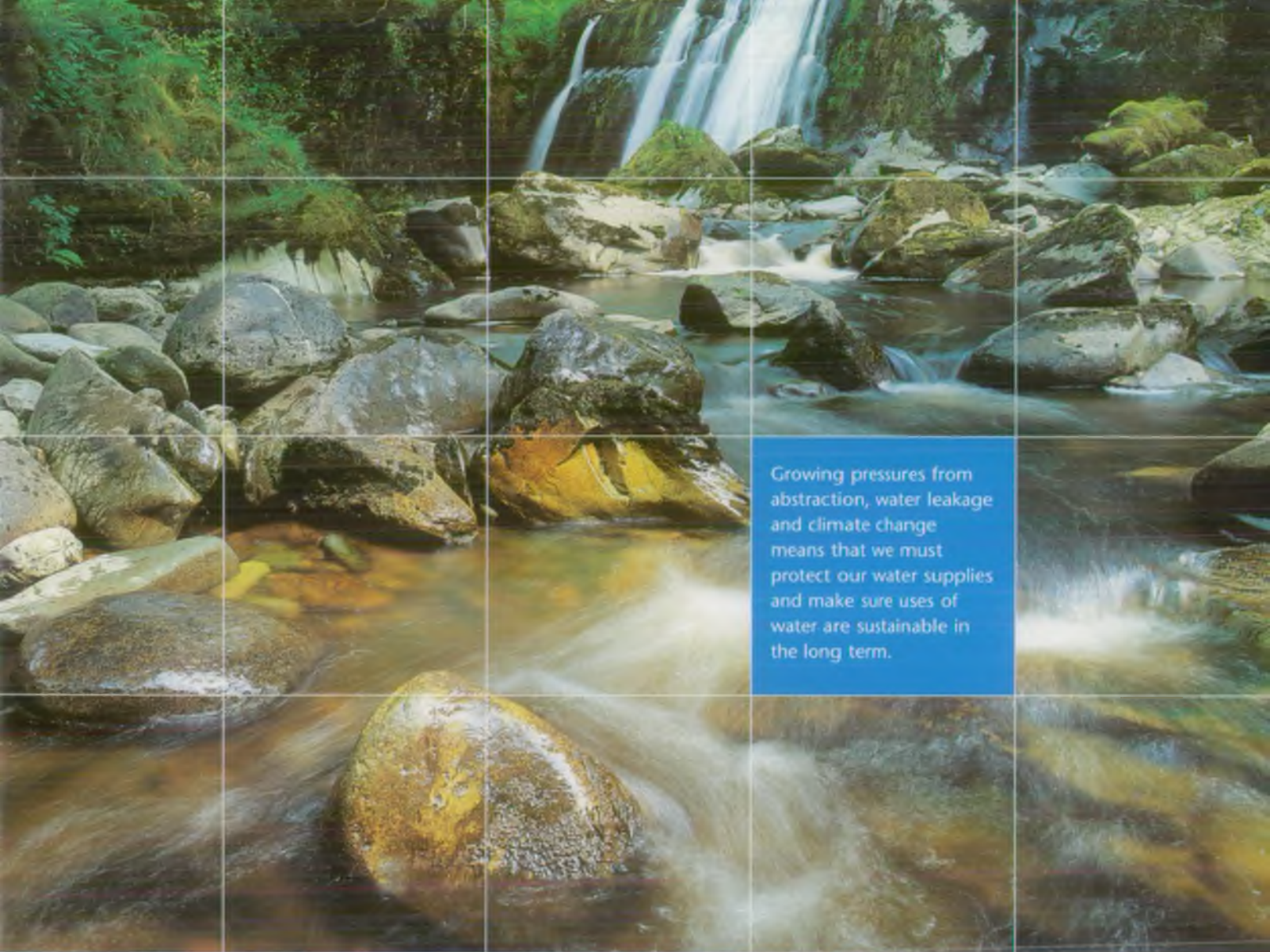
What we want to achieve

An environmental investment programme must give good value for money. A company's customers must be able to afford it and the programme must provide a reasonable return to investors. We three environmental agencies want to help ensure that:

- assets like pipelines, pumps, sewers and treatment works are kept in good order and operated so that their environmental performance is good and past improvements are maintained;
- companies plan to provide enough water for customers, in a way that does not prejudice the needs of other water users and the environment;
- the impact of abstractions and discharges on the environment is reduced;
- all legal obligations are met; and,
- companies complete necessary improvements at lowest cost, whilst demonstrating that they are taking appropriate account of the long term needs of the environment and society.

Growing pressures on water supplies from additional housing in the south of England provides a challenge. So does climate change and the possibility that less water will be available in areas of high demand. The recent reversal, seen in some companies, in the downward trend in leakage from water supply systems, is a disappointment for us. And the increase in the number of sewage related pollution incidents indicates that all companies must be vigilant.

The agencies also want to help the industry get ready for the Water Framework Directive.⁴ This directive will provide the means for greater integration in the way that all the activities that affect the water environment and our use of water are dealt with – not just those associated with the water industry. It will help us ensure that the uses of water are sustainable in the long term. It focuses on environmental objectives and the full range of actions by which these can be met. This includes the control of all types and risks of pollution, and changes in the way we use chemicals, water and land.



Growing pressures from abstraction, water leakage and climate change means that we must protect our water supplies and make sure uses of water are sustainable in the long term.

So we believe that for this price review:

- companies' plans for maintaining their assets should make it clear that the industry will sustain its environmental performance. We want to see a programme that ensures that assets are maintained, renewed, or new assets introduced, taking account of statutory requirements and environmental priorities; and,
- companies must continue to plan to secure sufficient water supplies to meet the legitimate needs of their customers. Leakage should not rise and companies should help their customers use water more efficiently. Companies should continue to extend household metering, while ensuring that vulnerable groups are not disadvantaged.

⁴ Directives are legislation issued by the European Union. The Water Framework Directive will be transposed into UK Law in 2003 and through River Basin Plans will require actions by water companies and others to meet new environmental objectives.

Courtesy of PA News photo library



What should be done

The agencies have set out a five-year programme of environmental improvements that will require over 5000 actions at around 4000 sites from 2005 to 2010. All these have been assessed carefully to confirm the need and to help seek the lowest cost options. They will benefit 6500 kilometres of river and over 2000 square kilometres of wetlands, still waters and coastal waters. We discuss later in this document our estimates of the environmental benefits of the programme. These are equivalent to a capital sum in a range from £5 to £8 billion. Based on our analysis of the costs of the schemes in the last review, we believe that the water companies should be able deliver the programme at a cost that is less than these benefits.

We estimate that the programme will contribute a modest portion of the household bill for water and sewerage – by 2010, on average, no more than the cost per week of a can of fizzy drink for each household. Though in making this statement we acknowledge that there may be substantial variations between companies.

The programme covers:

- **Discharges:** action to reduce pollution further must be taken to meet the requirements of the Directives on Freshwater Fish, Habitats and Birds, Urban Waste Water Treatment and Bathing Waters, and the Countryside and Rights of Way Act. This will improve 3500 kilometres of river and over 300 square kilometres of still or coastal water. Further action that will improve more than 3000 kilometres of river and 1900 square kilometres of still or coastal water is also proposed where justified by an assessment of the relative costs and benefits.
- **Abstractions:** changes in the way water is abstracted are necessary to meet the requirements of the Habitats and Birds Directives and the Countryside and Rights of Way Act. These actions will ensure that more than 800 kilometres of river, and 28 wetlands have enough water to support the wildlife habitats. Other nature conservation schemes are proposed where justified by an assessment of costs and benefits.



How abstraction can harm wildlife and the environment

Anyone wanting to take a significant amount of water from the environment needs a licence from the Environment Agency. To decide whether to grant this licence, we look at the needs of the environment and other abstractors. We aim to minimise the risk of damage. For example, if someone wants to use water from a stream, we will issue a licence that will prevent them taking water at times when plants and animals are most at risk.

In a few places, there are historic rights to take water and abstractions that have damaged the environment. In others, there is no damage at present but important wildlife sites are at risk. Some sites are so important for nature conservation that we are obliged by law to protect them from further damage and, where necessary, to restore them.

We and the water companies have carried out many detailed studies of the effect of abstractions. Where these have shown the extent and type of change needed for a water company abstraction, we have put a scheme into the programme. For other cases, the programme includes investigations by water companies that will allow us to work out whether we need to reduce the abstraction.



The industry needs to commit more resources to maintaining and improving its sewers and pipelines



Updating ageing infrastructure

Ofwat has confirmed that the outcome of the review of price limits will allow companies to sustain the environmental gains made over the last decade.

Poor sewerage infrastructure risks causing pollution that is potentially harmful to human health and wildlife. Where sewers run next to beaches, rivers, or near groundwaters, these risks increase. Rising underground waters can also sometime enter sewers and thus reduce their capacity to convey sewage to treatment works.

The industry may need to commit more resources in some areas to maintaining and improving its sewers and pipelines. The companies own these assets and it is their responsibility to maintain them. It is crucially important for companies, their investors and the environment that these assets work well and continue to work well in the long term. We and other regulators are working with the industry on this. The Agency would like to see a strong emphasis on the environment in the companies' priorities for asset maintenance. Companies need to take more account of, for example, the possible impacts of leaking sewers as a contribution to pollution.

The Environment Agency is concerned that good progress on the control of leaks from water supply systems has suffered a setback in a few companies. Without higher rates of replacement, ageing water mains and aggressive soil conditions mean that further reductions in leakage may be difficult to achieve. A long term view of investment is needed.

We think that the water industry should be encouraged to integrate plans for maintenance with those for the environmental enhancement and controlling flooding from sewers so that better value solutions can be implemented over the longer term. Such plans would seek to control the risk of environmental damage, contribute to a reduced demand for new water supplies, maintain the condition and capacity of water and sewerage systems, and provide opportunities for environmental improvements that might not be so cost-effective if considered in isolation.



London sewer



storm sewage pollution

Planning for long term gains

The agencies believe that the cyclical nature of periodic reviews, and the effect this has on investment, is a weakness. Some treatment works have been improved in every review. Had it been possible to plan for the longer term, the overall cost may have been reduced. The periodic reviews need to take place in the context of a long-term agreed strategy. In future, the Water Framework Directive will provide an opportunity for this.

The price review will take account of policies that are more sustainable in the long term. These include, for example, demand management that can defer or remove the need to develop new water resources, the use of cleaner sources of energy, and selecting sewage treatment processes that have lower overall environmental impacts.

Reducing demand to help the environment

The Environment Agency acknowledges that new water resources may be needed in the future for public water supply. But this should be planned for in the context of a determination to reduce demand, for example, through more household metering, the installation of low flush toilets, audits of how water is used and designs for houses and appliances that use less water. Even then there will need to be restrictions on demand during severe droughts.

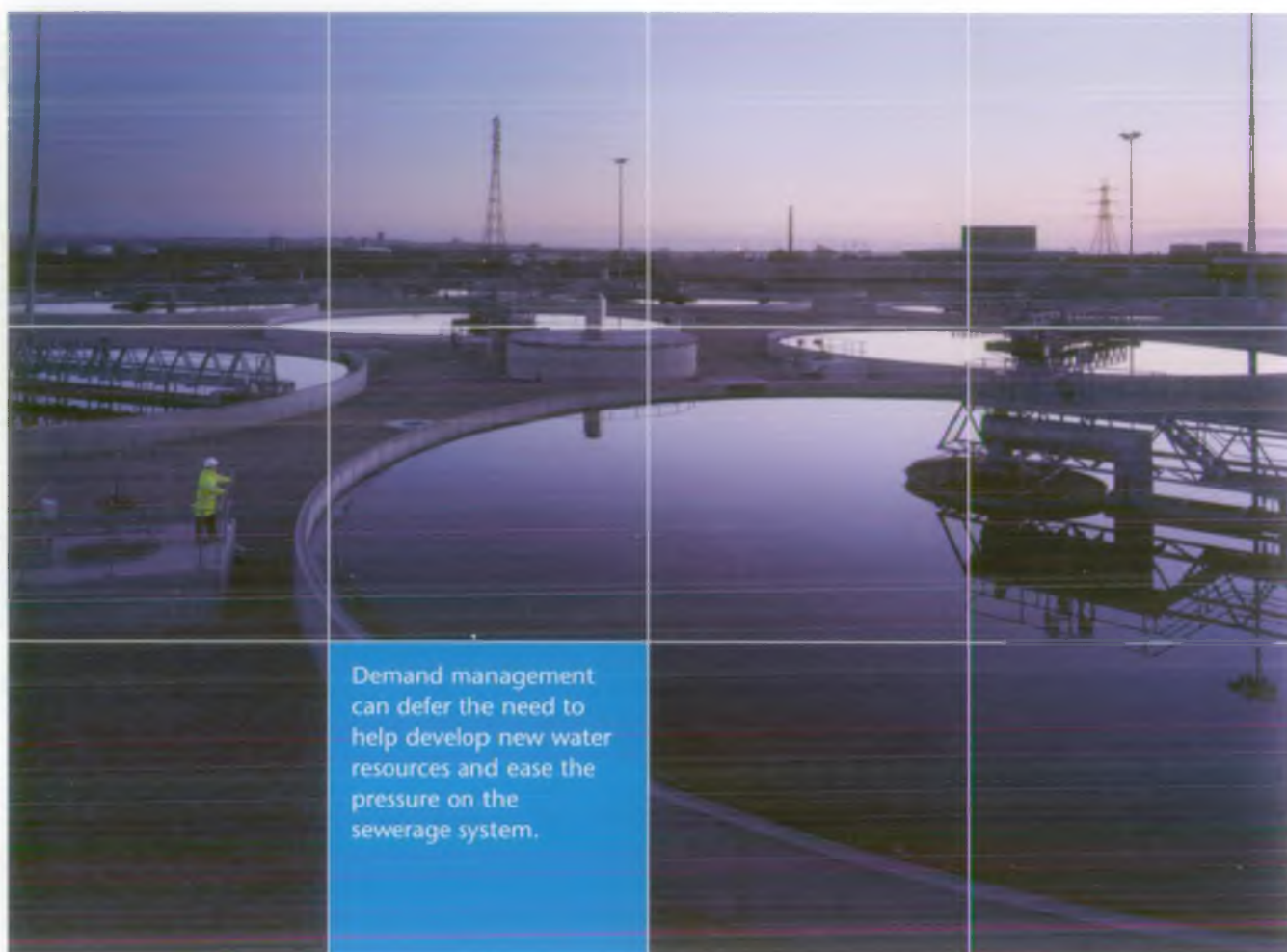
Efficient use of water is not just an issue for water supply. It can also ease pressure on sewers. There is considerable scope for using infrastructure improvements, and public education in "wise water use" to ease the burden on the system. For example, the water companies, the Agency, businesses, local authorities and Government can, as appropriate:

- influence people, the products they use, and how they use them, in their homes, businesses and gardens, and so reduce the amount of contamination that gets flushed into sewers; and,
- use sustainable drainage systems (SuDS) to reduce the amount of storm rainfall that flows into sewers and overflows into rivers. This can also reduce the risks of floods.

Financial incentives could also be used to promote water efficiency, making water conservation measures more attractive to businesses and householders. Water resource plans already encourage companies to consider long-term and sustainable solutions to potential shortages of supply.

Tackling sewer flooding

Flooding from sewers is a big concern of customers that needs to be addressed in the price review. It can also cause pollution. Companies should identify potential problems in their sewerage systems and develop long term plans to maintain structures, capacity and performance. But care is required to ensure that actions to remedy sewer flooding cause no pollution problems elsewhere.



Demand management can defer the need to help develop new water resources and ease the pressure on the sewerage system.

Courtesy of Northumbrian Water

New flood defence schemes may increase the risk of sewer flooding in some places. The Environment Agency will take account of this as part of its duties for flood defence, but expects companies to help identify opportunities for linking sewerage improvements to flood defence schemes, to reduce disruption to the public and save money. The Environment Agency and the companies should co-ordinate the upgrading of flood defences with that for the sewer system and, in doing this, also look for opportunities to enhance nature conservation by protecting or creating new habitats for wildlife.

The companies, with the Environment Agency and local authorities, should consider action on sewer flooding in the context of urban drainage as a whole. This should seek to achieve sustainable solutions, with the right mix of storage and control, and attenuation of flows through the sewerage and drainage systems. Where practicable, actions on sewer flooding should be integrated with projects for improvements to environmental quality.

Addressing climate change

Companies should show how their plans for operating and improving their assets minimise the use of energy and the emission of greenhouse gases, whilst meeting other obligations.

The impact of climate change should be assessed in terms of the future reliability of water supplies and the effect on the demand for water. We do not expect big investments to deal with possible effects of climate change within the period of this current price review. The Environment Agency is not recommending that special provisions are made for discharges to deal with the possibility of reduced dilution by rivers or more storms. This will be taken into account over the next decades, through the way we assess all the factors needed to set conditions for permits.

Addressing sewage sludge

The Environment Agency supports the sustainable reuse of organic resources such as treated sewage sludge, and wants to see this activity maintained. The reuse of organic materials in agriculture is a safe and sustainable use of a valuable material.

What about other sectors?

Actions within river catchments⁵ should be looked at together. This will help in the selection of the best schemes and place action by the water industry in the context of that required by others. We may seek changes across a catchment to complement, for example, improvements in the treatment at sewage works.



Agriculture 10/08

In particular, we need to reduce the diffuse pollution washed from land into rivers, lakes and wetlands. Diffuse pollution is associated with how the land is used, for example, for agriculture or as developed areas and roads. We are working with the Government on proposals to tackle diffuse pollution.

The Environment Agency, English Nature and the Countryside Council for Wales will seek to reduce diffuse pollution in parallel with action on the discharges and abstractions made by water companies and others. This will be done in an even-handed manner, proportional to the risks posed.

There are also impacts from diffuse pollution on drinking water. Achieving standards for nitrate incurs costs for the treatment or blending of water supplies. Protection against *Cryptosporidium*⁶ costs £10 million for a large water treatment works. There are significant potential costs for removing pesticide contamination from water supplies. One company has implemented a £100 million scheme for pesticide treatment plants.

We want to see a reformed Common Agriculture Policy that:

- promotes improvements in the environmental performance of the agricultural sector; and,
- tackles the contribution of farming to diffuse pollution.


All three agencies collaborating to produce this report are advising the Government on how the reforms could benefit wildlife and deliver environmental improvements.



Urban pollution 6/05

⁵ A river catchment is the area of land where rainfall can eventually drain into the river.

⁶ *Cryptosporidium* is a form of microbiological contamination from material washed from land grazed by livestock. If it gets into water supplies it can make people ill.



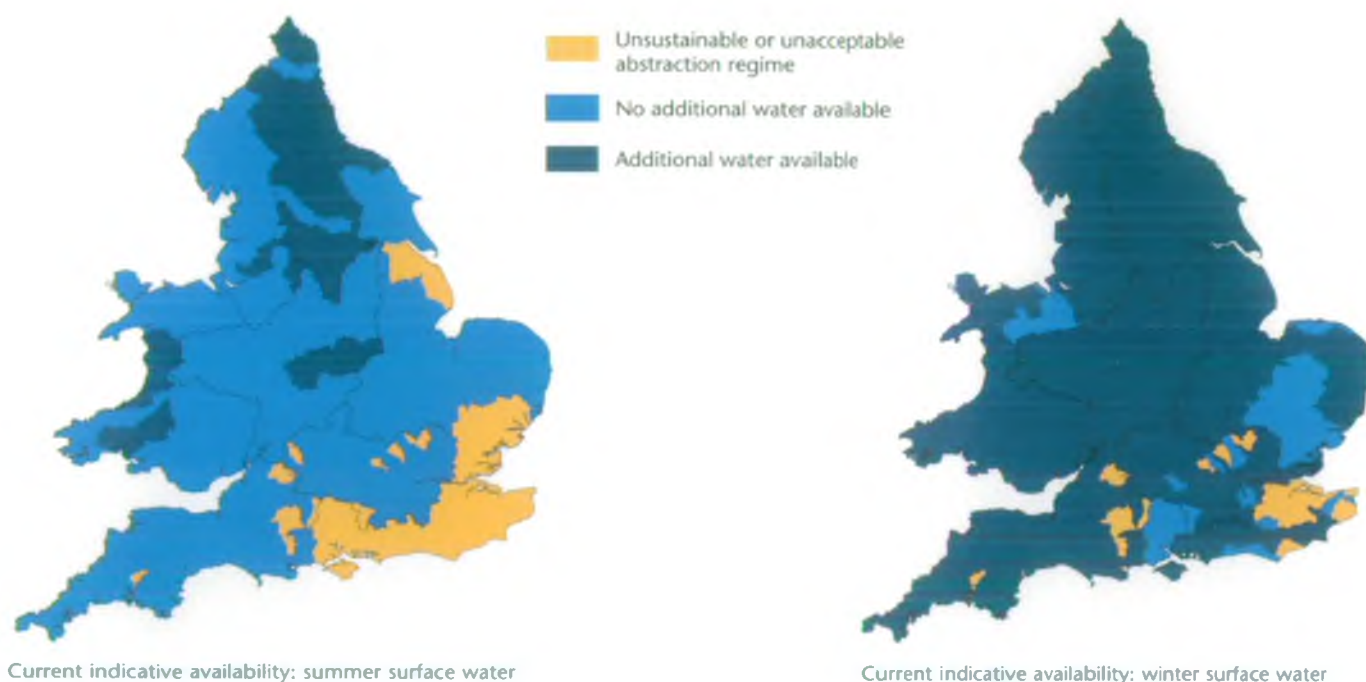
It is our job to make sure
air, land and water are
looked after by everyone
in today's society

Our environment programme for 2005-2010

The Environment Agency protects the environment by setting standards. Where these are threatened we take action to control damage and the risk of damage, for example, by using our established procedures to set conditions in permits that will achieve the required environmental outcome. Some permit conditions and nearly all environmental standards come from national and European legislation. Water companies must comply with the conditions placed in their permits and licences for discharges and abstractions, and all the existing obligations that underpin these.

The actions in the programme proposed for 2005-2010 cover the topics listed in Box 1. Recent developments include new requirements under several directives and the Countryside and Rights of Way Act. A key factor has been the growing body of evidence on the state of government designated nature conservation sites since the previous review in 1999.

Companies are concerned about uncertainties in costs and timing of new obligations from the European Union, for example, the new Bathing Waters Directive, the revised Sludge Directive, and the Directives on Urban Waste Water Treatment and Freshwater Fish. The agencies shares this concern. The uncertainties stem from the process by which directives are negotiated, agreed and then implemented. In a number of cases there are doubts on how directives are to be interpreted.



Size and scope of the new programme

The actions we propose include new conditions on abstractions and discharges. Bringing together thousands of potential actions for the review requires good co-operation between government, the water industry, the regulators and the conservation agencies. It involves exchanging large amounts of information, agreeing the nature of every scheme, assessing benefits, and setting up ways to check the programme delivers the required benefits for the environment whilst aiming for the lowest cost options.

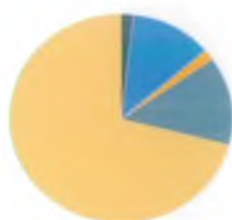
Figure 1 compares the 3200 main actions for the new programme (2005 to 2010) with more than 6000 similar actions for the last one (2000 to 2005).

Figure 2 shows the range of 3200 main actions. In addition there are 900 investigations (many of which may demonstrate the need for further action) and about 1000 relatively small schemes for monitoring discharges with telemetry. The labels in Figure 2 refer to the topics discussed in Box 1. Around half of the 3200 main actions are statutory. Ministers have choices about the rest of the actions. Some issues may appear to have few actions but in these cases other actions meet the bulk of the requirements.

Figure 1

2000 – 2005

- Coast
- Rivers
- Conservation
- Sewage Works
- Intermittent

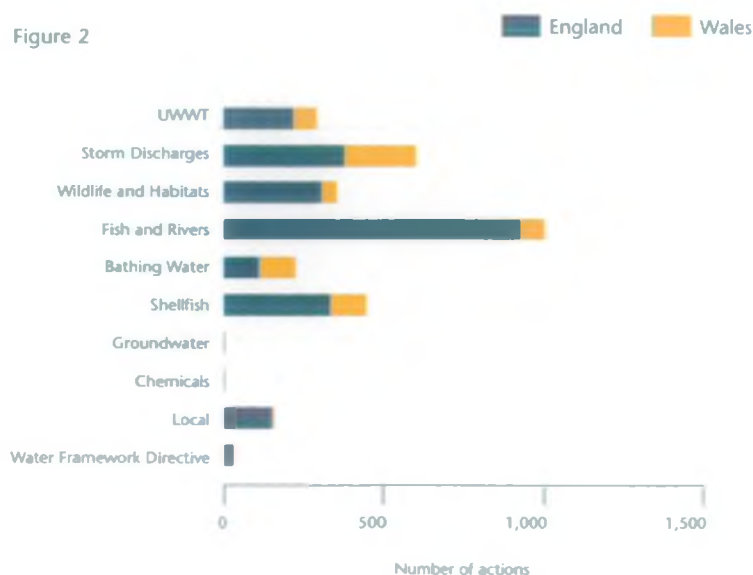


2006 – 2010

- Coast
- Rivers
- Conservation
- Sewage Works
- Intermittent



Figure 2



Box 1: Drivers for environmental improvements

Waste Water Treatment and Storm Discharges

The Directive on Urban Waste Water Treatment imposes minimum treatment requirements on sewage effluents. The level of treatment depends on the size of the discharge and on the type of water to which it is discharged. The outcome is better water quality, particularly for rivers and coastal waters thought to be at risk from eutrophication. It also covers improvements to intermittent (storm) discharges of sewage, so reducing sewage litter in rivers and on beaches. The Directive on Integrated Pollution Prevention and Control controls activities at sewage works receiving certain discharges from industry via sewers, or where sludge is incinerated.

Wildlife and Habitats

The Habitats and Birds Directives safeguard sites and threatened species that are important at the European level. The sites, Special Protection Areas and Special Areas of Conservation, form a network known as Natura 2000. Sites designated under the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar sites), are afforded the same protection as sites designated under these Directives.

English Nature and the Countryside Council for Wales notify Sites of Special Scientific Interest (SSSIs). These form the network of protected sites of national importance for conservation. Although water companies have always had a duty to conserve SSSIs, the Countryside and Rights of Way Act 2000 puts additional duties on public bodies, including Ofwat, the Environment Agency and water companies, to further the conservation and enhancement of SSSIs.

The Biodiversity Action Plan is a commitment through the Government's signing of the Convention on Biological Diversity. The Government has stated that it will meet its duties to conserve biological diversity under the Countryside and Rights of Way Act through the England Biodiversity Strategy. This sets out work for the next five years.

Fish and Rivers

The directive on Freshwater Fish protects and improves the quality of waters for fish. Some 20,000 kilometres of river are covered and Defra and the National Assembly for Wales are currently consulting on the designation of a further 11,000 km of additional stretches of river and canals and 90 still waters (equivalent to an area of over 14,000 hectares). Also, 40,000 kilometres of river have River Quality Objectives. These define the water quality needed to protect fish, the use of the river for recreation and to ensure water quality for abstractions for water supplies, industry and agriculture.

Directive on Bathing Waters

Sets water quality standards to protect public health and the environment.

Directive for Shellfish Waters

Lays down standards for waters designated as shellfisheries and so protects shellfish and improves the marine environment. The Shellfish Hygiene Directive, sets conditions for the production and marketing of shellfish intended for human consumption.

Groundwater

The Groundwater Regulations control the entry of certain substances into underground water and so protect these waters and the water supplies and rivers that depend on them. There are also cases where the abstraction of underground water may have too much impact on water quality and companies may need to develop an alternative source for drinking water. There are also cases where companies act to control the spread of historic pollution caused by others.

Sewage Sludge Regulations

In most cases the best option for sludge is recycling to agricultural land. This is regulated through the Sludge Regulations. Further sewage treatment could increase sludge volumes. Restrictions could be placed on sludge disposal on agricultural land as a consequence of the Nitrate Directive, the Landfill Directive and the Groundwater Regulations.

Chemicals

Schemes for the Directives on Dangerous Substances cover extra treatment needed to deal with diffuse inputs of pollution to sewers and so reduce the amounts of chemicals entering the water environment. The Environment Agency has also presented research on the feminisation of fish by chemicals in effluent. We recommend a programme with the water industry to establish the basis for any future changes needed in sewage treatment.

Local Actions

This covers improvements that are not required under other headings, but have local support and will bring environmental improvements that will not be achieved in any other way.

Water Framework Directive

Action taken through the above will form a cost effective and adequate preparation for this Directive. This heading covers additional action, specific to the Directive, where this would be more efficient in the long run, for example stopping a discharge to groundwater that will be banned rather than spending money on treating it.

Nature conservation

In the past 100 years or so, England and Wales have lost over 90 per cent of their lowland raised bogs, and 75 per cent of ponds and floodplain grasslands.





In the previous periodic reviews, 90 schemes received funding to protect habitats and wildlife in 45 SSSIs.

The best of what remains – some 800 Sites of Special Scientific Interest (SSSIs) notified for freshwater or wetland features in England – supports wildlife in the water environment. As at August 2003, approximately 60 per cent by area is considered to be in an unfavourable state. 57 per cent of river SSSIs in England are in unfavourable condition due to point source pollution leading to excessive nutrients, principally phosphorus.⁷

As part of the process for the periodic review, around 160 freshwater and wetland sites designated for nature conservation have been identified as affected by or at risk from abstraction by water companies. In the previous periodic review, 90 schemes received funding to protect wildlife on 45 SSSIs. This has led to improvements in some aquatic habitats such as the one shown in the picture opposite. Within the statutory actions that are a part of Figure 2, 350 are for nature conservation. In addition there are 300 investigations.

The Regulations for the Habitats Directive require the Environment Agency to demonstrate that permissions, for example those for discharges and abstractions, do not adversely affect a site of European importance, alone or in combination. If this cannot be demonstrated, the permission has to be modified or revoked unless a case can be made of over-riding public interest, and there is no viable alternative.

The Environment Agency, working with English Nature and the Countryside Council for Wales, has given a priority rating to the action needed to tackle activities controlled by permits issued by the Environment Agency and which affect European protected conservation sites. The condition of the site, the risks posed by permit conditions, and the complexity of the site determined the ranking of priorities. The Agency must confirm, amend or revoke permissions within two

years to a set timetable. This timetable does not match that for the price review. This means that some investigations to determine which discharges or abstractions are adversely affecting European protected conservation sites will not be completed in time for this price review.

Similarly, the Countryside and Rights of Way Act requires the Environment Agency, Ofwat and the water companies to conserve and enhance SSSIs in carrying out their functions. The Government has set a target for 95 per cent of SSSIs in England to be in favourable, or recovering, condition by 2010. English Nature and the Countryside Council for Wales report on the condition of SSSIs. It is likely that investigations funded in this price review will lead to a need to take remedial action before the next review.

Some companies may therefore face extra costs between this price review and the next. The licences by which water companies operate provide for changes in price limits between reviews, where extra costs arising from new obligations⁸ exceed a particular threshold related to the turnover of the company. Where the net additional costs do not exceed the threshold, the company must carry these costs until new price limits are set out the next review.

We think that measures should be put in place to give companies confidence that funding, including financing costs up to the next price limit period, will be made available for schemes that are justified outside the timetable for the price review.

⁷ Phosphorus is an essential nutrient for plants but in excess it leads to an imbalance. Eventually rivers and freshwater habitats can be dominated by algae, with consequent loss of higher plants and their associated animals.

⁸ Plus a limited number of other relevant changes of circumstance or specific items notified in Ofwat's determination.



River Pang: A chalk stream in Berkshire. Thames Water has reduced abstraction from groundwater near the head of the river by agreement. This accounts for the return of flow in the picture. The Environment Agency seeks to make this agreement permanent in the price review.

River Ver: A chalk stream in Hertfordshire. This river was being damaged by abstraction of groundwater. The solution was to reduce abstraction.

Both these examples show the difference return of flow can make. In both cases valuable chalk streams have been protected and improved.

Working out the benefits of the new programme

Improvements made by the water industry bring benefits all can share – at home, at work or at leisure. They can generate opportunities for better public health, business, food production, recreation, regeneration, conservation and tourism.

For example, our proposed improvements to the River Calder near Burnley will provide recreation for a deprived area and benefits in enhancing the attractiveness of a site for commercial development. Work to improve a watercourse near Bossingham in Exmoor National Park will support local and regional tourism. At Conwy in Wales, our proposals should enhance recreation and tourism.

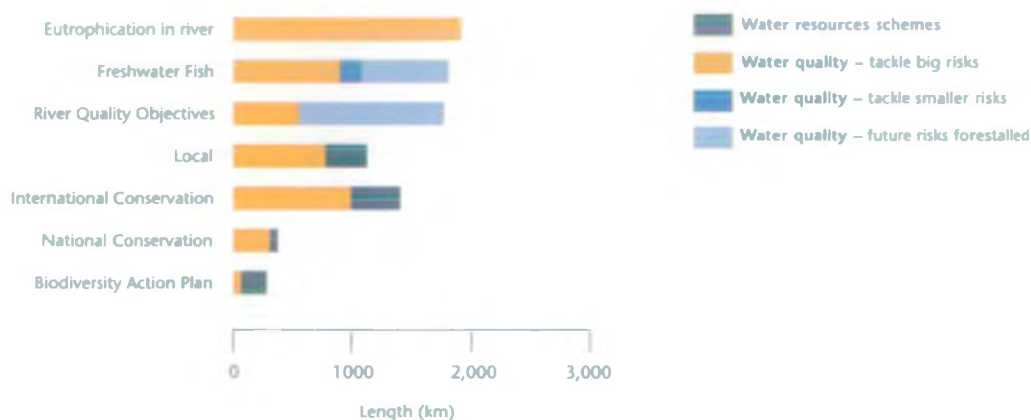
The Environment Agency has developed a systematic process for assessing the environmental benefits of schemes for which there are choices about what should be done.⁹ The purpose is to help others determine whether our proposals provide more value to society than the costs. The underlying methodology has been peer reviewed and agreed by Defra, Welsh Assembly Government and Ofwat. We have derived

monetary values for many of the benefits. These are based on a comprehensive review of the available studies and extensive inputs from the leading experts.

This has identified nearly 1000 actions across England and Wales where the potential benefits outweigh the costs. Expressed as a capital sum, these benefits are worth £1.4 to £1.6 billion.

Figure 3 illustrates one of the projected outcomes of the programme – improvements to rivers. The Environment Agency has also estimated the overall benefits of the entire environment programme¹⁰ (including the essential statutory schemes). Our initial estimate is £0.4 to £0.6 billion per year, equivalent to a capital sum from £5 to £8 billion and around 6 to 8 per cent of total turnover of the water industry.

Figure 3



The Environment Agency estimates that the value of the environmental damage from all current discharges and abstractions is £1.2 to £1.9 billion per annum. Of this, we estimate that the water industry is responsible for about half.¹¹ Our proposed environment programme will reduce the damage costs caused by water companies by about half and take us almost a third of the way to resolving the environmental issues to be tackled under the Water Framework Directive.

Our estimates of benefits include the improvements for recreation, fishing, and natural habitats and ecosystems that are generated by better water quality. They include reductions in illness (for example, stomach upsets) from improvements to Bathing Waters. The biggest benefits are for reductions in the risks of damage to ecosystems and natural habitats for current and future generations.

There are a number of factors that would increase the benefits beyond those we have noted above. For example, we have been unable to include the monetary value of local economic development and regeneration that is associated with improved water

quality. The latter can be important where the Regional Development Authorities have identified environmental improvements as a priority. The developments we have in mind are, for example, housing or commercial development in urban areas, once waterways are cleaner and more attractive.

A further benefit is that the programme will help meet increasing expectations for good water quality and the security of water supplies. Good quality water, with thriving wildlife, reduces risks and increases confidence that water resources are safe. The programme will provide these increased safeguards at a time when we face uncertainties in planning for climate change.

9 Benefits assessment guidance for water quality and water resources schemes at: http://www.environment-agency.gov.uk/business/444304/444643/425378/425401/425411/507669/?lang=_e

10 Overall Benefits of the AMP4 Programme – report to be published on the Environment Agency's web site in October, 2003.

11 The Environmental Benefits of the Environmental Programme in the Periodic Review of the Water Industry (PR04), Environment Agency, 2002.

Measuring the outcome

The Environment Agency will track progress in our reports on the environment and on compliance with Directives. We will report each year to Ofwat on the progress made by the companies in completing actions on time.





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Courtesy of English Nature, 2000

A good deal for the environment

In summary, we believe that our proposed environment programme makes sense for the environment, the economy, and people. It will support and improve quality of life and economic well-being. It will provide opportunities for economic development, better public health, business, food production, leisure, conservation and tourism.

We have argued that the programme is good value for money – that it can do

the job properly at lowest cost. We expect that our estimates of benefits, themselves conservative, will exceed Ofwat's estimates of cost. The programme will contribute a modest portion of the average bill for water and sewerage by 2010 – no more than the cost of a can of fizzy drink in the weekly shopping for each household.



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Further Information

The regulators (Ofwat, Environment Agency, English Nature, Countryside Council for Wales and Drinking Water Inspectorate), Defra and Welsh Assembly Government issued a joint statement explaining the next stages of the water price review, and how you can get involved this autumn. To find out more, follow this link to:
www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/joint_statement120803

To find out more about the environment issues for the 2004 Periodic Review, including what is happening in your local Agency Area, visit our website: www.environment-agency.gov.uk. For general information on the 2004 Periodic Review you can visit Ofwat's website: www.ofwat.gov.uk

www.environment-agency.gov.uk

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The Environment Agency is the leading public body protecting and improving the environment in England and Wales.

It's our job to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world.

Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.



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