

Protecting and improving the water environment



*Our response to the
Blueprint for Water*





The Blueprint for Water is a clear and powerful call to action for policy makers, regulators and water companies. This is our response. It sets out how our draft Business Plan for 2010 – 2015 addresses the issues the Blueprint raises.

Many of the Blueprint's aspirations are directly relevant to our mission and we believe the forthcoming price review provides an excellent opportunity to agree actions that will help us meet these aims, benefiting our customers and the environment.

We look forward to working with you to deliver these improvements.

A handwritten signature in black ink that reads "Richard Aylard". The signature is written in a cursive style with a horizontal line underneath the name.

Richard Aylard
External Affairs & Sustainability Director
Thames Water

Waste less water

Reducing leakage remains a top priority. We've made good progress by replacing 1,000 km of our oldest, leakiest pipes, and have beaten our leakage target for the second year in a row. But despite this, nearly half of our mains in London are 100 years old.

We plan to continue our ambitious Victorian Mains Replacement programme in London, which involves work in around 450 streets at any one time. This will help reduce leakage by around 18% between 2010 and 2015.

We agree that leakage targets should better reflect environmental and social impacts, and plan in the longer term to reach more sustainable levels than those set out by current targets, which are based on the 'Economic Level of Leakage', the point at which it becomes more expensive to provide additional water by reducing leakage than by other means. The high cost of leakage reduction in London means the Economic Level is particularly high in the capital, and both customers and stakeholders support our view that leakage reduction should go beyond this level.

We will:

- Continue our pipe replacement programme at a rate of around 500 kilometres a year
- Continue the current extensive programme of "find-and-fix" activity
- Use the Leakfrog, a device we have invented, to identify leakage on customers' private pipework
- Continue to subsidise work to repair leaks on customers' private pipework, which accounts for 25% of all leakage

Customers and stakeholders place great importance on water efficiency. We agree that it has a critical role to play in balancing supply and demand, and we have strengthened our plans in response to their feedback. We are proposing a much-increased programme of water efficiency activities that will surpass regulatory requirements, and plan to invest in excess of £4.5m each year from 2010 to 2015, compared to an annual figure in excess of £750,000 at present. We have committed in our plans to promote water efficiency and increase awareness among our customers, in line with the aspirations of the Blueprint.

We will:

- Provide advice and support to all customers where we fit a water meter over the next ten years, distributing self-audit packs and water-saving devices
- Offer an enhanced service to low income customers where we fit meters, sending a plumber to complete water use audits and install water-saving devices
- Continue to support businesses and industry through water efficiency audits
- Promote a programme of audits and work to retrofit water efficient fixtures for the public sector, in partnership with local authorities, schools and hospitals
- Research the potential for rainwater harvesting, grey water reuse and the use of non-potable water at a community level in new developments.



Keep our rivers flowing and wetlands wet

Many of the streams and rivers in our region rely heavily on water from our sewage works to maintain flows, particularly during summer months, so we must ensure high treatment standards. Over the course of the last regulatory year we have achieved 100 % compliance for the first time ever. We are putting forward a programme of maintenance, including major refurbishments at 26 sewage treatment works, to ensure this continues.

We are mindful of the potential environmental impact of our abstractions, and are committed to meeting the requirements of the Habitats Directive and the Environment Agency's Restoring Sustainable Abstractions Programme. In recent years we have reduced abstractions at a number of habitat-sensitive sites, most notably Latton, Baunton and Meysey Hampton, which affect the River Churn and Ampney Brook, New Ground on the Bulbourne and Eynsford and Horton Kirby on the Darent.

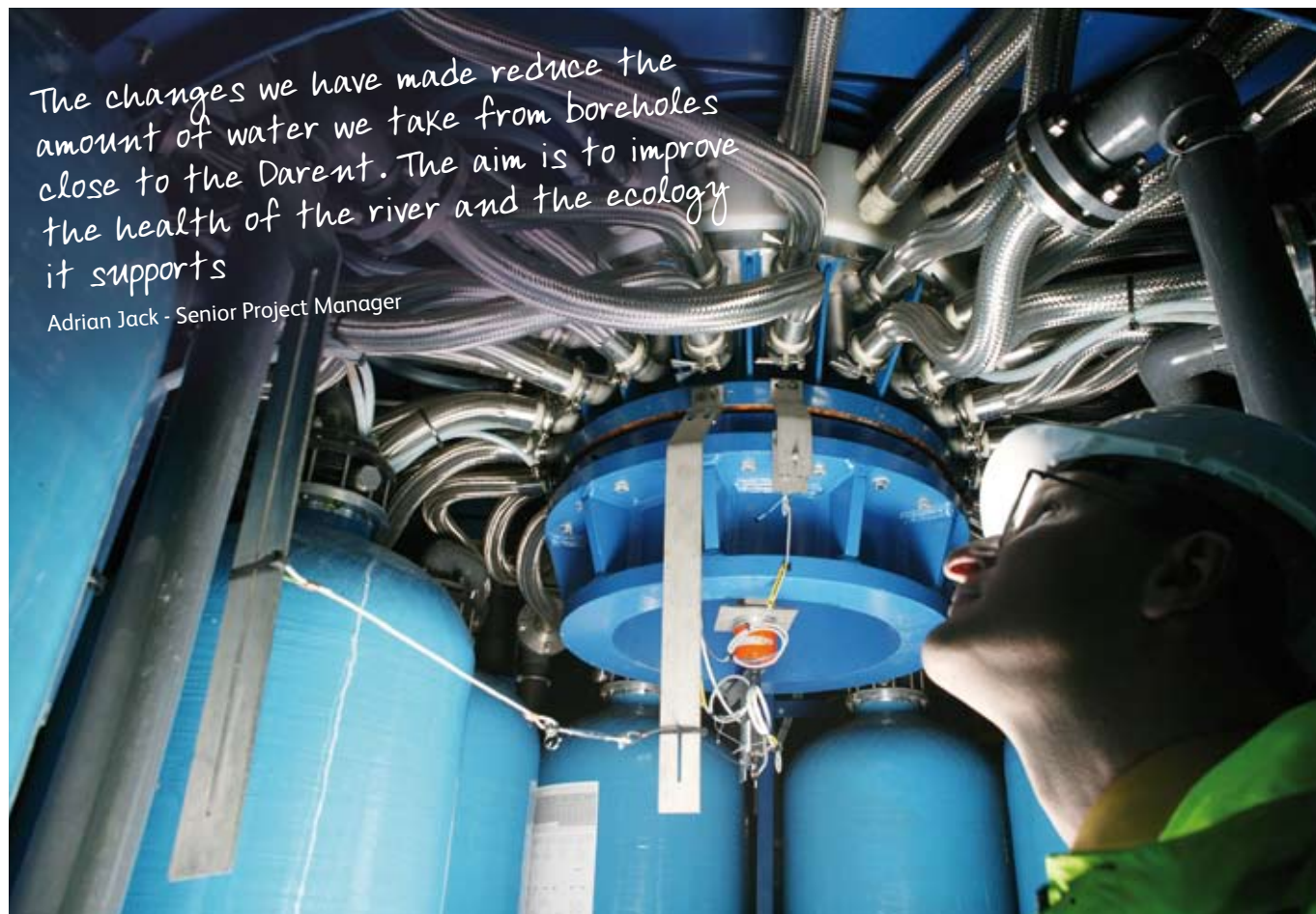
We plan to extend this work. Investigations into the potential impact of our abstractions have identified the need for reductions in two locations near the River Kennet, one of the watercourses highlighted in the Blueprint.

We will:

- Reduce the volumes we draw from groundwater near the Kennet at Axford, to boost flows in this nationally important chalk stream.
- Reduce groundwater abstraction at Speen to ensure there is no risk from abstraction to the Kennet and Lambourne Floodplain Special Area of Conservation.
- Install fish screens at Farmoor and along the lower Thames (at Datchet, Laleham, Surbiton, Hampton, Hythe End and Walton-on-Thames) so that young fish are not sucked into the works.

We are also proposing further investigations, based on guidance from the Environment Agency and Natural England, to identify areas where our abstractions may be having an adverse impact on the environment. We will assess the impact of abstractions at:

- Lee Valley groundwater sources on the Lower River Rib
- Waddon groundwater source on the River Wandle in south east London
- Mousehill and Rodborough groundwater source on the Royal Brook near Godalming
- Manor Road groundwater source on the Letcombe Brook near Wantage
- Pann Mill groundwater source in High Wycombe on the River Wye
- Dorney groundwater source on the Roundmoor Ditch near Eton Wick
- The lower non-tidal stretches of the Thames and the Thames Tideway.



Price water fairly

If our five-year plan is approved, bills will rise annually by 3% above inflation, taking our average combined annual bill (in 2007/08 prices) from £283 in 2010 to £329 in 2015.

At less than £1 a day, we believe our average bill will remain excellent value for money. But the impact of a rise in costs is closely linked to individual circumstances, and a move to metered payments could also lead to bigger bill increases for some customers.

We aim to increase domestic metering from 27% in 2010 to 50% in 2015 and 80% by 2020, in line with the Blueprint's aspiration for universal metering. This ambitious programme will see 850,000 meters fitted by 2015 in areas where the pressure on supplies is greatest.

We know that higher bills will increase affordability pressures for low-income customers. Our planned approach to pricing water fairly will provide more financial assistance; targeted to better reflect the needs of our customers.

We will:

1. Ensure fair and equitable tariffs for all.

We will complete up to five trials to better understand how different tariff structures, such as rising block and seasonal tariffs, affect different groups of customers. The results will help determine the most equitable new tariffs for introduction across our region from 2015.

2. Provide enhanced water efficiency measures for low income customers

We want to ensure that lower income customers are protected from the potential impact of a move to metered payments until we introduce new tariffs in 2015.

We will aim to avoid installing meters in areas with a high density of low-income households.

We will also identify low-income customers through the process of arranging for meters to be installed, helping determine who should receive the enhanced water efficiency service detailed in *Waste less water*.

3. Introduce a means-tested tariff

For customers who face a greater level of difficulty paying their bill, we intend to offer a means-tested tariff. For some customers this would provide a 25% discount on their bill; for others a discount of 50%.

Using the rateable value system to set charges means there is currently an in-built cross-subsidy benefiting lower-income households. A means-tested tariff is a vital way to protect those less well off as this subsidy disappears with the move towards universal metering.

4. Provide a charitable trust for customers with greatest difficulties

We intend to set up an independent charity to provide a safety net for those already in debt and unable to pay their bills. This will replace our existing directly managed Customer Assistance Fund, and expand the activities of the Fund.



Make polluters pay

We have made significant improvements in our own performance, reducing the number of pollution incidents leading to prosecution from eight in 2006/07 to one in 2007/08, with the lowest level of fines for any of the England and Wales water and sewerage companies.

In addition, we recently completed a comprehensive assessment at all our sites to document the consequences and likelihood of asset failure. The results of this investigation have informed our proposals for 2010 - 2015.

We will minimise as far as we possibly can the risk of our activities causing pollution incidents. But if they do, we will act to prevent any recurrence, and to make good any damage done.

We will also work with businesses to minimise the risks of pollution entering our sewers. Having successfully completed an extensive and award-winning programme of joint visits with the Environment Agency to metal finishers*, we will now concentrate more heavily on the food and drink industry. More details on our plans are included in *Clean up drainage from roads and buildings*.

We will, as a last resort, and when we have been unable to work in partnership with commercial customers, prosecute those who break trade effluent consents. An increased focus on this area has led to an increase in prosecutions, and the numbers are higher than ever before.

* Thames Water's scheme of visits to metal finishers won the Utility Industry Award for the Environment in 2002.



Our team of 'Flushers' help ensure London's sewers are kept clear of fat from homes, restaurants and takeaways

Stop pollutants contaminating our water

After some 20 years of sustained investment in sewage treatment and drinking water quality, we now meet some of the most stringent effluent consents in the UK water industry and have the best drinking water quality compliance of any of the water and sewerage companies. With the exception of work to address discharges to the Thames Tideway (detailed in the next section), our programme to meet quality obligations in 2010-2015 is more modest.

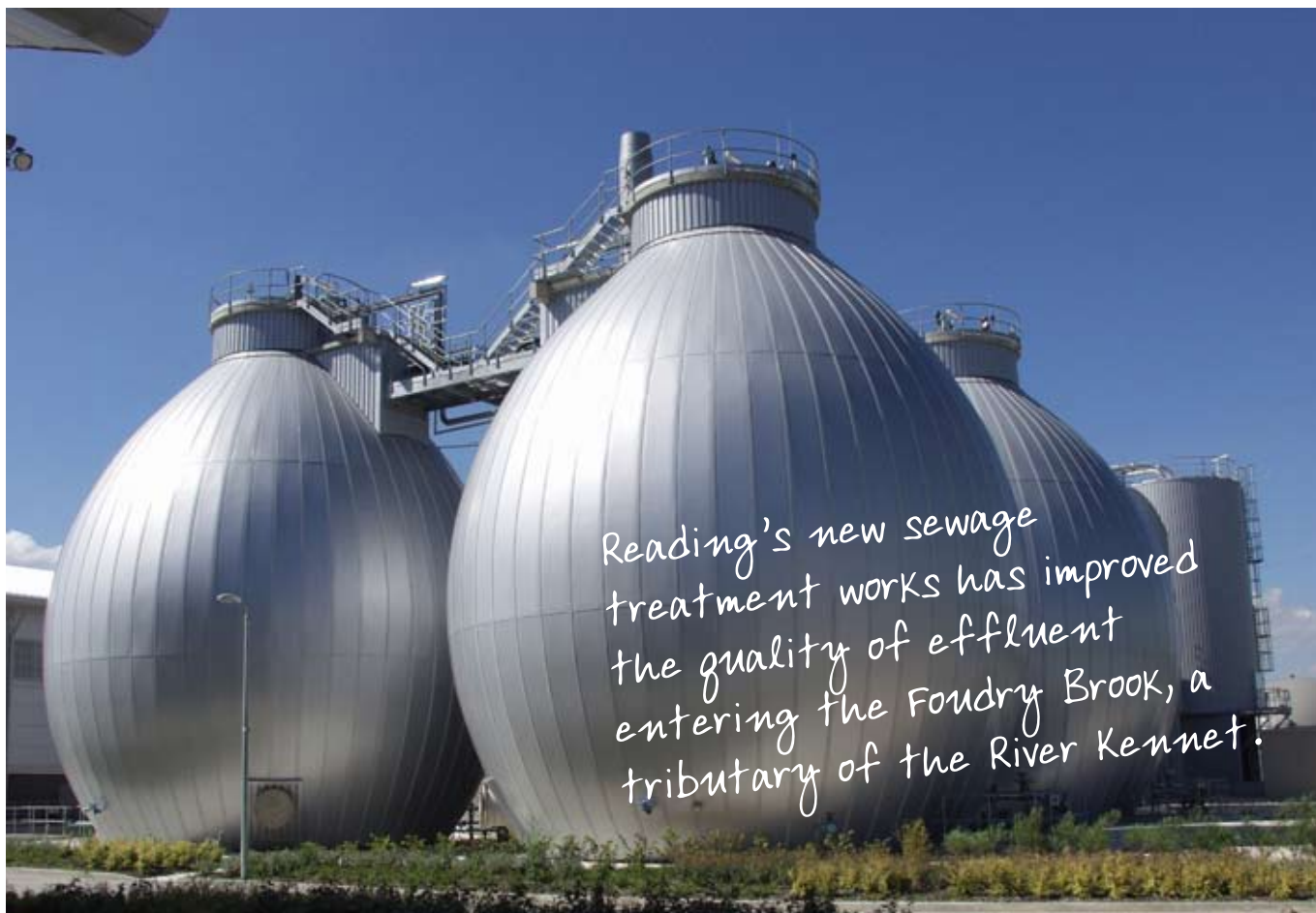
Our quality programme has been reviewed and endorsed by the Environment Agency and the Drinking Water Inspectorate and is consistent with the 'Statement of Obligations', issued by Defra in February 2008.

To protect watercourses, we will:

- Improve over 200km of river across our area and protect over 200km from deterioration
- Reduce phosphorus levels to comply with:
 - Urban Wastewater Treatment Directive requirements at Aylesbury, Bracknell, Bishops Stortford and Stanstead Mountfitchet.
 - SSSI (CROW Act) requirements at East Grafton, Wilton and Great Bedwyn.
 - Water Framework Directive requirements at Broughton.
 - A Local Priority Scheme (to meet Environment Agency and Natural England requirements) at Woodstock.
- Reduce oxygen demand and ammonia levels to comply with:
 - The Freshwater Fish Directive at Berkhamsted
 - SSSI (CROW Act) requirements at Great Bedwyn
 - Water Framework Directive requirements at Fiddlers Hamlet and Byfield.
- Improve sewage treatment at 36 sites where demand is forecast to grow, to ensure we continue to meet existing consents and prevent any increase in the polluting load on receiving watercourses.
- Investigate the effect of our sewage effluent on SSSIs in Tring and on the Kennet & Avon Canal.

To protect the quality of drinking water, we will:

- Install membrane treatment at Fairford (Gloucestershire) and Marlborough (Wiltshire) water treatment works, to protect against the risk of cryptosporidium contamination.
- Reduce concentrations of pesticides in Berkshire by installing granular active carbon treatment at Woods Farm water treatment works, near Goring.



Keep sewage out of homes and rivers and off beaches

Rapid population growth and development means that our sewers and treatment works are not always able to cope with the volume of wastewater entering the system. A growing number of homes and businesses face the risk of being flooded with sewage, an unpleasant and distressing experience that we are determined to address.

We have significantly increased investment to tackle this problem since 2005, and have made good progress, protecting thousands of homes and businesses. But many properties remain at risk, so it is vital that we maintain this work, which has the strong support of customers and stakeholders.

We will:

- Increase investment to reduce high-risk property flooding
- Where it is not possible to develop affordable solutions, offer ways to reduce risks (flood guards, securing manhole covers, minor landscaping).
- Seek funding to address repeat flooding caused by storms currently deemed as 'extreme weather' events.
- Improve our design standard for sewers to ensure protection from a 1 in 30 year storm, instead of a 1 in 20 year storm, thus adapting to climate change
- Take a proactive approach by identifying properties at risk of future flooding, rather than helping only those properties where flooding has occurred.

The five years from 2010 – 2015 will also see major investment to reduce discharges of storm sewage into the River Thames and River Lee during heavy rainfall, in line with the Blueprint's aspirations.

We are preparing ambitious plans to ensure London has a sewer system fit to cope with the demands of 21st century life, including climate change and a rapidly growing population.

These improvements, which represent the next phase in the evolution of London's mains drainage since Bazalgette built the system in the 19th century, will protect wildlife and river users, and reduce unsightly visible pollution.

We will:

- Continue work to upgrade our five Tideway sewage works, reducing the frequency of discharges of storm sewage and improving effluent quality.
- Greatly improve the quality of the River Lee in east London by building the Lee Tunnel, virtually eliminating storm discharges from Abbey Mills pumping station, responsible for more than 50% of total discharges by volume.
- Start work on the Thames Tunnel, which will run from Hammersmith in west London to Beckton in east London, preventing almost all storm sewage from entering the river and protecting wildlife and river users, as well as reducing visible pollution.

Our customers agree that protecting homes and businesses from sewer flooding must remain a priority



Support water-friendly farming

We have worked closely with industry and through partnerships to reduce the impact on the water environment of nitrate and pesticide use.

We have:

- Joined the Voluntary Initiative, nominating one of our catchments near Banbury for inclusion. We worked alongside farmers, pesticide manufacturers and agronomists to reduce pesticide use without recourse to a pesticide tax. Since the Initiative ended in 2007 we have continued to fund this work with the help of the Crop Protection Agency.
- Helped persuade the Pesticide Safety Directorate to phase out isoproturon by 2009. This particular herbicide has polluted many surface waters throughout England.
- While not directly relating to agriculture, we have worked with Network Rail to protect drinking water sources from herbicides used for line maintenance, using glyphosate instead of more persistent herbicides or, in the most sensitive areas, manual weeding. This relationship has proven highly successful and is now a national agreement, administered by the Environment Agency.

We are currently experimenting with a text message alert system that would inform farmers of the weather forecast and recommend whether to limit or suspend pesticide use each day.

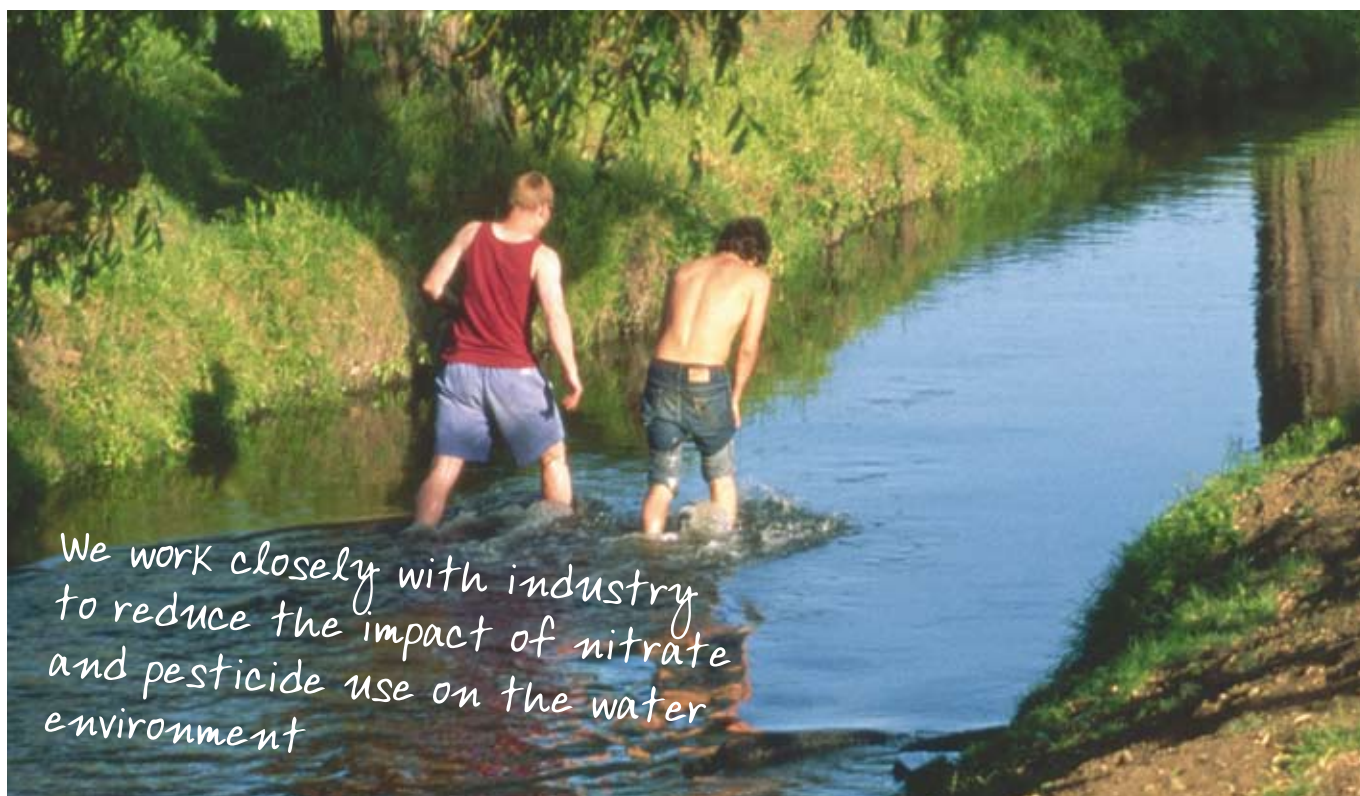
Our draft five-year plan sets out a range of measures to protect raw water sources. Two Catchment Management Projects are proposed for Harpsden (near Reading) and Sheafhouse (in the Cotswolds), and three more are under discussion with the Drinking Water Inspectorate. These involve working with farmers to reduce pesticide contamination of water sources by raising awareness and encouraging farmers to alter their agricultural practices, limiting or ending pesticide use when it is likely to affect vulnerable groundwater sources.

Nitrate-based liquid fertilisers are one of the principal causes of diffuse pollution. We are planning significant investment to ensure the sludge we recycle to land does not contaminate any Nitrate Vulnerable Zones, which are falling under tighter regulations.

It is our intention to move away from liquid sludge recycling by modifying eight sewage treatment works (Ascot, Chertsey, Cranleigh, Beddington, Haslemere, Bracknell, Crawley and Oxford) to allow sludge de-watering. De-watering converts liquid sludge into a semi-solid fertiliser that can be spread over fields during closed periods because it is much less likely to be dissolved by rain.

Where it is not viable to recycle sludge to land, we will reduce its volume through thermal hydrolysis and anaerobic digestion, and use it in our sludge-powered generators as a sustainable source of energy. From 2016 we expect to incinerate 73,000 tonnes of sludge each year, reducing our carbon footprint by around 9,000 tonnes.

The long timescales for the build-up and reduction of nitrate levels mean that the use of sludge cake rather than liquid sludge is unlikely to have an immediate effect on levels. In addition, farmers are free to use competing products – meaning that our improvements will not necessarily have the impact we would like. Other factors such as pollution, or proximity to cesspits, dung heaps or slurry pits, also determine local concentrations of nitrates.



We work closely with industry to reduce the impact of nitrate and pesticide use on the water environment

Clean up drainage from roads and buildings

We will continue our pro-active approach to identify and work with third parties whose actions can lead to pollution incidents, and plan to work more closely with the Environment Agency (EA) and local Environmental Health Officers (EHOs). We aim to visit 2,000 companies every year to identify pollution risks and put in place action plans for improvements.

Having successfully completed an extensive programme of joint visits with the Environment Agency to metal finishers, we will now concentrate on commercial food premises.

Since conventional grease traps tend to be little used and even less understood in the food industry, we will complete a trial of a novel and potentially more effective type of fat and oil interceptor, and hope to gather the evidence needed to promote its wider use in the industry.

We plan to continue our successful programme to trace and address the pollution caused by wrongly connected household drains, a problem at its most severe in north London.

Our work will include investigations in each year from 2010 to 2015 in catchments serving up to 30,000 properties and surveys at roughly 9,000 homes. This programme of work identifies roughly 500 wrongly connected drains each year, with toilets, washing machines, dishwashers and sinks connected to surface water rather than foul drainage.

Typically the Environment Agency signs off 35 surface water outfalls each year in recognition of a significant improvement in water quality in receiving watercourses. We are proud of our success in addressing this often-unrecognised problem.

We agree that SUDS have the potential to reduce flooding and pollution of surface waters, and mitigate the impact of climate change, but wider use will not be possible until a clear legislative framework exists. London's clay soil also limits the use of SUDS in the capital. We would like to see a rigorous application of PPS25 by local authorities to help keep surface water out of our sewers.

For our part, we will change the surface water charging mechanism for large users so that charges are based on the surface area drained, rather than the size of their connection. This will help incentivise the use of SUDS for businesses with, for example, very large car parks that would normally be connected to surface water sewers.

Further work planned for 2010 – 2015 includes the development of Integrated Urban Drainage projects to address flooding problems in Hendon and Brent. In the latter case the solution will be based on the outcomes of the recently completed Defra pilot scheme.



Restore rivers from source to sea

River Kennet

The River Kennet is both a vital source of water for the communities it runs through, and a nationally important chalk stream for wildlife, reflected in its designation as a riverine SSSI. We have a responsibility to strike a balance between the needs of local people and the river environment, and believe the planned sustainability reduction in our abstraction from the Kennet (covered in more detail in *Keep rivers flowing*) will help maintain this balance.

The scale of human influence on lowland rivers, such as the Upper Kennet, is a long-standing issue. We have worked in partnership with the Environment Agency, Natural England, and others to address physical modification of the river from previous engineering works that have over-widened and deepened the river channel.

We completed seven river rehabilitation schemes over the period 1999 – 2003, using soft engineering techniques to enhance sections of a 10km stretch of the Upper Kennet in Wiltshire. This included the construction of a new causeway and island, as well as work to develop new reed bed and swamp habitats.

A monitoring programme before and after the works indicated that the improvements have benefited key species such as chalk stream water-crowfoot and grayling.

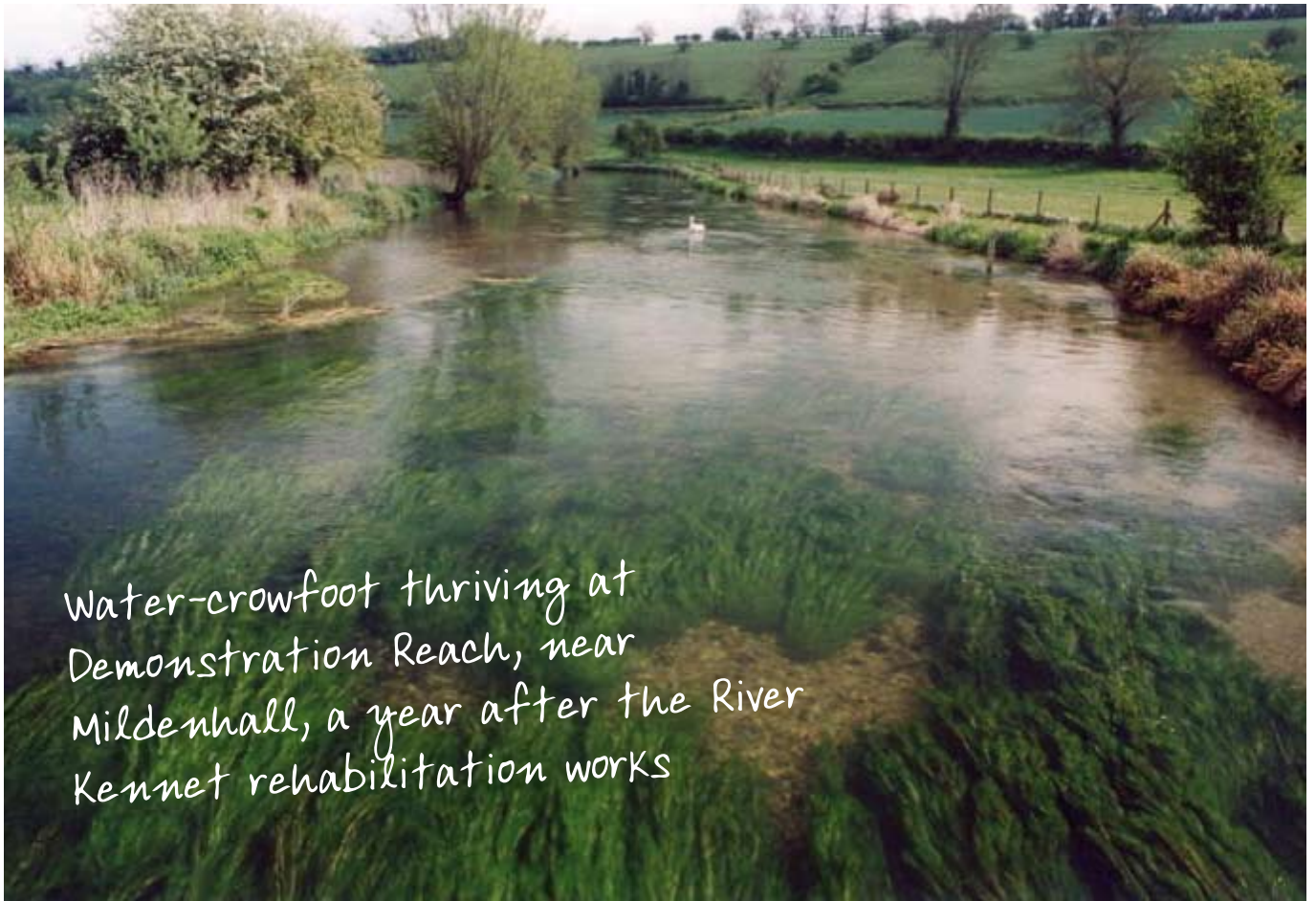
Fobney Island, Reading

We recently announced a £10 million fund, financed from the company's profits, to pay for special projects that fall in ten areas outside day-to-day business activities.

One of the categories is to improve key wildlife and recreation sites in the Thames Valley, and includes the creation of nature reserves adjacent to Swindon and Banbury sewage treatment works. We will also help the National Trust improve the natural environment at 'The Chase' (local open space), near Newbury, as well as improving Fobney Island in Reading.

Fobney Island is a 6-7 hectare area of rough grassland encircled by the River Kennet and The Kennet and Avon Canal, 3km south of Reading town centre and adjacent to our Fobney Water Treatment Works. We plan to work with partner organisations (those interested include the Environment Agency, Reading Borough Council, the local angling association and ornithological club, and the Thames Rivers Restoration Trust) to enhance the site for wildlife and the local community.

The plans are at an early stage and are yet to be finalised, but current proposals include developing a new angling area, wetland, paths and hides.



Retain water on floodplains and wetlands

Developing sustainable and effective drainage schemes involves better management of surface water. Wetlands are a naturally occurring flood barrier and we are keen to encourage their revival.

Our draft business plan for the next five years includes over £15m to fund catchment investigations, including:

- Drainage area plans
- Flood risk assessment plans
- Integrated Urban Drainage studies

These would involve examining the feasibility of establishing floodplains and wetlands in affected areas, among other drainage proposals.

As well as adapting our sewerage network to climate change, we are also working with the Environment Agency, the Highways Agency, Defra and local authorities to develop catchment-wide, integrated approaches to managing flooding risk.

At Wealdstone Brook in Harrow and the River Hogsmill in Surrey we have taken part in two of Defra's 15 Integrated Urban Drainage pilot studies, working with the Environment Agency and local authorities to test new approaches for managing surface water. We are keen to work with local authorities to develop

the conclusions of these pilot studies, which include the creation of flood plains and wetland environments to retain surface water and reduce flooding, whilst encouraging biodiversity.

We have many diverse landholdings, with a variety of habitats and differing conservation requirements. They include many wetlands sites. In order to understand our sites, and conserve and enhance the habitats they support, we have completed more than 1,000 surveys as part of our Biodiversity Action Plan. We have classified around 250 sites as having biodiversity interest, and are producing site management plans to ensure we afford them the proper protection.

We have since privatisation created and taken on the active management of wetlands the size of the City of London, including projects at our sites in Bicester, Cirencester, Tring, Godalming, Farmoor and Hoddesdon. We have made major improvements in recent years to our flagship nature reserves at Kempton water treatment works in west London, and Crossness sewage works in the south east of the capital.

We have doubled the size of the reed bed at Kempton as part of a project that has transformed the site from a redundant

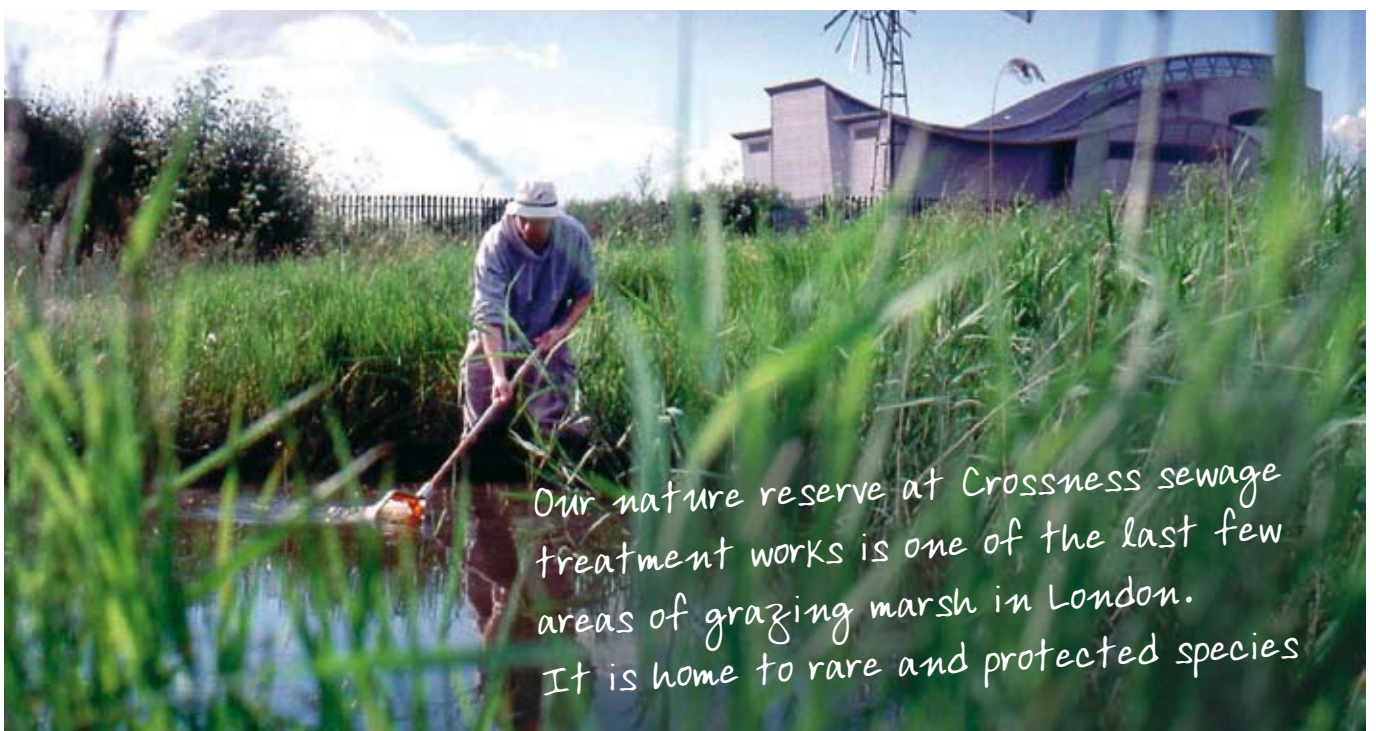
reservoir to one of Europe's premier locations for wetland birds. 156 different species have been spotted there, and the site is classed as a Site of Special Scientific Interest. Despite its short history, the nature reserve has become Britain's first inland breeding site for avocets in over 150 years.

Our environmental enhancement project at the Crossness Southern Marshes and Crossness Nature Reserve was commended by judges of the RSPB/CIWEM Living Wetlands Award 2007, who said that they were "impressed with the 'enhancing biodiversity and community access' project at Crossness, particularly the strong community involvement."

The works have increased biodiversity and public access. Enhancements have included the removal of silt from ditches, reshaping of ditch banks to provide better habitats, and the planting of reeds to provide food and shelter for water voles.

We host a number of community events at both the Southern Marshes and the Nature Reserve, including bat and butterfly walks and bird ringing demonstrations.

Both the Crossness and Kempton sites have full time wardens and friends schemes for local people to join.



Our nature reserve at Crossness sewage treatment works is one of the last few areas of grazing marsh in London. It is home to rare and protected species