Water
for people and the environment

Water Resources Strategy
Regional Action Plan for South West Region
We are the Environment Agency. It's our job to look after your environment and make it a better place - for you, and for future generations.

Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and society as a whole, we are making your environment cleaner and healthier.

The Environment Agency. Out there, making your environment a better place.

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Water for people and the environment in the South West

Water is a precious resource in the South West and the environment is fundamental to our quality of life. We want to help more people recognise how the quality of their environment contributes to their enjoyment and more businesses to recognise the advantages of good environmental practice.

Over the next 50 years our water resources face increasing pressures from climate change, population growth and pollution. Our water resources strategy for England and Wales sets out the Environment Agency’s approach to tackle these problems - but we cannot do this alone. Every person, business and organisation needs to value water and use it more efficiently. Using water more efficiently makes a significant contribution to meeting national targets for reduced carbon emissions and will ensure there is adequate water for our valued and diverse wildlife.

This action plan shows how we will meet these challenges and help secure sustainable and reliable water supplies for people whilst protecting the environment over the next five years. These short-term actions are the start of a longer journey to balance growing demand against a diminishing supply.

By working together, we can make sure there is enough water for people and the environment whatever the future might have in store.

Richard Cresswell
South West Regional Director
Environment Agency
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1 Introduction

Water is precious. It is essential for life. It supports valued and diverse ecosystems in wetlands, lakes, rivers, estuaries and the sea. It is vital to economic recovery and growth, and key to health, recreation and tourism. It is used to generate power, run industries, grow food and in our homes.

Pressure on water resources will grow from increases in population, changes in lifestyle, climate change, the development of new technologies, and from changes in the use of land. These pose significant challenges to the way we manage water resources and as a result, water will become much more important.

We are planning for what we know the future will bring, but we also need to plan for what the future might bring. We need a strategic approach to water management, otherwise we risk an expensive and damaging impact on the economy and the environment.

Our aim is ‘enough water for people and the environment’. The way we manage and use water and land must be sustainable - environmentally, socially and economically. We require the right amount of good quality water for people, agriculture, commerce and industry, and the environment.

The South West Region is an outstanding place to live, work and play. From the open moorland of Cornwall and Devon, the sensitive chalk rivers in Dorset, Hampshire and Wiltshire, to the distinctive wetland landscape in Somerset, we already face some significant challenges:

- 25 per cent (38) of the 153 surface water ‘Water Resource Management Units’ in the South West Region are over-abstracted or over-licensed.
- Seven Habitats Directive sites and Seven Sites of Special Scientific Interest are at risk from, or being damaged by, too much abstraction.

If we do nothing, these pressures may get worse because of the impact of climate change and a growing population.

To help deliver the aims and objectives of the water resources strategy for England and Wales, each Environment Agency region has developed a regional action plan. This plan considers local pressures and priorities, and reflects the measures in River Basin Management Plans and our new Corporate Strategy.

South West regional actions will enable:

- Water to be abstracted, supplied and used efficiently
- The water environment to be restored, protected and improved so that habitats and species can better adapt to climate change
- Supplies to be more resilient to the impact of climate change, including

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1 An area that has similar water characteristics and abstraction is managed in a similar way
droughts and floods

- Water to be shared more effectively between abstractors
- Improved water efficiency in new and existing buildings
- Water to be valued, and for prices to act as an incentive for efficient use, while safeguarding vulnerable sectors of society
- Additional resources to be developed where and when they are needed in the context of a twin-track approach with demand management
- Sustainable, low carbon solutions to be adopted
- Stronger integration of water resources management with land, energy, food and waste

We will work with water companies and others to understand the challenges and implement the solutions needed.

We have also developed a Water Resources Action Plan for England and Wales. This plan covers the actions which will be progressed across all regions by our Head Office teams.
2 Current and future pressures on water resources in South West Region

Hotter drier summers in the future will mean there will be less water in our rivers and groundwaters, placing additional pressures on our environment and ecology. Some unique habitats in the South West Region like the Hampshire Avon chalk river and the open space of Dartmoor are already under pressure from current levels of abstraction – we are already working with others to rectify this through our Restoring Sustainable Abstraction programme. Total demand for water in the South West currently stands at around 989 million litres per day (ML/d) and could increase to 1215 ML/d by 2050. Alongside the requirements of the water companies who supply our drinking water and businesses who use water, we must consider the needs of the environment, fisheries and wildlife, navigation and recreation.

The draft Regional Spatial Strategy for the South West forecasts that the region’s population may grow to over 5.75 million by 2026. This could mean that many parts of South West Region could see a growth in population of between 20 and 40 per cent. Population growth will increase demand for housing and create additional pressure on water resources. This in turn may need additional infrastructure in order to treat and supply water, and dispose of effluent.

Although we are currently in a recession and housing growth has slowed in the past year, we are continuing to plan on the basis of housing targets being met in the longer term.

Using water in the home

Households use about half of total public water supply. The average person in the South West uses 150 litres per day. We expect to meet Defra’s aspiration for a reduction to 130 litres by 2030 in the South West with water stressed areas at or close to 120 litres through continuing innovation and near-universal metering.

Water use in the home accounts for about six per cent of UK carbon emissions. Most of these emissions come from heating water for washing and cooking (not including space heating). If each person in the South West reduced their water use by 20 litres a day we could save 264,442 tonnes of carbon every year – the equivalent electricity requirement of over 150,000 homes.

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2 Statistics quoted for the South West are those calculated for the South West River Basin District.

3 The draft revised Regional Spatial Strategy for the South West incorporating the Secretary of State’s proposed changes, 2008.
Studies show that metering reduces household water consumption by an average of 10 to 15 per cent\textsuperscript{4}, with intelligent metering achieving further reductions. As more people become aware of the embedded energy and carbon emissions resulting from water use in the home (equivalent to 2.2 kg CO\textsubscript{2} daily per household\textsuperscript{5}), there will be an additional incentive for water efficiency and conservation measures.

Total household demand in the South West is currently about 461 Ml/d. Our scenarios show that this could increase to 720 Ml/d, with a potential increase of two to four per cent due to climate change alone\textsuperscript{6}. An alternative scenario, which takes account of sustainable behaviour, sees demand falling to 401 Ml/d. To achieve this, new homes need to be highly water efficient, and existing housing stock would need to be retrofitted with appliances and fittings that use less water.

Leakage from water company and customers’ supply pipes is currently around 177 Ml/d; our studies show that this could fall to around 122 Ml/d by 2050. This will only be achieved with targeted investigations of areas with higher than expected leakage, developments in technology, a suitable level of investment in research and development for leakage control, strong regulation and targets for sustainable development. Without suitable levels of investment, innovation and regulation, leakage could increase to 209 Ml/d by 2050.

Water company forecasts show a reduction in leakage of only two per cent by 2035, although a change of ownership of supply pipes could help to reduce this further. We will look for support from Government and water companies to explore this further.

Our local initiatives with water companies and the Consumer Council for Water will help encourage the public to value water more and show how to conserve it.

**Industry and commerce**

We have analysed the water use by industrial sectors such as manufacturing and construction, and by commercial and service sectors such as retail and hotels. At present these sectors use around 344 Ml/d in the South West\textsuperscript{2}. Any future growth in demand for water by industry and commerce is likely to be influenced by the economic climate and by measures to introduce water efficiency. We need processes and technology that are both energy and water efficient.

Rainwater harvesting and grey water recycling are becoming popular ways of obtaining additional water for non-potable use, particularly in the industrial, commercial and agricultural sectors. These methods are most appropriate when ‘designed in’ to new buildings. We welcome and support these initiatives where

\textsuperscript{4} Critical review of relevant research concerning the effects of charging and collection methods on water demand, different customer groups and debt. UK WIR report 05/CU/02/1


they are cost effective, appropriate and used with other demand management methods.

We will review existing hydropower schemes using our revised guidance on best practice for hydropower. We will then implement positive changes where we have the power to do so.

Growing food

In the South West, about six Ml/d of water is used for spray irrigation. This usually takes place during the summer months when water resources are under most pressure. This is not a significant amount in comparison to some parts of the country but our studies show that it could increase to around 11 Ml/d by 2050.

Our water footprint is worldwide. About 3400 litres of water per person each day is used to produce the food and goods we use. This means that only 38 per cent of the total water we use comes from rivers, lakes and groundwater in the UK. Global water shortages will have an effect on us.

A higher population will mean increased food production and climate change will affect growing conditions and force changes in the types of crops we grow. It is likely that irrigation will be needed over a wider area, using more water.

Summers are likely to be hotter and drier in the future but with more intense downpours of rain when it happens. As compacted soils cause most rain to run off the land, it will become increasingly important for farmers to keep soils in good condition in order to retain water in the soil and to allow effective replenishment of our vital groundwaters. We expect to work in partnership with land owners to reduce water quality problems caused by high levels of sediment, nutrients, pesticides and herbicides. These can be made worse by increased runoff.

We will continue to encourage businesses in the farming, horticulture and outdoor leisure sectors to build reservoirs to store water in the winter for summer use. Storage reservoirs can help to reduce the environmental impacts of water abstraction when they are used instead of pumping water from rivers at times of low flows.
3 Links with other strategies and plans

3.1 Water Framework Directive

As the Competent Authority under the Water Framework Directive (WFD), we co-ordinate activity to improve and maintain water quality, quantity and morphology (channel shape) through river basin management. We develop River Basin Management Plans (RBMPs) in partnership with others which set out measures for achieving the ‘good’ status of all waters, including groundwater, wetlands, rivers, canals, lakes, reservoirs, estuaries and coastal waters. The plans include measures to protect the most valued and sensitive water-reliant habitats and species, and to protect sources of drinking water. The plans also promote efficient and sustainable water use.

The WFD includes environmental targets to protect and improve the aquatic environment and provides the framework for achieving sustainable catchments. RBMPs set out the necessary actions in cycles until 2026/7. The WFD is wider than just water resources, and covers many other actions, including those relating to the management of ecology, land, water quality, fisheries, channel morphology and flood risk.

The Water Resources Strategy for England and Wales sets out a number of aims and objectives to meet the vision of enough water for people and the environment. The strategy’s aims include securing a better environment, which complement RBMPs.

However, the Water Resources Strategy for England and Wales has a longer planning horizon than RBMPs – to 2050 and beyond. It also covers some water resources elements such as drought management and ensuring security of supply, which are not core to the WFD. While there is overlap and the water resources related actions within RBMPs and Regional action plans must be consistent with one another, RBMPs by themselves will not fully meet the objectives of the Water resources strategy regional action plans and vice versa. They are both required.

In summary, the strategy and the WFD have some common elements to achieve sustainable catchments, but Water resources strategy regional action plans bring together a suite of actions relating to water quantity.

3.2 Environment Agency Corporate Strategy

The Water resources strategy for England and Wales links with our Corporate Strategy and its supporting sub strategy. The activities we need to take to carry out these strategies will be set out in our local business plan and regional contribution so that resources can be allocated and work scheduled.
3.3 Water Resources Management Plans

All water companies have a statutory duty to prepare and maintain a water resources management plan (WRMP). This shows how the water company intends to maintain the balance between supply and demand for water over the next 25 years. The plans are specific to Water company areas and look at the options and proposals we need to manage supply and demand. Many of the actions from this Regional action plan will be achieved through water companies Water resources management plans.

Figure 1: Water resources management – links between strategies and plans

Appendix 2 of the Water Resources Strategy for England and Wales includes more information about the links with other strategies and plans.
4 Regional strategy actions

These new actions focus on the following key priorities in the South West Region:

- Ensure water supply and demand is resilient to the effects of climate change
- Reduce carbon emissions associated with the supply of water
- Manage catchments better to protect water resources, enhance biodiversity, reduce flood risk and reduce water treatment costs
- Improve the water efficiency of new housing and commercial developments

Appendix 2 provides an overview of the work we already do to manage water resources.

Action references to other plans and strategies

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<th>Water Resources Strategy (WRS) aims and Action Plan:</th>
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<td></td>
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<tr>
<td>WRS B A better water environment</td>
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<tr>
<td>WRS C Sustainable planning and management of water resources</td>
<td></td>
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<tr>
<td>WRS D Water and the water environment are valued</td>
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<tr>
<td>WRAP(E&amp;W) Water Resources Action Plan for England and Wales</td>
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Other strategies and plans:

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<thead>
<tr>
<th>Water Framework Directive Measure</th>
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<tr>
<td>Water company Water Resources Management Plans</td>
<td>WRMP</td>
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This plan focuses on the actions or parts of actions we will take within the Region. For detail on the work at a National level, please refer to the Water Resources Action Plan for England and Wales.

We will take full account of the potential impact that activities set out in this plan may have on designated sites under the Habitats Regulations. We have produced a formal Habitats Risk Assessment for the Water Framework Directive River Basin Management Plans and many of the actions relating to the environment are consistent with this assessment. We do not believe that the remaining actions in this plan can be considered in terms of their potential for significant impact on specific designated sites.
## 4.1 Adapting to and mitigating climate change

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<th>Reference to other plans and strategies</th>
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| Ecology is more resilient to climate change because abstraction pressures have been reduced and a diverse network of habitats has been allowed to develop | SW1     | **Creating Wetlands (Wetland Vision)**  
Work with our partners to identify the top ten ‘Future Wetland Potential’ areas/sites in the South West from the Wetland Vision initiative. Prioritise the top ten and work with partners to identify funding streams to restore these wetlands.  
**Organisations involved:**  
SW biodiversity partnership, Wetland Vision partners, Wildlife Trusts. | WRS B4 | By 2015 |
|                                    | SW2     | **Tree planting to protect our water resources**  
Identify key sites across the South West where tree planting can help deliver water resource protection, as well as delivering additional ecological benefits such as shading of rivers and streams to prevent over-heating.  
**Organisations involved:** Forestry Commission, Natural England, Wildlife Trusts, riparian owners, angling clubs and associations. | WFD     | By 2012 |
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<tr>
<td>The resilience of supplies and critical infrastructure is increased to reduce the impacts of climate change</td>
<td>SW3</td>
<td><strong>Improve resilience of public water supplies</strong>&lt;br&gt;Report on the opportunities for connectivity of water supply infrastructure in the South West to improve resilience of existing resources and provide additional security from extreme events, as recommended by the Pitt review⁷. We will monitor and report on water companies’ actions to implement the recommendations of our report for the 2014 Periodic Review. <strong>Organisations involved:</strong> Water companies</td>
<td>WRS A2</td>
<td>By 2014</td>
</tr>
<tr>
<td>Flexible and incremental solutions in water resources management allow adaptation to climate change as it happens</td>
<td>SW4</td>
<td><strong>Recommend that major developments are subject to a water cycle study</strong>&lt;br&gt;Recommend to local authorities that major urban extensions, new developments over 500 properties or developments in sensitive areas are subject to a water cycle study. The technical evidence to support our recommendation will form part of our ‘Regional Development Planning Advice Document’. <strong>Organisations involved:</strong> Local Authorities</td>
<td>WRS C8</td>
<td>From 2010</td>
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<td></td>
<td>SW5</td>
<td><strong>Implications of Natural England conservation designations</strong>&lt;br&gt;Work with Natural England to understand the implications of their work to review designations of conservation sites. <strong>Organisations involved:</strong> Natural England</td>
<td>B4</td>
<td>By 2015</td>
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<td></td>
<td>SW6</td>
<td>Investigate adaptable control rules for water resources</td>
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<td>By 2013</td>
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<td></td>
<td></td>
<td>Use advanced modelling techniques to develop more adaptable source control rules (e.g. reservoir storage rules) which will provide more resilience to changes in demand for water and rainfall patterns.</td>
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<td><strong>Organisations involved:</strong> Water companies, Academic institutions.</td>
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<td>Everyone is able to make more informed decisions and choices about managing water resources, protecting the environment and choosing options to avoid security of supply problems</td>
<td>SW7</td>
<td>Review of UKCP09 climate change scenarios</td>
<td>WRS A4</td>
<td>By 2011</td>
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<td>Use the latest climate change scenarios work from our national colleagues to update our understanding of impacts in the South West. We will use available evidence to inform the regional debate on the increased risk to the reliability of water abstractions and the water environment posed by climate change.</td>
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<td><strong>Organisations involved:</strong> UK Climate Impacts Programme</td>
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<td></td>
<td>SW8</td>
<td>Better understand the impacts of climate change on groundwater sources</td>
<td>WRS A4 &amp; B6</td>
<td>By 2011</td>
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<td></td>
<td></td>
<td>Model the impact of climate change on groundwater recharge. We will use the UKCP09 climate change scenarios to do this. We will put together the project which may become part of a national project with our National Science team and our regional groundwater teams.</td>
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<td></td>
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<td><strong>Organisations involved:</strong> UK Climate Impacts Programme, Water companies</td>
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| Greenhouse gas emissions from using water resources are minimised and properly considered in future decisions | SW9     | **Water companies reduce greenhouse gas emissions by 80 per cent**  
Work to ensure that water companies in the South West, who have not already done so, commit to an 80 per cent reduction in greenhouse gas emissions by 2050 (compared to 1990). We will ask that water companies report on progress as part of the Water Resource Management Plan process and in line with the Carbon Reduction Commitment requirements in 2010.  
**Organisations involved:** Water companies, Energy Saving Trust, Carbon Trust, Government Office South West, Ofwat | WRS A5   | From 2011 to 2050 |
|                                   | SW10    | **Water companies prepare for Carbon Reduction Commitment**  
Work with water companies to help with preparation for the Carbon Reduction Commitment.  
**Organisations involved:** Water companies, Energy Saving Trust, Carbon Trust, Government Office South West | -       | From 2010 |
|                                   | SW11    | **Support sustainable hydropower developments**  
Support sustainable hydropower developments across the South West Region since schemes could make a positive contribution to the UK’s green energy target. We will work with developers and others on necessary environmental mitigation to balance the needs of the local environment and the global climate.  
**Organisations involved:** Hydropower developers, local communities, Energy Saving Trust | WRS A7 WFD | From 2010 |
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|  | SW12 | **Opportunities for sustainable hydropower on water company infrastructure**  
Support the review and implementation of sustainable hydropower opportunities on water company infrastructure (such as reservoir compensation releases and discharges) across the South West Region.  
**Organisations involved:** Water companies, Carbon Trust | WRS A7  
WFD | From 2010 |
|  | SW13 | **Revise Water Resource Management Arrangements**  
Work with water companies to make better use of water resources by revising water resource management arrangements (WRMA). We expect to see improved operations that reduce carbon emissions as well as improving fish migration and movement.  
The Colliford WRMA with South West Water will be the first arrangement under review.  
**Organisations involved:** Water companies | WRS A7 | From 2012 to 2020 |
### 4.2 A better water environment

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<th>Reference to other plans and strategies</th>
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<tr>
<td>Measures will be in place to make sure that water bodies achieve Water Framework Directive objectives</td>
<td>SW14</td>
<td><strong>Remove barriers to fish migration</strong>&lt;br&gt;Identify the physical structures, linked with abstractions or gauging, which present significant barriers to fish migration in the South West. Undertake a programme of improvement works where appropriate to ensure free passage of all fish species through these barriers.&lt;br&gt;&lt;br&gt;<strong>Organisations involved:</strong> Natural England, British Waterways, Water companies, Riparian owners and rivers trusts.</td>
<td>WFD</td>
<td>By 2015</td>
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<tr>
<td>Abstraction is sustainable, the environment is protected and improved, and supplies remain secure</td>
<td>SW15</td>
<td><strong>Reduce impacts from Internal Drainage Board abstractions</strong>&lt;br&gt;Review the impact of unregulated Internal Drainage Board (IDB) abstractions on the environment and identify where we can reduce this impact whilst balancing other needs (e.g. Flood defence, agricultural land, water quality). Complete a pilot project on the River Cary to identify best practice. Propose potential solutions and involve the IDB and local community with the aim to incorporate these into formalised Transfer Licences as required by the Water Act 2003.&lt;br&gt;&lt;br&gt;<strong>Organisations involved:</strong> Internal Drainage Board</td>
<td>WRS B4</td>
<td>From 2011 to 2020</td>
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<td>Water resources strategy objective</td>
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| Secure funding for UK Biodiversity Action Plan sites | SW16 | Secure funding for UK Biodiversity Action Plan sites  
Work with local groups to identify funding to ensure we reach Environment Agency targets for regional habitats and species under the Biodiversity Action Plan.  
**Organisations involved:** Natural England, Local groups | WRS B4 | By 2012 |
| Alternative funding for local sites in the Restoring Sustainable Abstraction Programme | SW17 | Alternative funding for local sites in the Restoring Sustainable Abstraction Programme  
Investigate the opportunities for alternative funding streams to progress non Habitats Directive and Sites of Special Scientific Interest abstraction issues within the South West Region which are identified as ‘local sites’ in the Restoring Sustainable Abstraction Programme.  
**Organisations involved:** Natural England, Water abstractors | WRS B4 | From 2010 to 2015 |
| Improving the environment through Catchment initiatives | SW18 | Improving the environment through Catchment initiatives  
Use geographical data on water resources, water quality, flood risk and land quality to identify priority catchments with issues across the water cycle. For identified sites, we will evaluate and implement catchment wide solutions (such as small scale reservoirs/ponds and agricultural land management initiatives such as reduced soil compaction).  
**Organisations involved:** Natural England, Water companies, National Farmers Union, Water users in the catchment | WRS B5, WFD | From 2010 |
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<tr>
<td>SW19 water protection zones</td>
<td>SW19</td>
<td><strong>Water Protection Zones to safeguard water abstraction</strong> Use our water protection zone powers to change land use practices to further reduce pollution in the environment and protect water abstraction. We will initially focus on Cholderton and Pill/Carhampton and use the outcome to help with future implementation across the South West. <strong>Organisations involved:</strong> Cholderton and District Water Company, farming groups</td>
<td></td>
<td>From 2011</td>
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<tr>
<td>SW20 recommend sustainable drainage in all new developments</td>
<td>SW20</td>
<td><strong>Recommend Sustainable drainage in all new developments</strong> Recommend to local authorities that sustainable drainage systems to minimise flood risk, manage surface water and encourage natural drainage and ground water recharge are incorporated into all new developments. This will be backed up by locally relevant evidence so it can be incorporated into Core Strategies. The technical evidence to support our recommendation will form part of our ‘Regional Development Planning Advice Document’. <strong>Organisations involved:</strong> Local Authorities</td>
<td>WRS B2 WFD</td>
<td>From 2010</td>
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<tr>
<td>SW21 assess the benefits of wetland restoration</td>
<td>SW21</td>
<td><strong>Assess the benefits of wetland restoration</strong> Secure funding to ensure the water resource benefits from the Mire Project and the Working Wetlands project are monitored, recorded and analysed. <strong>Organisations involved:</strong> Natural England, Water companies, Exmoor National Park Authority</td>
<td>WRS B4</td>
<td>By 2012</td>
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### 4.3 Sustainable planning and management of water resources

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| The twin track approach of resource development with demand management is adopted in all sectors of water use | SW22 | **Balance the needs of public water supply and the environment**  
We will improve our understanding of Levels of Service and other assumptions set by water companies to achieve the right balance between the frequency of potential customer restrictions (e.g. hosepipe bans) and the needs of the water environment. We will use this understanding to contribute to a national review and work closely with other regulators and water companies to do this.  
**Organisations involved:** Water companies | - | By 2013 |
| In England, the average amount of water used per person in the home is reduced to 130 litres each day by 2030 | SW23 | **Reduce household water use in the South West**  
Work with the Energy Saving Trust and other organisations to help reduce per capita consumption to an average of 130 litres per head per day by 2030. Aim to reduce current average use per person in the South West from 150 litres per day to below 145 litres per day by 2015.  
**Organisations involved:** Energy Saving Trust, Water companies | WRS C5 | From 2010 to 2030 |
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<tr>
<td>The Environment Agency targets and adapts its approach to reflect the location and timing of pressures on water resources</td>
<td>SW24</td>
<td>Advise on funding for water efficiency in agricultural and recreation Work with other organisations to advise on the benefits and funding streams for water efficiency and resource development for agriculture, horticulture and leisure and amenity (e.g. golf courses). <strong>Organisations involved:</strong> Natural England and Business Link (South West Agricultural Resource Management project), Farming and Wildlife Advisory Group, National Farmers Union, Envirowise, trade bodies, tourist organisations, Regional Development Agency</td>
<td>WRS A3 &amp; C2 WFD</td>
<td>From 2012</td>
</tr>
<tr>
<td>SW25</td>
<td>Promote water efficiency to small to medium businesses Work with Business Link and other organisations to promote water efficiency to local businesses through the South West Improving your resource efficiency programme. <strong>Organisations involved:</strong> Business link</td>
<td>WRS C4</td>
<td>From 2011</td>
<td></td>
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<tr>
<td>In England water companies implement near-universal metering of households, starting in areas of serious water stress</td>
<td>SW26</td>
<td>Water companies increase household water metering to at least 75 per cent by 2020 We expect water companies to increase the level of household water metering to at least 75 per cent across the region by 2020, whilst protecting vulnerable groups. We will Work with companies to achieve this and monitor progress through the annual reviews of water company 'Water Resource Management Plans'. <strong>Organisations involved:</strong> Water companies</td>
<td>WRS C1</td>
<td>From 2010 to 2020</td>
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|                                   | SW27    | **Water companies achieve universal water metering by 2030**  
We expect water companies to achieve full household water metering by 2030, whilst protecting vulnerable groups. We will work with them to achieve this and monitor progress through the annual reviews of water company 'Water Resource Management Plans'.  
**Organisations involved:** Water companies | WRS C1 | From 2010 to 2030 |
|                                   | SW28    | **Energy and water smart meter trial**  
Work with other organisations on a combined energy and water smart meter trial. Smart meters include in-home displays of consumption, enabling customers to monitor and control their usage. The trial will identify the costs and benefits of these meters and the impact on customer behaviour.  
**Organisations involved:** Energy Saving Trust, Water companies, Energy companies | WRS C1 | From 2010 to 2015 |
| Leakage from mains and supply pipes is reduced | SW29    | **Water companies further reduce leakage**  
Water company leakage levels should not increase as water into supply increases with population growth and development. We will Challenge water companies on leakage performance and encourage the use of technology and innovative approaches to further drive down leakage in a cost effective manner.  
**Organisations involved:** Water companies | WRS C6 WFD | From 2010 |

**Environment Agency**  
A Regional Action Plan for South West Region

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| New and existing homes and buildings are more water efficient | SW30   | **Recommend that all new homes are built to at least level 3 of the Code for Sustainable Homes**
Recommend to local authorities that all new homes are built to at least level 3 of the code for sustainable homes. This will be backed up by local evidence so it can be incorporated into Core Strategies. The technical evidence to support our recommendation will form part of our 'Regional Development Planning Advice Document'.

*Organisations involved: Local Authorities* | WRS C8 | From 2010 |

| SW31 | **Recommend that all new commercial and public sector buildings are built to at least equivalent level 3 of the Code for Sustainable Homes**
Recommend to local authorities that all new commercial and public sector buildings are built to at least the equivalent level 3 of the Code for Sustainable Homes, and in line with the Building Research Establishment Environmental Assessment Methodology. The technical evidence to support our recommendation will form part of our 'Regional Development Planning Advice Document'. This will include the business case for our new Head Office building which is recognised as the most environmentally 'excellent' city centre office development in the UK.

*Organisations involved: Local Authorities* | WRS C4, C8 | From 2010 |
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<tr>
<td>Encourage rainwater harvesting and greywater recycling</td>
<td>SW32</td>
<td>Encourage rainwater harvesting and greywater recycling for large projects, public sector housing and commercial developments where appropriate. Rainwater harvesting and greywater recycling can reduce pressure on public water supplies and surface water run off.</td>
<td>WRS C8</td>
<td>From 2010</td>
</tr>
<tr>
<td>Potential for water neutral development</td>
<td>SW33</td>
<td>Use the findings of our national study on the costs and benefits of water neutrality to develop our approach in the South West. Water neutrality involves off-setting the demand from new developments by retro-fitting water saving appliances in existing homes and businesses.</td>
<td>WRS C3</td>
<td>From 2010</td>
</tr>
<tr>
<td>Water resources are allocated efficiently and are shared within regions where there are areas of surplus</td>
<td>-</td>
<td>No regional actions in addition to ongoing work. Please refer to the Water resources action plan for England and Wales’ for detail on how we are progressing related work at a national level.</td>
<td>WRP(E&amp;W)</td>
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</table>
### 4.4 Water and the water environment are valued

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<tr>
<td>Water pricing for abstraction and use of water acts as an incentive for the sustainable use of water resources</td>
<td>SW34</td>
<td><strong>Pricing incentives to use water sustainably</strong> Please refer to the Water resources action plan for England and Wales for detail on how we are progressing related work at a national level. In the South West Region, we will work with water abstractors to facilitate moves to implement alternative water abstraction charging systems. Organisations involved: Water abstractors</td>
<td>D4</td>
<td>From 2015</td>
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<tr>
<td>Abstractors and users make informed choices to use water more efficiently</td>
<td>SW35</td>
<td><strong>Regional coordination with Energy Saving Trust</strong> Strengthen regional liaison between the Environment Agency and the Energy Saving Trust. Build a common understanding of the links and opportunities for combined energy and water efficiency, and work together to maximise our effectiveness (As set out in our national memorandum of understanding). Organisations involved: Energy Saving Trust, Carbon Trust, water companies, energy companies</td>
<td>-</td>
<td>From 2010</td>
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<td>SW36</td>
<td><strong>Focus on water and energy use for World Environment Day on 05 June 2010</strong> Support a regional campaign with the Energy Saving Trust to highlight water use and energy/climate change for World Environment Day 2010 (05 June). Organisations involved: Energy Saving Trust</td>
<td>WFD</td>
<td>June 2010</td>
</tr>
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<td>SW37</td>
<td><strong>Better understand peak household demand for water</strong>&lt;br&gt;Complete a science project to better understand the drivers and components of peak household water use in the South West and appraise options to reduce consumption. The full support of water companies is needed to provide data and help with our analysis.&lt;br&gt;<strong>Organisations involved:</strong> Water companies</td>
<td>-</td>
<td>By 2012</td>
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<td></td>
<td>SW38</td>
<td><strong>Improve the water efficiency of the tourist accommodation sector</strong>&lt;br&gt;Work with other organisations to improve water efficiency in the tourism sector. We will focus on the benefits of saving water, energy and waste for accommodation businesses.&lt;br&gt;<strong>Organisations involved:</strong> Carbon Trust, Business Link, South West Tourism, Energy Saving Trust</td>
<td>-</td>
<td>From 2010</td>
</tr>
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<td></td>
<td>SW39</td>
<td><strong>Consider benefits of Water Abstraction Groups</strong>&lt;br&gt;Review the outcome of the national project on Water Abstraction Groups and apply this to the South West where appropriate. Report on what we have done.&lt;br&gt;<strong>Organisations involved:</strong> Water abstractors</td>
<td>-</td>
<td>From 2012</td>
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<p>| Innovative tariffs are adopted by water companies to maximise savings and minimise issues of affordability | SW40    | <strong>Encourage data sharing on water tariffs</strong>&lt;br&gt;Work with South West Water (rising block tariff) and Wessex Water (Seasonal tariff) to support their trials of new tariff structures, whilst protecting vulnerable groups. Promote sharing of the outcomes of the companies' work with other water companies.&lt;br&gt;<strong>Organisations involved:</strong> Water companies | WRS D3, C1 WFD, WRMP | From 2015 |</p>
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<tbody>
<tr>
<td>The needs of wildlife, fisheries, navigations and recreation, as well as the environment and abstractors are fully taken into account when allocating water resources</td>
<td>-</td>
<td>No regional actions in addition to ongoing work. Please refer to the Water resources action plan for England and Wales for detail on how we are progressing related work at a national level.</td>
<td>WRP(E&amp;W)</td>
<td>-</td>
</tr>
<tr>
<td>Innovative technology is developed to improve water efficiency by all water users.</td>
<td>-</td>
<td>No regional actions in addition to ongoing work. Please refer to the Water resources action plan for England and Wales for detail on how we are progressing related work at a national level.</td>
<td>WRP(E&amp;W)</td>
<td>-</td>
</tr>
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</table>
5 Implementing the regional actions

There is uncertainty about the implementation of some parts of this action plan. We will prioritise actions against available funding through our business planning process. Funding streams include abstraction charges, Grant in Aid, partnership funding, European Union projects.

Funded and scheduled actions will be included in our five year business plan - South West Regional Contribution 2010 to 2015.

Many of our regional actions will involve other organisations. We will work with others such as Natural England, Government Office South West and the Energy Saving Trust to achieve the aims and objectives we share. We also need to influence and support organisations, such as water companies, other water abstractors and local authorities to help achieve our aims. This will help us to improve the efficient use of water and energy across the water supply life cycle.

We will report on the progress and effectiveness of our regional actions in annual reviews of our South West Regional Contribution. Progress with action plans across England and Wales will also be reported in our ‘Current state and future pressures report’. This document will be produced periodically and published to our internet site.
Appendix 1: Current and future pressures on water resources in South West Region

A1.1 Pressure from development and growth

Many people believe that we have more than enough water in England and Wales to meet our needs. This is generally true but water is not always available at the right times and in the right places to meet our needs now and the challenges presented by population growth in the future.

Water resources in parts of the south west region are already under pressure, and will have to meet the needs of a higher population in the future. Forecasts in the draft Regional Spatial Strategy for the South West show that the population of the region could rise to over 5.75 million by 2026, with some parts seeing growth of between 20 to 40 per cent. Figures a and b show the current population density in the south west region and projected percentage increases to 2030.

Figure a: population density 2006 mid year estimates (Source: ONS)
The growth in population will require more housing and associated infrastructure. We support development in the right places, where the environment has the capacity to cope with the additional demands placed on it. We believe that developers should carry out water cycle studies to assess whether the environment and local infrastructure can meet these demands. These studies will inform planners and may identify a local need for developments to be built to higher standards of sustainability and water efficiency than required nationally. This could include situations where the planned development would be unacceptable in the proposed location without the inclusion of challenging targets on water efficiency and sustainability. In future, water meters will play a major part in improving water efficiency and reducing household water consumption, as people with a water meter generally use 10 to 15 per cent less water than those without a meter. Figure c shows how average water usage varies over the region, with most people in the region using around 151 litres each per day.

Figure b: projected population growth: 2006 to 2030 (Source: ONS)
A1.2 Water resources availability

The Environment Agency administers a licensing system to allocate water resources. When we consider applications for abstraction licences, we must take into account the needs of the environment and of existing abstractors, and put appropriate conditions on new licences to ensure that existing users are not adversely affected. As part of this system, we assess the availability of water resources for licensing under a programme of Catchment Abstraction Management Strategies (CAMS). These strategies look at the natural flow in the river, the requirement of the environment, and the volume of licensed abstractions and discharges. Through our original CAMS assessment work up to 2008, we identified catchments where there were already significant pressures on the water environment. Figure d shows the availability of water, on a catchment scale, for the south west region. It is apparent that, particularly in the east of the region, there are large areas where the catchments are either over abstracted, or where no more water is available for abstraction during the driest months of the year. These results are currently being reviewed in accordance with the Water Framework Directive requirements.
A1.3 The impact of climate change on river flows and groundwater

We already know that climate change will alter our environment in future, and present new challenges to our accepted way of life. We have recently carried out a study to assess how the flows in our rivers may be affected by changes in rainfall patterns. This work shows that there could be a significant reduction in river flows in the south west region from early in the summer into the autumn months. This would affect the availability of water resources for abstraction, and would impact...
on abstractors who take water directly from the river, who are used to having a certain level of reliability. Abstractors may also find that they cannot abstract adequate quantities of water at certain times of year, and that recharge of aquifers will not start until later in the year. Figure e shows how monthly river flows may change by the 2050s.

![Figure e: percentage change in mean naturalised monthly flows by 2050](image-url)

**10 to 15 per cent increase**
**5 to 10 per cent increase**
**5 per cent increase to 5 per cent decrease**
**5 to 10 per cent decrease**
**10 to 20 per cent decrease**
**20 to 30 per cent decrease**
**30 to 50 per cent decrease**
**50 to 80 per cent decrease**

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A 1.4 Future demand for water

We developed demand forecasts for the 2020s, the 2030s and the 2050s to understand how demand for water may change in the future.

Up to 2020, we based our assumptions on information from the UK Government sponsored Market Transformation Project (MTP) to develop a ‘business as usual’ demand forecast based on current water company policies. This kind of approach is appropriate for a short time-period where we can have reasonably high confidence in the factors that influence the demand for water.

When we looked to the 2030s and 2050s we needed to take a different approach. We cannot be as certain about the individual factors that influence demand. But we also have to accept a higher degree of uncertainty about the structure of society and governance and how this will affect the demand for water. To help us deal with this uncertainty, we used four future scenarios. These scenarios are described in the Water resources strategy for England and Wales. This analysis provides a reasonable envelope of all possible futures8.

Total demand for water in the South West currently stands at around 989 Ml/d. Our demand forecast work shows that this demand might increase to 1215 Ml/d by 2050.

Figure 1: Total water demand

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8 The future scenario work, which looks at long term trends, was carried out before the current economic downturn. Unless the downturn is very protracted, it should not alter overall trends and pressures to the 2050s and beyond.
In future, we may need to consider how water resources can be shared within regions, particularly where water companies with a surplus of water adjoin others with a deficit.

Household water use

If current trends continue, water delivered to homes will rise over the next 15 years even with reduced water use per person. However, the scenario work from 2020 to 2050 shows that rising demand is not inevitable provided the appropriate actions are taken.
In contrast to overall demand, the business as usual scenario shows a fall in water use per person to 2020. Our ‘uncontrolled demand’ scenario sees domestic consumption increasing to 161 l/h/d by 2050. This increase could be due to an overall increase in the number of households, but with each having a lower occupancy rate, due to changes in society.

Environment Agency Scenarios 2030 – Science Summary SC050002; and Demand for water in the 2050s, Environment Agency 2008;
Industry and commerce

We forecast future water use by the industrial sectors such as manufacturing and construction, and by commercial and service sectors such as retail and hotels. At present these sectors use around 344 Ml/d in the South West.

Figure 5: Forecast non-household demand

Rainwater harvesting and grey water recycling are becoming popular ways of obtaining additional water for non-potable use, particularly in the industrial, commercial and agricultural sectors. These methods are most appropriate when ‘designed in’ to new buildings. We welcome and support these initiatives where they are cost effective, appropriate and used with other demand management methods.

Growing food

In the South West six Ml/d are used for spray irrigation, which usually takes place at the time when water resources are most under pressure. This is not a significant amount in comparison to some other parts of the country.
Leakage

In the South West, leakage is currently around 177 Ml/d; this has been stable for a number of years. As water becomes more valued we expect more effort by water companies to reduce leakage.

Figure 7: Forecast leakage
Appendix 2: Overview of what we already do

The following summarises our main areas of work to make sure there is enough water for people and the environment.

**Periodic Review of the water industry (Water company business plans)**
Every five years Ofwat undertakes a price review of the amount of money that water companies can charge their customers for the supply of water and the treatment of sewage. It also determines how much companies can invest in improving their services and the environment – from ensuring there are adequate supplies of water to reducing the number of sewers that overflow into rivers. We play a key role in ensuring there is the right balance between security of supply, environmental protection and value for money.

We put forward the National Environment Programme (NEP) after consultation with the water industry, Natural England, Countryside Council for Wales and other organisations. The NEP is a list of environmental improvement schemes that ensure that water companies meet European directives and national targets. The NEP forms part of the final water company business plan that determines the overall level of investment over a five year period based on the customer prices set by Ofwat.

**Water Resource Management Plans**
Water companies and other water undertakers have a duty to prepare Water Resource Management Plans that show how they will manage the supply and demand for water over a 25 year period. We produce guidelines on what we expect water companies and other water undertakers to include in these plans. We review these plans and report to Government on their adequacy.

Ofwat use the Water Resource Management Plans to help assess the investment needed to ensure customers receive good quality service and value for money.

**Water Framework Directive**
Water in rivers, estuaries and other wetlands will improve as a result of the actions set out in River Basin Management Plans, drawn up for catchments across England and Wales under the Water Framework Directive. These are the nation’s plans for improving water and wetlands, they contain the main issues for each River Basin District and the actions we all need to take to deal with them.

**Water abstraction Permitting**
We need to ensure that water resources are safeguarded and that abstractions do not damage the environment. Unregulated abstraction could lead to water supply shortages, increased river pollution by reducing dilution, damage to wildlife habitats and ultimately to the loss of rivers for all of us to use and enjoy. By licensing, we can control the level of abstraction to protect both water supplies and the environment. We screen and appraise all licence applications for potential
impact. In doing so we must have regard to certain statutory duties or obligations, for instance, the Conservation (Natural Habitats) Regulations 1994.

**Catchment Abstraction Management Strategies**
The present permitting system for control of water abstraction in England and Wales was introduced by the Water Resources Act 1963 with changes as a result of the Water Act 2003. The Environment Agency administers this system. We have to take account of our duties and powers by considering whether to grant new abstraction licences and amend existing licences. In addition to specific water resources powers and duties, there are also other requirements on us in permitting abstraction. These include taking account of costs and benefits, contributing to sustainable development and considering the needs of rural areas.

The development of Catchment Abstraction Management Strategies (CAMS) was a result of the Government publication *Taking Water Responsibly*. The principal aim of CAMS is ‘to provide a framework for resource availability assessment and produce a licensing strategy which aids the sustainable management of water resources on a catchment scale.’

**Restoring Sustainable Abstraction**
We investigate where water has been over-abstracted and work with local people to restore sustainable supplies. In some cases the outcome of our investigations will be that changes need to be made to existing abstraction licences. Where these cannot be agreed on a voluntary basis, the Environment Agency can make proposals to change the licence under Section 52 of the Water Resources Act 1991. Changes to water company abstractions that affect designated sites (E.g. Habitats Directive sites) are included in the National Environment Programme (see above).

**Drought management**
We make sure that water companies have effective plans in place to maintain public water supplies during a drought without damaging the environment. In times of drought we may issue Drought Permits to allow further abstraction of water to ensure security of public water supply. Before a Drought Permit is issued a range of demand management measures must be put in place and environmental mitigation must be agreed.

**Development Planning**
We work with other government departments and agencies to make sure that housing, commercial and infrastructure developments protect and enhance the environment. We are a ‘specific consultation body’ and comment on all plans and strategies (e.g. Regional Strategies and Local Development Frameworks). We also provide advice on significant planning applications. We expect to see new homes and commercial developments designed to use water and energy efficiently.
### Appendix 3: List of abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CAMS</td>
<td>Catchment Abstraction Management Strategies</td>
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<td>CRC</td>
<td>Carbon Reduction Commitment</td>
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<td>CSH</td>
<td>Code for Sustainable Homes</td>
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<td>IDB</td>
<td>Internal Drainage Board</td>
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<tr>
<td>MI/d</td>
<td>Million litres per day</td>
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<td>RAP</td>
<td>Regional Action Plan (water resources)</td>
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<td>RBMP</td>
<td>River Basin Management Plan (Water Framework Directive)</td>
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<tr>
<td>RSA</td>
<td>Restoring Sustainable Abstraction programme</td>
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<tr>
<td>RSS</td>
<td>Regional Spatial Strategy (South West)</td>
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<tr>
<td>Pcc</td>
<td>Per capita consumption</td>
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<tr>
<td>UK BAP</td>
<td>United Kingdom Biodiversity Action Plan</td>
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<td>UKCIP</td>
<td>United Kingdom Climate Impacts Programme</td>
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<td>UKCP09</td>
<td>United Kingdom Climate Projections 2009</td>
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<td>WRS</td>
<td>Water Resources Strategy for England and Wales</td>
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<td>WFD</td>
<td>Water Framework Directive</td>
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<td>WRMP</td>
<td>Water Resources Management Plans (water company)</td>
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<td>WRMU</td>
<td>Water Resource Management Unit</td>
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<td>WPZ</td>
<td>Water Protection Zone</td>
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