

South West Water's

Climate Change Adaptation Report

December 2021

**Bringing water to life – supporting
the lives of people and the places
they love for generations to come**



An introduction from Susan

The Climate Crisis is the single biggest challenge facing people and the planet.



According to the 2021 Intergovernmental Panel on Climate Change (IPCC), we are already experiencing many climate change impacts today, and these are expected to increase, anticipated to be at least 1.5-2°C above pre-industrial levels this century, and with a chance this might go higher. We are already starting to observe the impacts of drought, rising temperatures, flooding, rising sea levels and storm surges, and coastal erosion on our operations.

That's why, earlier this year, we signed up to our own "promise to the planet", our Net Zero plans to 2030, with three pillars centred around sustainable operations, championing renewables and reversing carbon emissions, we are on track to reduce the demands we are making on the planet.

In addition, in December we announced our collaboration with the University of Exeter, a 25 year partnership designed to solve some of the most pressing global environmental challenges of our time. The Centre for Resilience in Environment, Water and Waste (CREWW) will conduct world leading research into how we can all protect and enhance our natural environment for generations to come.

The impact of increases in global temperatures will potentially lead to larger and longer droughts, more intensive periods of rainfall and sea rises, all of which could pose a varying degree of risk to the services and supplies to South West Water customers.

The South West is particularly vulnerable to climate change, given its 860 miles of coastline, and adjacency to the western approaches of the Atlantic Ocean, exposing the area to impacts from rising sea levels and storm intensity.

Given this, assessing climate change risks, and the potential impacts, and possible mitigations on our various operations, assets and networks, is an ongoing and reiterative process.

This report is an update on the risks from climate change. It summarises the broad range of actions we have already taken. It also sets out further activity we are taking to adapt to the challenges of different weather patterns.

One thing is clear from our work, without careful planning and a step change in investment; there could be serious implications for the services customers care about most. Our plans involve developing strategies to mitigate climate change risk in all parts of our operations.

We will continue to refine our plans working with our stakeholders. We are also keen to hear your thoughts on our work to date. At the end of the report are some questions to help you think about how to do that.

Together, we can all help make the step change we want to see for generations to come.

Susan Davy
Group CEO



Our Net Zero plan can be found here: southwestwater.co.uk/about-us/sustainability/net-zero-plan/

KEY MESSAGES

The South West is vulnerable to climate change, given its long coastline, and adjacency to the western approaches of the Atlantic Ocean, exposing the area to impacts from rising sea levels and storm intensity.

Assessing the impacts of climate change and possible mitigations across our operations, assets and networks, is an ongoing and reiterative process. We have identified 60 material risks, which have been scored using our Corporate Risk Framework. Using the corporate risk matrix means that climate risks are consistent with how all other business risks are appraised.

Climate change will increase inundation at sewage treatment works and sewage pumping stations; infrastructure sewers and water mains will be impacted by sea level rises and coastal erosion. Heatwaves and droughts will cause increased demand for water, whilst reducing the amount of water resources available.

We will continue to work with stakeholders, recognising that many parties have important roles to play in mitigating and adapting to climate change. We work to understand and implement mitigations, influence policy, and collaborate on strategies to protect communities and prioritise defences, assets and communities.

The role of cross-sector solutions is likely to be significant in areas such as flood prevention, coastal protection and improved water quality in the environment. This will require joint working and commitment to mitigate the climate risk and keep the costs affordable.

Increases in global temperatures will potentially lead to **larger and longer droughts, more intensive periods of rainfall and sea rises**, all of which could pose risk to our business operations and services.

CLIMATE TRENDS IN THE SOUTH WEST

Our region

South West Water provides drinking water to a population of 2.2 million across Devon, Cornwall and parts of Dorset and Somerset, the Isles of Scilly, as well as to Bournemouth and its surrounding area.



Popular **tourist** destinations



1/3 of all bathing waters in the UK



£2 billion livestock industry



25,000 agricultural land holdings



Important **mineral extraction** industry

Recent trends

The most recent decade (2009-2018)

+1°C

– the average increase in temperature compared to the pre-industrial period

That's...

+1%

warmer than the period 1981-2010

+5%

warmer than 1961-1990

17%



– the increase in **extremely** wet days

Future trends

Climate change shows the region will be hotter 

By 2050...

Average daily temperatures could increase

up to 18°C
– a 2.2°C increase

Summer daily temperatures could increase to an average of

23°C a +3°C increase

By 2080...

Average daily temperatures could increase

up to 20°C
– a 4.6°C increase

Summer daily temperatures could increase to an average of

25°C – a 5°C increase

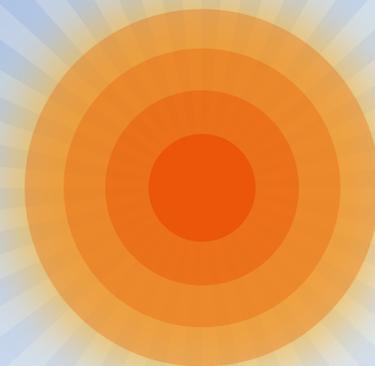
We can expect more days [about] 25°C in the summer and even days above

35°C

Sea levels are predicted to rise

By the end of the century we can expect sea levels to be

0.5 to 0.8m higher than they are today



Rainfall in the region will become

much more variable

We can expect much

drier summers 

Heavy rainfall events are likely to increase

fivefold

with twice as much rain in short periods

Extremely low temperatures in the winter will become

much less likely 

WHAT OUR CUSTOMERS AND STAKEHOLDERS HAVE SAID

It is vital our plans meet the needs of our customers and stakeholders. We engage to understand what the priorities are and make sure our plans deliver against them.

Our climate change adaptation plans reflect customer priorities. For each area we are able to link our actions back to the customer priorities they have told us for the period to 2025.

We are not standing still however, as our customer research shows that the importance of mitigating climate change is increasing.

Customers tell us:

- Climate change and protecting the environment are significant issues requiring transformational change to make a step change
- It is important to protect infrastructure from the impacts of climate change, to enable services to be maintained in the face of ever more extreme weather.
- We need to deal with climate change by reducing carbon emissions and mitigating the impacts. Steps to reduce energy use and carbon emissions is urgent, and supports value for money services.
- Investment is essential and needs to be well-paced and prioritised to deal with the highest priorities quickly and effectively.

You have told us that your top ten priorities to 2025 are...



“Climate change is such a severe threat to humankind.”

South West Water customer, Male, Aged 56+, SEG C2

“We need to reduce carbon footprint and harmful emissions: make people more aware about global warming and the impact we are having on the planet.”

Future South West Water customer, Female, Aged 16-17

Four out of the top five priorities **focus on improving the water environment**

9 in 10 customers consider Climate Change to be a significant environmental risk that needs immediate action

WE HAVE ASSESSED OUR CURRENT AND CLIMATE CHANGE RELATED RISKS AND WE ARE RESPONDING TO THEM

As a long-term business we have been investing heavily to ensure we have good tools and data to understand the impact of climate change. We have used the latest UK Climate Change projections for our region to build this report.

We have assessed over 60 climate related risks that could affect the services and the environment we all rely on, from source to tap and back into the environment.

We have looked outside our own services and examined the impact it will have on the environment, flooding and other services that we rely on – such as electricity – to give a full view of what climate change trends could mean.

We have scored the likelihood of the climate related risks occurring and the consequences they could have. This is consistent with how we assess all risks in the business.

We have also assessed the risks over different timelines to understand how the risks from climate change might change over time:

- **Current risk** – current climate change risks to 2025 and how we are already responding to them.
- **Medium and long-term** – impact of climate change trends in 2050 and 2080 and the risks if we took no further action.

In this report we have focussed on eight key risks across our operation in line with Government requirements. In the appendix we list the top 20 risks and what the climate trend drivers are of those risks.



OUR ADAPTATION PLANS

Whilst we have over 60 individual risks around climate change, we have aggregated these into key headline risks and themes.

These headline risks reflect our most significant risks, which need to be reflected in our day to day adaptive plans, and addressed in our longer term investment plans.

- Risks of poor water quality
- Risks of household water supply interruptions
- Risks of sewer flooding from heavy rainfall
- Risk to the natural environment and biodiversity
- Risks from river or groundwater flooding
- Risks to public water supply from drought and low river levels
- Risks of coastal flooding and erosion
- Failures of other infrastructure networks

Across these headline risks, we observe **Cross cutting risks** which reflect our interdependencies with other stakeholders, including other utilities, local authorities, environmental organisations, and government. These impact on all parts of our business, and require innovative, collaborative working to resolve.

Customers too have an important role to play – using less water, avoiding sewer misuse, and helping us to prevent rainwater entering our sewers.

Our Corporate Risk Framework allows us to assess the likelihood of each risk occurring and the impact if they occur.

Our assessment of a range of potential climate futures has identified over 60 climate change risks. Each has been scored in terms of likelihood and consequence, using our standard Corporate Risk Framework – now and in the future.

Our adaptation plans look to reduce the likelihood of risks occurring as well as the impact if they do occur. Over time the risk is growing, meaning that we need more action in the future. Our future plans reflect this.

Partnership working is more effective than working alone. We recognise it is more effective and cost effective to resolve problems together.



OUR ADAPTATION PLANS

This page shows the key climate risks we face and our adaptation plans.

Cross cutting risks
Risks that affect all parts of our business

Water resources

9 12

Climate threat

Risks to public supply from drought and low river levels

Adaptation

- 50% leakage reduction plan
- New resource development
- Smart metering
- Smarter operation
- Helping customers to use less water

Customer priorities 6, 7 & 10

Water treatment

6 12

Climate threat

Risks of poor water quality

Adaptation

- Leading edge treatment technology
- Catchment management
- Cross-sector collaboration

Customer priority ★

Water networks

9 12

Climate threat

Risks of household water supply interruptions

Adaptation

- 50% leakage reduction plan
- New resource development
- Helping customers to use less water

Customer priorities 8 & 9

Nature

Risk to the natural environment and biodiversity ★

Adaptation

- Catchment management
- Biodiversity enhancement and protection
- Access to our sites

Cascading risks

Failures of other infrastructure networks

Adaptation

- Renewable energy generation
- Mains duplication
- Flood protection
- Leakage reduction
- Central control room

Flooding

Risks from river or groundwater flooding

Adaptation

- Asset protection
- Catchment management
- Drainage water management plans
- Partnership programmes

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Wastewater treatment

8 12 13 14 15 16

Climate threat

Risks of coastal flooding and erosion

Adaptation

- Asset protection or relocation
- Drainage management plans
- Changes to treatment technology
- Sustainable urban drainage

Customer priorities ★ & ★

Wastewater collection

6 12

Climate threat

Risks of sewer flooding from heavy rainfall

Adaptation

- Drainage management plans
- Sustainable urban drainage
- Customer engagement to prevent blockages

Customer priorities ★, ★ & 9

Level of risk

9 12

Current risk with adaptation by 2025 9
Future risk without adaptation at 2050 and beyond 12

Risk scores equal to or above 12 are severe corporate risks.

WHAT WE'VE DONE AND WHAT WE PLAN TO DO

We have already made great progress in mitigating climate change impacts, but there is more to do.

The climate risks are large and what we are going to do is just a flavour of the action we are taking. Our future business plans will set out sector leading strategies and plans for how we will manage the risks.

WHAT WE'VE DONE

Water supply

Net zero strategy to reduce our emissions by 2030 in place 

Updated our long term water resource management plans and our drought plan 

Accelerated investment to increase water availability for droughts 

Invested in new technology to reduce leakage 

New state of the art water treatment works that are more resilient to the future 

New community fund to support water efficiency 

Award winning catchment management and peatland restoration programmes 

Wastewater

New drainage management plans to reduce risk of flooding 

New investment in technology to reduce storm overflows 

Championing sustainable urban drainage through our downstream thinking programmes 

Protecting our assets from flooding 

Smarter treatment technology 

Recycling water on our sites to reduce the impact on the environment 

WHAT WE ARE GOING TO DO...

→ Developing long term strategies to mitigate climate change risks in all parts of our operation

→ Working across sectors to develop joint solutions for mitigating flooding risks

→ Extending our catchment management to make the environment more resilient

→ Decarbonising our fleet – switching to an 100% electric car and van fleet by 2030

→ Going greener by championing renewables and purchasing 100% renewable electricity

→ Reducing leaks and helping customers to use less water and reduce leakage by 50% by 2050

→ Leading the way in natural carbon sequestration through peatland restoration

→ Planting 250,000 trees by 2025

→ Assessing future strategic options for future water supply resilience

→ Move to full smart metering and smart self healing networks

→ Ensuring no wastewater discharges are the reasons for rivers not achieving good ecological status by 2030

ADAPTATION EXAMPLES

ADAPTATION EXAMPLE 1

DOWNSTREAM THINKING

Our catchment-based approach tackles challenges facing our wastewater services by alleviating sewer flooding from our wastewater networks and reducing pollution of watercourses through softer engineering and partnership projects.

The challenge

Our sewer network is in most places a 'combined system'. Growing populations, urbanisation and increasingly heavy rainfalls under climate change are putting pressure on our drainage network, increasing the risk of sewer flooding, pollution, and more frequent combined storm overflow spills. Upgrading our treatment pumping and storage capacity to manage the increasing volumes we receive is expensive and energy (and carbon) intensive.

Our climate change adaptation

We are committed to reducing the risk of sewer flooding in our region but rather than focussing solely on hard-engineering solutions we are working with communities to implement innovative softer engineering catchment-based approaches that work with nature to alleviate sewer flooding from our wastewater networks and reduce. Our collaborative approach enables us to design holistic long-term solutions that address the cause (or source) of the problem rather than just treat the symptom. Downstream Thinking incorporates a range of activities and innovative pilots to provide system resilience.

What's the problem?

Today, our towns produce more surface water than ever. Climate change, house-building and individual developments such as driveways, patios and extensions all contribute to this.

Flooded sewers

Too much water in our sewers causes flooding and pollution.

Carbon costs

Pumping and storing the water is expensive and uses a lot of land and energy.

Regulatory complexity

Several different organisations are responsible for different aspects of flooding.

What's the solution?

Planning for the long-term at a catchment scale, using Sustainable Drainage Systems (SuDS) to alleviate sewer flooding and reduce pollution of streams and rivers, and working in partnership.

Control at source

Stop rainwater entering the sewers, and put it to good use instead.

Work with nature

Ponds, ditches and rain gardens filter and store rainwater.

Partnerships

Sharing plans and pooling budgets and expertise.



Wider benefits

Sustainable Urban Drainage Systems (SuDS) are key to our Downstream Thinking approach. They may include rainwater harvesting, rain gardens, attenuation ponds or grassed detention basins. Working with nature they can remove, store, divert or delay the speed that rainwater enters our sewer network naturally. This reduces the risk of our sewer network becoming overwhelmed in times of heavy rainfall and helps to reduce pollution, improving water quality.

They also integrate into the landscape and bring many additional benefits such as a haven for wildlife, boosting biodiversity and providing amenity value to the local community. Research shows that they also boost the green appeal of urban neighbourhoods enhancing wellbeing and health.

Two of our WaterShed projects

Exmouth

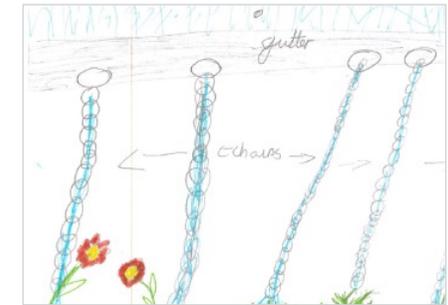
Faced with the challenge of repeated sewer flooding, we undertook a first-of-its-kind approach which empowered the local community to help co-create practical solutions using state-of-the-art technology. We teamed up with SuDS innovator OTA Water, local homeowners and a school to explore the benefits of using rainwater management systems.

The existing school surface water drainage network was diverted away from the original sewer into an attenuation basin. The resulting benefits included: increased amenity value due to enhanced local aesthetics, improved biodiversity of the existing space, a new education opportunity for adjacent schools and reduced peak flow rate in the system to provide reduced risk of flooding.

Aveton Gifford

Investigations showed that the combined sewerage system was the primary cause of 31 reported external sewer flooding incidents in the small village since 2005. Flooding had also resulted in four 'no impact' pollutions of the watercourse flowing onto the River Avon shellfish waters.

Working closely with the community, we proposed a project to reduce the amount of surface water entering the combined sewerage network, piloting a range of sustainable drainage solutions that would attenuate 15% of the surface water connected to the combined sewer. This included construction of a 77m new surface water sewer, 14m swale and 16 downpipe disconnections via water butts and raingardens on residents' properties. The project has led to community engagement, education, amenity and biodiversity benefits, with the swale providing improved habitat and pollinator-friendly plants.



Aveton Gifford school engagement project in which the pupils sketches were used to design SuDS features for the school

ADAPTATION EXAMPLE 2

PLAY YOUR PART, BE WATER SMART

Through collaboration and innovation, we have been working with our customers and communities to promote water efficiency and behavioural change.

The challenge

Water is a finite resource and is both costly and energy-intensive to collect, treat and distribute it, especially in a hilly and dispersed region such as ours. In recent years, high summer temperatures and high rates of tourism have led to increased demand for water. In May 2020, Covid-19 lockdown periods coincided with warm weather and we had to supply an additional 50 million litres of water to our customers – enough water for two cities the size of Exeter.

Under all climate change scenarios summers are predicted to get hotter and as population in our region grows and our tourism economy thrives, we are faced with an increasing challenge.

Our climate change adaptation

The less water we use in our region, the more we can keep taps running, rivers and streams flowing and nature thriving. We are committed to reducing our own water use as a company and also supporting our customers to improve their water efficiency.

Our customer outreach 'Play your part, be water smart' aims to reduce water usage and customer bills while boosting awareness among the South West of the importance of water conservation, to ensure residents and tourists are less likely to overconsume water in periods of hot weather. The average person in our region uses 143 litres of water in a day. Small changes in water use make a big difference when multiplied by our 1.8 million customers. If every one of our customers saved 5 litres of tap water a day, that would save nearly 10 million litres.



Some examples of our work include:

- Over 80% of our customers are now metered (compared with 8% in 1995). Our Green Recovery Initiative aims to go further and replace 36,500 existing meters with smart meters, that enable customers to be more aware of how their water usage impacts their bills.
- We ran a series of customer engagement workshops to inform targeted water efficiency campaigns. For example, these informed our work with the Royal Horticultural Society to encourage gardeners to use less drinking water for garden watering.
- We are hoping to encourage a young generation of water savers, collaborating with the Department for Education to incorporate water efficiency into the school curriculum.
- We have opened an education centre at our reservoir in Roadford.
- We give customers a range of free water saving products.
- We are looking to improve how we measure the success of our water efficiency measures, by quantifying the water saving benefits.



The Water-Saving Community Fund



In 2021, we launched a 'Water-Saving Community Fund'. Every year we will fund £75,000 to encourage new and innovative ideas to reduce water use. Anyone can submit an application for funding a project that improves water efficiency and benefits the community.

Examples of projects we are looking to help fund include rainwater flushing public loos, drought tolerant gardens, water butts in community allotments, educational displays in schools, or harnessing new technology to change behaviour towards water use.

Some of our recipients include:



For further information see southwestwater.co.uk/save-water



Our education centre at Roadford Reservoir



Our range of free water-saving products

ADAPTATION EXAMPLE 3

TACKLING INVASIVE NON-NATIVE SPECIES

Invasive non-native species (INNS) are becoming an increasingly prominent and expensive issue in the water industry. Under a warming climate with more extreme flooding events, the natural environment may become less resilient to these invasive species and a boom in INNS could contribute to biodiversity loss. Our sector-leading approach has raised the profile of INNS at a national scale.

The challenge

INNS are flora or fauna that are not naturally found in an environment, having been introduced by humans and have a negative impact. INNS are considered one of the top five risks to biodiversity. They can also impact our services for example, Zebra mussels can block pipes or Japanese knotweed can affect pumping stations. It is estimated that costs to the water industry from INNS is currently about £7.5 million per year.

Climate change increases the risk of INNS as flooding can cause increased spread of aquatic INNS such as Himalayan balsam. Sensitive habitats are more vulnerable to the resilient invasive species, which can take advantage and spread. Drought events also offer an opportunity for resilient INNS species to thrive at the expense of more sensitive species. A lot of native plants are susceptible to drought which provides an opportunity for more resilient plants such as New Zealand Pigmyweed (or *Crassula*), which can survive in and out of the water, to thrive.

Boating and angling are very popular at our sites, which are managed for us by South West Lakes Trust. The popularity of these activities has soared over the past year, as a result of Covid-19 and the rise of 'staycations'. Many new visitors are unaware of the biosecurity risks of spreading INNS between sites by, for example, not washing equipment.



From left to right
New Zealand pigmyweed (*Crassula helmsii*)
Japanese knotweed (*Fallopia japonica*)
Giant hogweed (*Heracleum mantegazzianum*)
American signal crayfish (*Pacifastacus leniusculus*)

Our climate change adaptation

We are actively committed to improving the resilience of our sites and the wider environment to INNS. With programmes such as Water Industry National Environment Programme, Upstream Thinking and Downstream. We were the first UK water company to appoint a dedicated INNS ecologist in 2017 and we are one of only two water companies to have a target Outcome Delivery Incentive for tackling INNS in our current five-year plan. This is an indication of our long-term commitment to protect our local environment while boosting our resilience.

During AMP6, we conducted research into which INNS are present at our sites and within our region. We are fortunate not to have some of the key INNS on our assets, as other water companies do, such as Killer Shrimp, Zebra mussels or Giant hogweed. However INNS are widespread and we have New Zealand pigmyweed at a number of sites, American signal crayfish at three sites and Parrot's feather at a few sites. We are focusing our efforts on improving knowledge of INNS and their impacts, monitoring preventative biosecurity measures.

For example:

- Investing in the installation of 12 washdown facilities at priority reservoirs whilst promoting good biosecurity and the importance of using these facilities to prevent the spread of INNS. For this, we are working closely with key partners such as South West Lakes Trust, reservoir recreational users, the Angling Trust, local groups and the Environment Agency.
- We set up the South West Regional Forum to share lessons to increase knowledge and awareness.
- Funded the Centre for Agriculture and Bioscience International's project on New Zealand Pigmyweed control and are developing novel approaches to control this INNS.
- Sponsored PhD research on signal crayfish in the Barle catchment, Exmoor and on biosecurity techniques with the University of Leeds.
- Support the GB Non-Native Species Aquatic Biosecurity Partnership to promote the national campaign Check, Clean, Dry.

New Zealand pigmyweed
(*Crassula helmsii*)





GETTING INVOLVED

We are passionate about ensuring we act now to adapt to a changing climate.

We would love to hear from you on our plans. We will use this feedback to help shape our future plans to manage the risks in this report.

- How much do you know about the future climate projections? Would you like to know more?
- How much do you know about what we are doing to adapt to climate change? Would you like to see more?
- Do you ever think about where your water comes from and how it links to the environment? Should we do more to explain this?
- Do you think of climate change when you use water or flush the toilet?
- Do you think there is a need to save water? We run advertising campaigns over the summer on billboards, buses and radio. We run competitions and schools programmes, but do you want to see more? What do you think we could do to help the message on water efficiency and the link to climate change?

Email climatechange@southwestwater.co.uk to give us your feedback.

We will update you on progress next year – in our annual update.

APPENDICES

APPENDIX A Detailed Risk Matrix

Risk category	Description	2025	2080
 Rising sea levels	 Rising sea levels increase extent of the saline incursion zone and lead to loss of groundwater sources or impacts river intakes.	8	16
	 Rising sea levels increase the extent of the saline incursion zone impacting wastewater treatment works.	8	12
 Extreme rainfall events	 Greater frequency of heavy rainfall leads to increased river flows and bank erosion with risk of wastewater pipe collapse at single site.	9	12
	 Increased catchment erosion leads to increased algae, diffuse pollutants and reduced water quality. Water treatment and biodiversity risk.	9	12
	 Increased volumes of storm water exceed pump capacity causing flooding.	9	12
	 Greater frequency and / or magnitude of heavy rainfall events or storms may lead to exceedance of storm tank design and asset flooding / damage with interruption to service.	9	12
	 Increased heavy rainfall and catchment erosion lead to increased sediment levels in raw water causing increased water treatment needs and drinking water quality risk.*	6	12
	 Direct flooding of water network assets causes contaminants to enter pipelines (especially if flooding coincides with pipe burst).	9	12
	 Reputational risk and environmental water quality impacts from higher storm intensity and increased storm overflow spills.	6	12
	 Increased risk of flooding and borehole contamination or temporary inaccessibility at single site.	8	12
 Extreme temperatures	 Increased daily and peak demand reduce security of supply.	6	12
	 Increased river temperatures lead to algae blooms and range/concentration of waterborne diseases. Water treatment and biodiversity risk.	9	12
	 Reduced receiving water quality. Risk of treated wastewater effluent failing to meet consenting requirements.	6	12
	 Increased evaporation and evapotranspiration reduce infiltration and borehole yields. Reduced yield of surface reservoirs increases demand on groundwater recharge.	6	12
 Extreme wetting and drying cycles	 More extreme wetting and drying cycles cause soil movement and increased pipe bursts.	9	12
 Drought	 Loss of supply and de-pressurisation of pipelines can cause greater incidence of pipe failure and contamination during re-pressurisation.	9	12
	 Lower river flows, reduced yields and slower reservoir refill/recharge.	9	12
	 Lower groundwater levels and reduced yields.	9	12
	 Increased daily and peak demand reduce security of supply.	9	12
	 Lower river yields, borehole yields or reduced water quality lead to abstraction licences being reduced or removed.	6	12



APPENDIX B Assets in detail

This page lists the size and number of assets that support our service provision. All these assets will be affected in some way by climate change.

£m = Approximate total value of assets that could be at risk

Level of risk



Risk scores equal to or above 12 are severe corporate risks.

- Rising sea levels
- Drought
- Extreme temperatures
- Extreme wetting and drying cycles
- Extreme rainfall events

Water treatment

- £1,000m**
- 43 water treatment works
 - 14 reservoirs



Water resources

- £800m**
- 87 sources
 - 14 reservoirs
 - 751 Ml/d available capacity



Water networks

- 5,500m**
- 18,000 km of pipeline
 - 328 service reservoirs



Wastewater treatment

- 5,500m**
- 653 wastewater treatment works
 - 1.7 million people served



Wastewater collection

- 2,000m**
- 1,222 pumping stations
 - > 11,000 km legacy sewers
 - > 7000 km of adopted private sewers

