
Chapter 7

Delivering resilience in the round

Summary

We have put resilience at the heart of our strategy, clearly signposted by our overall ambition to deliver a resilient water future for customers defined by five, shared, long-term outcomes. Our plan summarises the actions we intend to take and this chapter outlines how we understand, define and implement it in an integrated, collaborative way.

We have identified and understood the broad range of risks to resilience across Ofwat's three pillars of resilience in the round of Operational, Corporate and Financial. They are wide and varied in nature, but include population growth, groundwater infiltration of networks, climate change, shocks to food and energy production cycles, compliance failures, increased cyber attacks and financeability challenges.

Undoubtedly, one of the biggest challenges we face is water shortages. Without action, this could be the equivalent of around 50% of our current supply by 2030. Our business plan outlines how we are addressing this through activities such as reducing leakage and PCC via **Target 100**, increased volume of transfers and delivering the Havant Thicket reservoir with Portsmouth Water.

Ofwat's pillars are ideal for water utility companies, setting a strong foundation to facilitate expanding conventional thinking and boundaries of operation and challenging them to play a wider role in realising the utility of water. We are recognising this, and rising to the challenge, by adding two further pillars, Environmental and Systems of Systems, which are critical to the South East.

We recognise water and wastewater services are critical to, for example, energy generation, food production, housing development, environmental protection, our tourism sector and other vital industries and services. In turn, these are, in many aspects, connected with each other creating an, as yet informal, regional systems of systems.

We believe there is an enormous resilience opportunity by viewing multiple dispersed independent systems in context as part of a larger, more interdependent systems to deliver greater value and utility in structured **Systems of Systems**.

Reinforcing systems of systems can mean playing an enabling or supporting role, as we have with the Brighton ChaMP project. At other times it means taking a leadership role – exemplified by as our work to deliver a regional water grid through Water Resources in the South East and energy and water strategies with the Greater Brighton Economic Board Infrastructure Panel.

Our foundation for achieving resilience in the round as a water utility is becoming **brilliant at the basics**, requiring a step change in some areas. Our **5 transformational programmes** champion the utility of water by supporting economic growth and protecting and improving our environment for future generations.

Our understanding of resilience is continually informed and improved by extensive research and engagement and builds on our experiences. Water Futures, an industry thought leadership piece, considered global challenges to our regional resilience. After extensively discussing this with customers and stakeholders we were able to develop Southern Water Futures, a specific response to global and regional challenges and customers' and stakeholders' priorities.

Our approach to managing resilience is founded on Ofwat's seven principles and the Cabinet Office's 4Rs and is aligned to internationally-recognised best practice standards. We have enterprise-wide systems and processes to assess and manage immediate and short, medium and long-term resilience and risks.

While our existing approaches have identified priority risks based on evidence, we believe we can become even more robust through, for example, our values based cultural transformation and compliance improvement programmes.

When identifying and assessing risks, we look for potential opportunities to innovate and do things differently. There are a wide range of risks, interdependencies and opportunities we need to manage to deliver resilience. These are reflected in our promises, which we are committed to delivering. Around 70% of our performance commitments (PCs) are linked to resilience, either directly or through wider metrics.

Chapter headlines at a glance

- We have built a broad understanding of resilience in the round through best-available evidence research, experience and engagement – and identified specific risks and consequences, with mitigating actions detailed throughout our business plan
- We are strengthening our approach to resilience in the round by adding Environmental and Systems of Systems resilience
- We have an integrated, enterprise-level approach to resilience and risks
- We are transforming our business to achieve a resilient water future
- We are collaborating with a wide range of partners, from multiple sectors, using innovative solutions to secure short, medium and long-term resilience and realise the utility of water
- Around 70% of our performance commitments (PCs) are linked to resilience

7.1 We have built a broad understanding of resilience in the round through research, experience and engagement

7.1.1 Introduction

We know population growth and climate change will continue having dramatic impacts on our services, our resilience and our environment. However, there are broader challenges – and opportunities – that we have researched.

We developed a deep understanding of wider context, and the challenges and opportunities which come from it, through Water Futures – an independent report authored by a global expert, which identified six critical drivers for a resilient water future:

- **Changing Climate:** to meet this we must view regional infrastructure as systems of systems
- **Ecosystem Thinking:** there is a need for a more holistic approach to understanding the environment and understanding how all ecosystems are interconnected
- **Collaboration Redefined:** applying ecosystem thinking at regional, city and local levels will become the new normal to deliver resilience and accelerate innovation

- **Digital Transformational Change:** conventional approaches can no longer guarantee resilience, adopting new technology such as artificial intelligence will increase resilience
- **Nanotechnology Advances:** nano-filtration could transform how we treat and supply water
- **Cultural and Social Changes:** public attitudes evolve and drive changes in policy. Companies have to anticipate the needs and demands of future customers.

7.1.2 We have engaged extensively with customers and other stakeholders

We held conversations with over 42,000 customers and stakeholders, building their views into our plans. Specific research on customer opinions on resilience has been conducted.

Figure 1 below shows the timeline of documents and engagement that helped shape our approach to resilience:

Figure 1: Document and engagement timeline



We discussed Water Futures with customers and other stakeholders to understand how they expect our services to be resilient, both now and into the future. This included 348 pre-task responses, 96 workshop discussions, 58 deep dive conversations, 1001 quantitative research responses and a roundtable discussion with leaders from regulators, business groups, local authorities, key regional developments, consumer representatives, our supply chain and environmental groups.

This informed our broader Let's Talk Water conversation on our developing vision for the future. Insight from this fed into our Water Resources Management Plan (WRMP) consultation and It's Your Water Too – culminating in Southern Water Futures – where we first set out our vision to build a resilient water future for the South East and the steps we will take to achieve it.

We commissioned bespoke research into customers' priorities for resilience, including a number of focus groups and workshops.

This customer insight led to nine co-created themes for the future of water:

- **Climate change:** concern over the visible rate of change, and how to adapt to it
- **Environment:** duty to care for our source of water, recognising it is finite
- **Increasing population:** leading to increased demand for limited water resources
- **Efficiency of use:** everyone has a responsibility to be mindful of how they use water
- **Pollution:** impacting the quality of the environment, water and subsequently peoples' health
- **Water literacy:** need for education, particularly of younger generations, to learn to value water
- **Development:** opportunity to build water efficient homes with the ability to recycle water
- **Innovation:** opportunity for emerging technologies to enhance water services
- **Cyber attack:** resulting in loss of services or customer data breaches.

(For more on our research into customers' and stakeholders' priorities for resilience, see TA 4.4(5))

7.1.3 We have assessed and acted on legislative and regulatory obligations, policy developments and changing attitudes

We have a range of statutory and licence obligations which impact how we view, and improve, resilience, including supporting Ofwat achieve its primary duty to increase sectoral resilience.

(For more about how we ensure we meet these obligations, see Chapter 2)

(a) Compliance and environmental improvements

Ensuring we understand and, as a minimum, meet our regulators' demands is critical to ensuring we have a well-run business, which delivers to customers' expectations and is fit for the future.

We have been working our regulators, particularly the Drinking Water Inspectorate (DWI), to address a number of their concerns around the operation, resilience and compliance of our services. We are transforming how we work with our regulators and are committed to being more open and transparent.

Between 2010 and 2020 we will have delivered more than 1,000 environmental programmes under the EA's National Environment Programme. Over the course of AMP7 we will invest £836 million on environmental improvements¹ through its successor, the Water Industry National Environment Programme (WINEP), and our bathing water investment.

(b) National Flood Resilience Review

We reviewed the recommendations in the National Flood Resilience Review and explored suitable options for temporary defences to ensure continuity of service during flooding. To date, we have procured 450 metres of temporary barriers which are stored at strategic sites across our region, enabling rapid deployment to protect critical services.

We already meet a number of the recommendations in the review. We include a 20% uplift in capacity when designing sewerage schemes and an additional 300mm of freeboard on flood protection measures to adapt for climate change. By the end of AMP6 we will have delivered five flood protection schemes – at four water sites and one wastewater site.

We have three flood protection schemes planned for AMP7, totalling more than £9 million. We will invest around £4.5 million to reduce the risk of shingle blocking at our Black Rock short sea outfall and approximately £5.1 million to reinforce the seawall at Portobello Pumping Station Wastewater Pumping Station. Both of these are crucial to mitigate the risk of failure and ensure our services remain resilient.

We are also planning to partially-fund the co-delivery of a scheme to increase the resilience of our outfall at Seaford Outfall with the EA and local council. This will reduce the risk from flooding and increase the resilience of Seaford against coastal erosion².

(c) Changing policy landscape and public opinion

We are mindful of the shifting landscapes of policy and public opinion. This includes policy documents such as the National Infrastructure Assessment, signals of legislative intent like Government's 25-Year Environment Plan, and shifting attitudes towards company financing, structures and ownership.

We have already responded to some of these expectations, such as committing to meet the National Infrastructure Commission's leakage targets, and our plan fully supports Government's ambition to leave the environment in a better state than we inherited it in. By understanding these

changes, we can adapt in good time and seek new, innovative ways of working – ready to be implemented when changes occur.

Where appropriate, we will seek to inform and influence public debate to achieve the best possible outcomes for our customers, other stakeholders and the environment.

7.1.4 We continue learning from our experiences

In order to understand our current and future resilience we have to understand, and learn from, previous challenges.

(a) Drought preparation

Proper preparation is key to avoiding disruption during incidents. By adopting a 1 in 200-year design standard we were able to meet customers' needs during the extended hot, dry weather of June and July 2018. We are leading work through Water Resources in the South East (WRSE) to develop a water resources strategy which transcends company boundaries and identifies the best solutions for the region and beyond.

(b) Flash flooding

We have learned from previous periods of heavy rainfall to develop a series of Wet Weather Planning Procedures. Ahead of forecast rainfall, regional teams take a series of proactive actions to ensure disruption to customers is minimal. These are recorded to inform post-incident reviews.

(c) Freeze / Thaw

The Freeze / Thaw incident in early 2018 provides an example of risks materialising with unacceptable impacts on customers. Immediately after the event we instigated a review and will report to Ofwat with our findings and improvements in September 2018.

Some of the areas identified for improvement in our incident response include communications, planning and preparation. We have already taken action to improve by, for example, strengthening our relationships with Local Resilience Forums.

We have worked with the Consumer Council for Water, our CCG and South East Water to ensure we reach the right conclusions and improve regional resilience. We are working with neighbouring water companies to collaboratively improve response and recovery – including improved network connectivity and coordination of communications and bottled water.

7.1.5 We are strengthening our approach to resilience in the round by adding Environmental and Systems of Systems resilience

We agree a resilient business does more than just avoid losses and secure business continuity – it can deliver additional benefits for society and the economy, support renewable energy generation and collaboratively develop the skills our region needs for the future.

Our engagement with customers, understanding of context, and collaboration with other stakeholders confirmed that, in order to realise the utility of water, we are adding two pillars to the traditional three – Environmental and Systems of Systems.

The remainder of this chapter illustrates how we are, and will, mitigate risks to resilience in the round – for all customers, all users of a water utility and all who benefit from the utility of water.

7.2 We have an integrated, enterprise-level approach to resilience and risks

7.2.1 Overview

We assess and evaluate resilience by integrating proven approaches, including Water Resources Management Planning and deterioration modelling, into a Single Resilience Framework, shown in Figure 2 below. This provides a systematic understanding of service and systems resilience across our business – recognising interdependencies between corporate, financial and operational resilience. We have now expanded it to include environmental and systems of systems resilience.

Figure 2: Our single resilience framework



This Single Resilience Framework will be consistently reviewed and updated with best practice.

We have used proven approaches in two annual assessments, producing action plans which are being implemented to improve resilience. Using a single, codified framework will enable us to align our capabilities and processes and to continually improve our approach.

(For our Resilience Assessment Procedure, see TA 7.1, for our assessment against Ofwat's tests see TA 7.4.)

We maintain a comprehensive, company-wide system of controls and processes to understand, manage and mitigate risks to our business, and wider resilience. These are used to measure risks to our plan and our day-to-day operations.

7.2.2 Enterprise-level risk monitoring approach

We manage corporate risks through XeroRisk – our corporate risk database which categorises, ranks and assigns risks to responsible managers to develop and implement mitigation measures. Risks are documented in XeroRisk through systematic, top-down and bottom-up assessments³.

Asset and operational risks are identified and monitored through our Asset Risk Management (ARM) database. Risks in ARM are aggregated and summarised in XeroRisk. Risk management is embedded throughout our management structure.

Risks are reviewed monthly, with the highest risks being escalated to our Executive Leadership Team (ELT), the Board Audit and Risk Review Committee (ARRC) and the full Southern Water

Services Board. Risks above the critical threshold are assigned to an ELT member, up to, and including, our Chief Executive Officer, for immediate review.

At each regular Board meeting, a corporate dashboard is reviewed alongside detailed reporting on operational and financial performance. Core strategic functions, such as finance and regulation, are regularly reviewed by senior managers and our ELT, Board and shareholders.

We know we can improve this further. As of August 2018, we are in the process of procuring a new, integrated enterprise-level risk management and internal audit system to be in place before the start of AMP7. This will improve how we manage risk, compliance and internal assurance.

7.2.3 Understanding operational risk

We hold regular challenge sessions to mitigate subjectivity and ensure risks are understood and accurately recorded.

Risks are first reviewed by the risk originator and local area plan manager, to validate the risk and remove ambiguity around probability and severity. Next, managers from our Operations and Compliance and Asset Resilience Directorates confirm acceptability of newly-entered risks, agree progress of medium-level risks and escalation of high-level risks. Finally, senior managers review escalated risks and agree any necessary expenditure to mitigate or resolve the risk.

We use a range of deterioration modelling to understand the scale and scope of future investment needs. This modelling is essential for us to develop our investment proposals.

Our models select appropriate solutions to achieve a pre-determined outcome – either maintaining or improving levels of performance resilience. When seeking to achieve a future performance level our models assess the probability and impact of failure – in terms of service and financial impact. This is referred to as the consequential cost of intervention.

(For more on how we select options and ensure best value for customers see Chapter 14, TA7.7 and TA14.5)

In addition to risks from asset deterioration, our plans consider wider operational risks such as the impact of climate change, population growth and unexpected levels of asset deterioration.

7.2.4 Risk management and assessment

The amount of risk the Board is willing to take to achieve our objectives is referred to as our “risk appetite” and we are in the process of developing statements for our principal corporate risks.

We employ sound enterprise risk management principles, transparent decision making, and effective communication to prioritise risk. We aim to minimise our exposure to compliance, operational and regulatory risk, while accepting and encouraging more risk in pursuit of our objectives. Our acceptance of risk is subject to ensuring potential benefits and risks are fully understood before developments are authorised, and that sensible mitigation measures are established.

This means we will not seek to intervene in all situations. Our approach is based on judgement, the circumstances of each potential intervention and an assessment of its impact. We prioritise actions in terms of risk, cost and perceived benefits in a consistent and transparent way.

By identifying drivers for each strategic risk we can consider the proactive control environment, often demonstrated to be the most cost-effective way of managing risk, focussing on three of the four Rs. We also implement response and recovery mitigation to limit the consequences to customers. By considering the control environment we can determine the residual risk. We then

consider this against our risk appetite, informed by customers' and stakeholders' priorities and our statutory responsibilities.

7.2.5 We have identified a wide range of risks and opportunities associated with resilience which we routinely assess and act upon

Resilience has been at the core of many of our previous interventions – ranging from our surface water separation scheme in Portsmouth, to our pioneering Universal Metering Programme and use of stochastic modelling.

We have considered a wide range of resilience challenges including security threats, skills shortages and compliance.

The table below illustrates some of the risks we have identified:

Table 1: Illustration of highest level risks

Topics	Financial	Corporate	Operational	Environmental	Systems of Systems	Risk (Impact)	Risk (Likelihood)
Water scarcity	•	•	•	•		H	M
Flooding			•	•	•	H	H
Climate change			•	•	•	H	H
Cyber attack		•	•			M	M
Compliance Risk Index (CRI)			•		•	H	H

(For more detail see TA 7.3.)

When prioritising risks we adopt a simple approach of ensuring those to all customers in the South East are addressed first. Where we are further able to help other sectors, such as agriculture we will continue to play a leadership role and support those services as much possible.

To understand risks we use a standard approach of assessing their likelihood and impact on public health, environmental protection and services to customers. We consider immediate and short-term risks and take action to mitigate against them. For example, when we anticipate heavy rainfall, we mobilise teams and equipment to reduce the risk of flooding and loss of service.

Where we see medium-term risks, we look for opportunities to deliver wider resilience benefits. For example, we forecast the amount of water we will have available for supply up to a year in advance, based on a range of factors. This has allowed us to proactively work with the NFU and EA to identify potential solutions to make water available for agriculture, where there is sufficient headroom.

Enterprise-wide resilience cannot be measured in a single metric. We have adopted a broader, company-wide range of measures to assess our current and future resilience as we transform from a water utility to realising the utility of water.

These include:

- adapting the BS65000 organisational resilience standard to a water utility. This measures performance, leadership and processes and highlights potential areas for improvement – complementing our Enterprise Risk Management Approach
- around 70% of our PCs are linked to resilience – such as leakage, flooding and asset health. This gives us a targeted set of lead indicators to correct specific issues which can impact on our overall resilience (more detail is in TA 7.6)

- bespoke zonal metrics for water and wastewater systems, covering aspects such as flooding, critical asset failure, contamination, raw water loss, malicious damage and cyber security. These resilience scores provide a check and balance review to the lead indicators accounting for some of the unique aspects of asset configuration in an area
- drinking water safety plan risk assessment which provides a set of leading indicators to indicate risks, and the control measures required to reduce the impact of potential failures. The Compliance Risk Index (CRI) and Event Risk Index (ERI) metrics will track our performance.

7.3 We are strengthening and transforming our business to enable delivery of a resilient water future

7.3.1 Transforming our business

We know from our resilience assessments, past performance and engagement with regulators we need to improve our capabilities, systems and processes. Key areas we have identified include compliance, IT, data and cyber security, financial transparency and our skills, culture and people.

Our comprehensive business transformation programme is key to delivering our **brilliant at the basics** capability. It is specifically designed to deliver significant, measurable improvements in effectiveness and efficiency and establish a more sustainable and resilient business model – underpinned by a values-based cultural change programme.

We are rebuilding our central support functions, including a fundamental transformation of IT, to be more effective and efficient. Our recently created cross-business data team is already delivering results and leading on the innovative DataWell .

The diagram below illustrates the approach, scale and elements of our internal transformation:

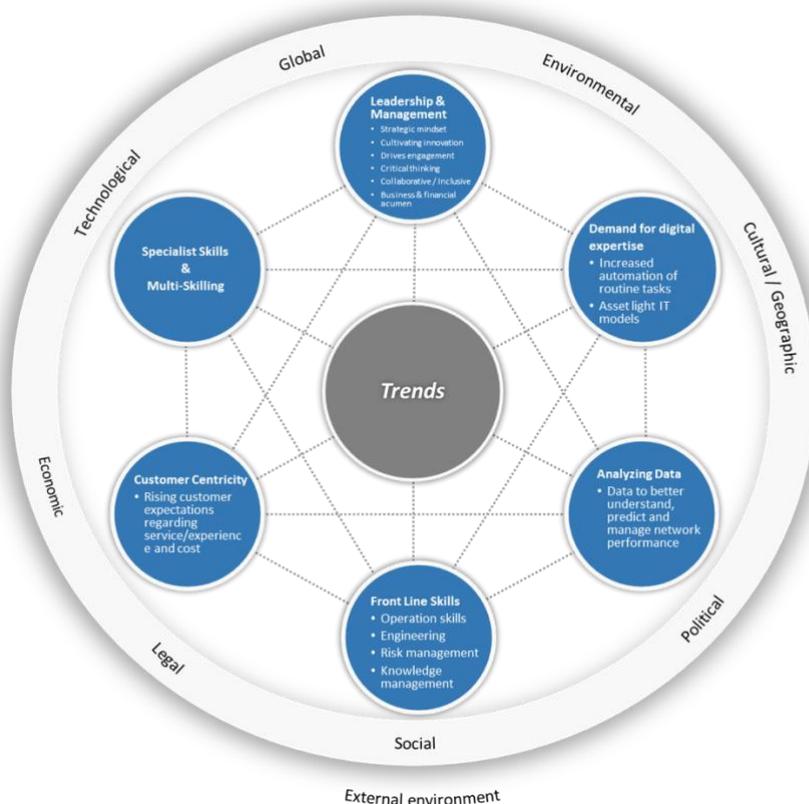
Figure 3: Our business transformation



7.3.2 We are investing in people development and building capabilities

The labour market is dynamic, and we know the trends that will impact our ability to source and recruit the skills, knowledge and expertise we need. Figure 4 shows the driving forces and trends for our skills, capability, knowledge and competencies.

Figure 4: Driving forces and trends for Southern Water’s workforce skills/capability, knowledge and competencies



Our workforce is ageing with 35% of our employees over 50, digital technology is transforming how we work, leaving the European Union is having an effect on labour availability for capital projects and our region has to compete with the draw of London. The demands for new skills provide an opportunity to increase our range of diverse talent, with currently 28% of employees being female.

We have developed a HR vision to drive people and organisational capabilities and shape a culture which supports the delivery of a resilient water future for the South East. We will achieve this through strong business partnerships, understanding the external landscape and creating an employee value proposition that attracts, empowers and engages diverse talent.

Areas we will focus on include:

- strategic workforce and skill-gap planning, anticipating how future changes (demand for digital expertise, analysing data, customer service, specialist and front-line skill) impact our workforce sustainability and resilience
- sourcing and recruiting the right people, with the right capabilities, at the right cost and at the right time
- attracting diverse and untapped talent that is reflective of our local communities and customers by expanding our resourcing channels and optimising our employee value proposition

- recognising the specialist skillsets we can access via our supply chain – such as working with Fujitsu, Google and other technology providers on the DataWell project.

Investing in skills and developing knowledge and expertise

Here we will:

- establish a Skills Academy, formed of company-wide development programmes and a strong collaboration with other water companies, councils and local employers to leverage training provision and share leading practices, resources and facilities
- expand our high-quality apprenticeship programme to attract entry level talent
- bridge knowledge gaps through bit-size learning modules delivered through a Learning Management System supplemented by on-the-job learning
- deliver a high-quality and cost-effective Water First Development Programme to develop strategic operational skills
- expand the Operational Excellence programme which promotes the sharing of ideas, knowledge transfer, increases collaboration and reduces risks across operational sites by empowering colleagues to make decisions.

Developing our leadership and management capability

Our priorities are to:

- strengthen our talent pipeline for critical roles and leadership positions through robust and targeted development process and plans. We will accelerate readiness for the ‘next’ role and with a focus on diversity
- design and deliver an 18-month Management Development Programme to elevate management capabilities and empower our management community .

(For full details of our HR and Skills transformation see TA.7.5.)

7.3.3 Transforming technology and resilience to cyber attacks

Sustained investment in technology is fundamental to increasing efficiency, improving our capabilities and enhancing resilience against emerging threats from cyber attacks. We plan on investing £286 million to secure our IT foundation and enable us to become **brilliant at the basics**.

(For full details of our IT transformation and cyber security approach, see TA.12.MG02.)

Improving cyber security resilience

Greater integration between previously distinct information and operational systems, processes and assets, such as sensors, is increasing our vulnerability to potential cyber attacks. This is due to increased digital access points as a result of greater convergence.

Cyber attacks appeared in the top three global risks for the first time in 2018, with the World Economic Forum reporting attacks against business had doubled in the last five years, and “incidents that would once have been considered extraordinary are becoming more and more commonplace”.

Recent attacks on the Ukrainian grid and the WannaCry ransomware attack on the NHS, which resulted in more than 19,000 appointments being cancelled, highlight the growing threat – and potential disruption – from cyber attacks. In April 2018, the National Cyber Security Centre (NCSC) warned against attacks targeting infrastructure and its latest threat assessment for the water sector is “Substantial”.

We undertake regular reviews and exercises with the NCSC, and consulted with them as we developed our strategy. This ensures we are more prepared for emerging threats and can constantly update our approach based on intelligence and best practice, while ensuring we comply with the GDPR and NIS directives.

We have adopted security frameworks, such as NIST/ISO27001, to underpin cyber security management. Figure 5 below shows the five pillars of the NIST framework.

(For more detail, including examples of good practice, see TA12.)

Figure 5: NIST framework pillars



During AMP6 we made progress in delivering more resilient systems and capabilities, reviewing and improving our compliance with GDPR and the Network and Information Systems (NIS) Directive, and enhancing our security posture in SCADA.

Our AMP7 ambition is to embed a series of resilience and security characteristics, aligned to Defra's 2017 cyber risk review and supported by our investment in IT. We will achieve this by improving our people, processes and systems through, for example, training, replacement of legacy applications, use of predictive analytics and enterprise-wide security frameworks.

These characteristics are:

- Adaptable, flexible and compliant
- Trained and prepared
- Coordinated risk management
- Interdependent and integrated
- Proactive and responses.

We will continue working with Government, regulators and our supply chain to adapt and improve our cyber security to ensure our services remain resilient.

7.3.4 Resilience in the supply chain

Our supply chain plays a vital role in ensuring delivery of our critical services. We are transforming our procurement processes to embed, and assure resilience.

Building on a strong procurement assurance framework we will assess resilience at three critical stages, namely:

- qualification, selection and engagement of new suppliers
- ongoing external and internal reporting of supplier health and performance
- ensuring alternative supply chain partners are in place, with robust exit and transition plans prepared and reviewed.

(a) Qualification, selection and engagement of new suppliers

We have a transparent and auditable e-sourcing platform to ensure the robust qualification of new suppliers, aligned with our resiliency requirements. This includes external credit and risk assessment of all new suppliers, with appropriate enhanced due diligence in line with the specific risks of the contracts. Where appropriate, we seek independent assessment of relevant accreditations such as ISO14001 and ISO27001.

(b) Supplier health and performance

Our supplier governance model includes identification of critical suppliers with daily external monitoring of financial health. As part of our procurement transformation, we are improving both the internal reporting about, and the data we capture from, our supply chain partners.

We are implementing an integrated supplier and contract management system to report the value of work delivered and evaluate supplier performance against agreed KPIs, improving understanding of the challenges and opportunities our suppliers face and enabling us to better ensure best value for customers.

(c) Ensuring readiness for AMP7 delivery

For all significant areas of spend, we are implementing category strategies to ensure we have the right contracts in place to deliver the services, outcomes and resilience we need. As speed and agility of procurement is critical to deliver resilience, this includes using framework contracts that can be readily called on when needed.

Our standard contracts embed measures such as security accreditations, guarantees, breach notifications, incident management reporting and audit rights. As part of our contract renewal process, these are leveraged to ensure appropriate controls are in place.

The key supply-chain risks we are mitigating against are capacity in the market and financial health. We are doing this by leveraging our existing contractual engagements early and by minimising transition activity. This has allowed us to start negotiations with key strategic partners early to secure a smooth flow of workload from AMP6 to AMP7. Our decision to work with two non-infrastructure partners significantly increases the resilience of our capital delivery supply chain and leveraging geographical-lotting strategies, allows considerable flexibility.

We are also rebalancing the allocation of activity to reflect the scale and stability of suppliers. Other supply-chain risks we are managing through our Supplier Relationship Management Framework include cyber security, data protection, health and safety and modern slavery.

7.4 In resilience terms, we view innovation in different contexts – incremental, transformational and disruptive

Innovation is embedded across our business and throughout our transformational programmes. We can secure a resilient water future faster and more efficiently by being open to new ideas, new ways of working, new practices from any sector, from anywhere in the world.

Our approach to innovation can be expressed as a simple equation:

$$\text{Incremental innovation} + \text{Transformational innovation} + \text{Disruptive innovation} \\ = \\ \text{a resilient water future}$$

By concentrating on incremental innovation we remain focused on customer excellence and becoming **brilliant at the basics**. At the same time, we develop and implement transformative innovation through new programmes, approaches and technologies. Finally, we look at potential global megatrends that will radically change how we work, and which require disruptive innovation.

By focusing first on incremental innovation, we ensure we do things better and more efficiently every day – allowing us to successfully adapt to disruptive change as it happens.

Examples of innovation already underway and in our plan include:

- our **bluewave** innovation approach, supported by a physical innovation lab, which fosters innovation by applying lean, start-up methodologies to co-create with customers and other stakeholders
- Performance Hubs are driving daily improvements and generating new ideas
- we catalysed cross-sector data sharing through DataWell – a cloud-based portal for common regulatory data and the release of open data.

(For more detail about our approach to innovation, see Chapter 10.)

Our 5 transformational programmes

Building on incremental innovation allows us to be transformational – collaboratively securing wider resilience with customers and stakeholders.

We have developed **5 transformational programmes** to widen our resilience contribution and reinforce regional systems of systems:

- **Target 100** is an agreement with our customers – we will support them to reduce average daily consumption and while reducing leaks, creating headroom in our supply network
- **Network 2030** will create a more resilient supply system through greater automation and rationalisation of assets – meaning we can predict, detect and fix potential issues faster
- **Sustainable Drainage 2030** will unlock capacity for future growth by making better use of our existing networks and greater uptake of sustainable drainage methods
- **Catchment First** ensures the environment is at the heart of our decision making and shifts our thinking from asset-centric approaches towards natural-resilience solutions
- **Resource Hubs** transform traditional approaches to wastewater treatment works by turning them into new community assets where we generate energy, provide water for industry and develop the skills our region needs.

7.5 Creating a resilient water utility – Corporate resilience

7.5.1 Governance, leadership and transparency principles

Our Board is committed to maintaining high standards. We have adopted the Southern Water Code of Board Leadership, Transparency and Governance (the “Southern Water Code”), which fully reflects the Board leadership, transparency and governance principles issued by Ofwat and which draws extensively on appropriate principles from the UK Corporate Governance Code issued by the Financial Reporting Council⁴.

Future changes to the corporate governance of water companies will not change our Board’s commitment to maintaining high standards of leadership, transparency and governance. We will amend our governance structures as appropriate.

(For more detail about how our corporate governance supports resilience, see Chapter 2.5.)

7.5.2 We have strengthened our Board and Executive Leadership Team

Our Executive Leadership Team (ELT) has been expanded to include a wider range of skills and capabilities from a broad range of sectors – ensuring we have the capacity and expertise to drive transformation and operational performance.

We appointed three new members from within our business to lead new directorates – Compliance and Asset Resilience, Wholesale Water and Wholesale Wastewater. Additionally, we have brought in executives with senior experience in transforming, reinvigorating and leading organisations in finance services, telecoms, and commercial sectors.

We have taken action to further strengthen our Board. We implemented a new governance framework by separating the Board meetings of Southern Water and Greensands Holdings, our ultimate holding company. Additionally, we commissioned an independent effectiveness review, and will use insight from it to maintain the right balance of styles and strengths around the Board table. In the last year, three new non-executive directors (NEDs) joined bringing invaluable experience from a range of sectors including finance, cyber security and capital delivery. We are further broadening the range of skills and experience to include customers and vulnerability.

Our Board has been fully involved in our plan, and wholeheartedly supports the changes being implemented – including the creation of our Compliance and Asset Resilience Directorate and the development of our Modern Compliance Framework (see section 7.5.3 below). Additionally, one of our NEDs will champion values and ethics across our business.

(For more about Board engagement and assurance, see Chapter 2.)

7.5.3 Our Modern Compliance Framework

As part of our continued transformation, we are developing our Modern Compliance Framework, underpinned by our adoption of ethical business practices – supporting our wider cultural transformation and compliance improvement programmes (see section 7.6 below). Delivery of the Modern Compliance Framework, and the wider changes it supports, will improve our performance and increase the trust our customers, stakeholders and regulators can have in us.

Figure 6: The key elements of our Modern Compliance Framework



We are working with leading experts in ethical business practice and regulation to understand how to adapt their work into our transformation and guide the development of specific activities under the Modern Compliance Framework.

Key features of our Modern Compliance Framework include:

- enhancing our compliance management reporting framework to provide visibility of compliance maturity across all management levels allowing appropriate interventions and escalations
- quarterly compliance maturity assessments, ensuring we have a view of progress in strengthening our reporting processes. The assessments pay particular attention to external assurance and regulatory information management
- a compliance maturity assessment dashboard to identify KPIs and ensure they are reported effectively.

Key components of our Ethical Business Practice approach includes:

- refreshing our core values and embedding them into everyday operations
- refreshing our Code of Ethics and providing ethical decision-making support to colleagues
- engaging an independent external assurer to provide annual, objective assessments available to the Board, regulators and wider stakeholders

(For more detail, see TA 7.2.)

7.6 Creating a resilient water utility – Operational resilience

7.6.1 Introduction

We are working with regulators to improve compliance and performance across our organisation. Our three bespoke programmes to deliver this are Operational Excellence, Water First and Environment+.

Achieving Operational Excellence and delivering Water First and Environment+ will ensure we meet customers' needs in a safe, resilient and efficient way.

7.6.2 Operational Excellence across our wholesale business

Operational Excellence spans both our water and wastewater services to drive improved performance, compliance and resilience through stable processes, greater efficiency and more effective and agile prioritisation – enabling us to become **brilliant at the basics**.

Improving our customers' service experience starts with our operational teams and the reliability of our treatment facilities and networks. New Performance Hubs will allow cross-functional teams to review performance daily, focus resources and use data to systemically target improvements. This encourages collaborative, evidence-based problem solving and new ideas to develop.

Trials of Performance Hubs carried out with teams from water and wastewater improved efficiency, team engagement and the volume and quality of work completed.

Specific outcomes include:

- maintenance productivity up by over 30%
- Water Treatment Centre alarm activation reduced by 50% and the average age of unresolved alarms reduced by 60%
- a 50% reduction in water quality shut-down events⁵
- significant reductions in ammonia and turbidity breaches at wastewater treatment works.

We are introducing more than 80 Performance Hubs across core operational teams before AMP7. Embedding Operational Excellence will take time and commitment at all levels. Performance Hubs will accelerate and help sustain this by building the capacity of our operational managers.

Operational Excellence will mean we are doing more work and doing the right work more efficiently and effectively – enabling Water First and Environment+.

7.6.3 Water First

Water First is our multi-AMP improvement programme, developed in collaboration with the DWI, to embed public health protection at the heart of our water services. It spans our people, processes, systems, culture, training, risk and information management – supported by asset improvements and expanded catchment management.

In December 2017 our Board approved £50 million to develop and implement the programme.

We have had positive feedback from the DWI and will continue to work with them to embed the programme and share learning with the industry. Figure 7 provides an overview of Water First.

Figure 7: Water First

Catchment	Treatment	Disinfection	Network	Customer	Verification Monitoring
Catchment Management Risk Assessment/DWSP	New site manual framework	Policy statement and Disinfection standards	Resource and Distribution Manual alignment	New Incident Management Process	Compliant sample points and standard for Crypto sampling
AMP6 Nitrate and Pesticide Undertaking	Site condition and hygiene standards	Site specific disinfection policies	WQ Monitoring and Smart network analysis	WQ Scientific expertise escalation group	Public buildings policies and procedures
Champ	Operational work processes and MSTs	Tracer tests verification	WQ Protection within networks	WQ and PH content on SW Website	Online Monitoring and LabWar improvement
Drinking Water Safety Plans and Hazard Review					
Information Management					
Public Health Culture and Training					
Culture Transformation – Simpler, Easier, Better					

7.6.4 Environment+

Customers, stakeholders and regulators expect us to protect and enhance our environment. Our vibrant regional economy thrives on it with 5.2 million visitors every year. Fundamentally, resilient water and wastewater services need a resilient natural environment.

Our holistic Environment+ programme is building on work already underway to improve how we manage our risk and assets to improve our performance, capabilities and compliance. It is embedding more collaborative, effective and transparent practices, alongside sustainable improvements to our policies, processes and reporting.

In common with Water First, the programme covers our people, processes, systems, culture, training, risk and information management, supported by asset improvements and expanded catchment management.

In December 2017 our Board approved £30 million to develop and implement the programme.

While doing so, we have inspected all our wastewater treatment works to identify compliance risks and potential issues. As of August 2018, we are approaching the mid-point of our improvement programme.

Figure 8: Environment+



A critical component of both initiatives is improving risk management. We build on best practice for Hazop analysis to ensure a more integrated approach to both our assets and the catchments they operate in. This means we can systematically undertake full resilience assessments at catchment level, building on the international J100 resilience framework.

We are also assessing our resilience maturity against international best practice and the British Standard BS65000:2014 Organisational resilience.

7.6.5 We are investing to secure water resilience

Our water strategy is integrated with our WRMP. Through our WRMP we identified the biggest challenge we face in water – the loss of available water during droughts.

We predict a regional deficit of 294 megalitres per day (MI/d) by 2030, with a deficit of 188 MI/d in Hampshire alone. This is being driven by sustainability reductions on sensitive rivers like the Test and Itchen during periods of drought. Without action the level of service would deteriorate with more frequent temporary-use bans, and potentially more severe restrictions such as stand pipes and rota cuts. Our customers strongly oppose any deterioration in service.

We are responding through a triple track approach, detailed in our WRMP which includes:

- reducing leakage by 15% by 2025 and then by 50% by 2050, and working in partnership with customers to deliver **Target 100**
- constructing the first phase of a regional grid that allows more water to be transferred, including the joint-use Havant Thicket reservoir. We are also delivering three water reuse schemes and two desalination plants
- using catchment management to protect and enhance the watercourses we abstract from and working collaboratively to improve resilience to drought, by naturalising flows and habitats.

This multi-AMP investment ensures none of our customers would experience severe restrictions in a 1 in 200-year drought. Proactive investment in water resources can avoid disproportionate recovery costs and economic damage. The National Infrastructure Commission estimates the cost

of building resilience to droughts being £21 billion over the next 30 years – while the emergency costs could be £40 billion⁶.

We regularly produce a report which examines the potential impact of dry weather on our water resources, in the short, medium and long-term. This is based on deep understanding of our demand and supplies and the potential impact of rainfall patterns. This is complemented by our stochastic modelling to produce 100,000 potential rainfall scenarios, which we break down by probability. This is shared with our ELT, allowing us to prepare potential mitigations.

(For more detail see Chapter 11 and supporting technical annexes and our WRMP.)

Example – Cross-boundary collaboration delivering long-term water resources resilience

The South East is water stressed. We know the population will grow, the amount of water available from the environment will fall and climate change will create significant uncertainties. The greatest resilience benefits are delivered through a recognition of systems of systems across company and regional boundaries. This approach led to our long-term view of a South East Water Grid.

Through WRSE, we are driving the development of a regional water resources strategy – and we have adopted 9 of the 14 potential options it identified into our WRMP⁷. These include traditional and innovative solutions, both in and out of our region. The clearest example of this is the proposed regional water grid.

We have led the development of more robust water resources planning by introducing stochastic modelling into the sector to provide insight into potential future droughts and the use of real options methods to provide adaptive and scalable solutions.

Our consideration of the best options for customers is informed by our resilience methodology, which allows us to build a picture of resilience across our network. Each zonal assessment enables us to develop key insights into which elements of our system are most critical – and to broaden our resilience focus as a result.

The proposed new reservoir at Havant Thicket, included in the WRSE strategy, is the first major development to support this idea, enabling Portsmouth Water to provide a flexible bulk transfer of around 21 Ml/d – followed by a bulk transfer from South West Water of up to 20 Ml/d.

While we develop additional trades with neighbouring companies and the Hampshire and **Network 2030** grids, we will enhance connectivity with South East Water in Kent. The map below shows even greater connectivity and illustrates how the Upper Thames Reservoir could also support additional transfers.

Figure 9: South East Water Grid in 2045



Increased connectivity will enhance regional resilience and support stakeholders and businesses who rely on the utility of water, such as the agricultural sector. This can be achieved by 2045. (For more information, see TA 11.3.)

We used a systems thinking approach while developing our plan to improve the resilience of the region, in order to:

- adapt and cope with a wider range of severe and extreme droughts
- provide added connectivity to enhance water security when sources might fail due to pollution or severe weather
- meet demand during hot, dry spells – and maintain supplies for valuable commercial sectors
- reduce reliance on temporary-use bans, drought permits and drought orders – protecting the environment and meeting customers’ expectations.

Based on our work on Havant Thicket, we predict the total amount of water we trade will increase by from 17.4 MI/d to 37.1 MI/d and the total amount Portsmouth Water trades will increase from 1.17 MI/d to 60 MI/d by 2030. The table below shows this as a percentage of Distribution Input.

Table 2: Percentage of Distribution Input change as a result of trades

Water company	% of DI 2016	% of DI 2030	Rate of change
Portsmouth Water	1%	36%	0.35
Southern Water	4%	23%	0.19

7.6.6 We are investing to secure wastewater resilience

We have almost 40,000 km of drainage networks across our region, from remote rural locations to some of the most densely-populated areas in the country. They will come under increased stress from climate change and population growth.

Our customers support a more sustainable approach and we need to tap into this to increase awareness of the causes of sewer blockages and to develop innovative solutions for individual properties and communities. We have trials underway in two pilot areas exploring soakaways, smart and conventional water butts, rain gardens and other small-scale sustainable drainage systems (SuDS) options.

At a larger scale, we have been working with the Ebbsfleet Development Corporation and the development at Fawley Waterside to ensure the new towns there are as sustainable as possible. This includes ambitious targets for water consumption, implementing SuDS and rainwater capture.

By using SuDS, such as rainwater gardens, encouraging surface water separation, enhancing our use of monitoring and predictive analytics, and moving towards greater automation, we will unlock capacity in our networks for growth, reduce the risk of flooding to customers' properties and increase the overall resilience of our network and the systems of systems they link to.

Extreme, more unpredictable weather, combined with population growth, are the biggest threats to wastewater resilience. Our experience shows this can lead to flooding, pollution and environmental harm.

During AMP6 we developed three drainage strategies, based on the Drainage Strategy Framework, for Thanet and North Kent, Wickham in Hampshire and Sidlesham in Sussex. These set out long-term visions for each area, analysing specific challenges, such as the impacts of climate change and housing growth, and outlining mitigating actions. These strategies will inform the work beginning in late 2018, on our Wastewater Management Plans.

In enhancing our approach to wastewater planning we have considered the principles of the Drainage Strategy Framework. We have established a high level outcome to ensure "services we provide are effective and fit for the future", measured by stretching PCs which will reduce flooding of homes by a further 25% and, provide additional capacity for over 100,000 new homes.

Our plan includes interventions which will build on our learning from our Portsmouth surface water separation scheme and expand the use of surface water management and SuDS to deliver benefits for communities and demonstrate best value for customers.

Due to the underlying chalk geology of our region, extreme rainfall can cause two distinct types of flooding. The first is sewer flooding as a result of high groundwater levels infiltrating our networks. Parts of our region have experienced flooding caused by high groundwater in recent years, and we have worked to reduce infiltration – including developing seven Infiltration Reduction Plans.

In AMP7 we will invest £17.3 million on 20 infiltration reduction schemes across our region⁸. We will continue monitoring levels and proactively mitigating short-term flood risk, including over-pumping, and using our award-winning mobile treatment units.

The second is intense rainfall that increases the risk of water surcharging from sewers – which can cause flooding to customers' homes, gardens and businesses. We monitor forecast rainfall and proactively mobilise additional resources to mitigate short-term risks.

Our response to this is threefold – a technology-led strategy using predictive analytics to reduce risk of flooding by better understanding and managing flows, embarking on a substantial growth programme to increase the physical capacity of our networks where needed, and working with partners to jointly create and deliver sustainable, catchment solutions like rain gardens. This is encapsulated by ***Sustainable Drainage 2030***.

An additional risk to environmental and wastewater resilience is failure of our assets leading to potentially-serious pollution incidents. Examples in our recent history include pollution incidents in East Worthing, Sussex and Margate, Kent.

We are strengthening our risk framework to include a wider assessment of resilience risks. By looking at whole catchments we can gain a better understanding of the links and interdependencies between our sites and the wider environment. Environment+ is leading improvements in compliance and resilience at all our wastewater treatment works.

(For more detail see Chapter 12 and associated TAs.)

Example – understanding and improving operational resilience

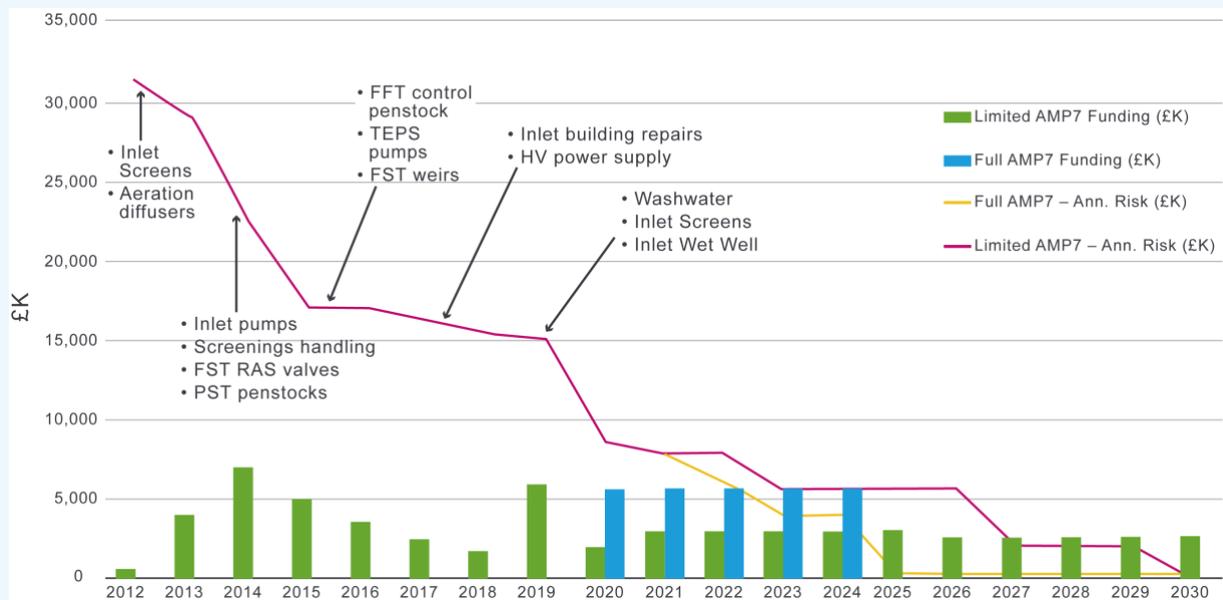
Our East Worthing Wastewater Treatment Works serves the equivalent of 140,000 customers from Worthing, Lancing and surrounding towns, treating up to 34,000 m³ of wastewater every day.

In 2012, there were two category one pollution incidents from the works, which caused damage to the environment and flooded the ground floor of Worthing Hospital. In July 2017, a power outage caused issues at the site and impacted the local bathing water.

Through our risk assessment processes we have identified investments to reduce risks over time at the site – increasing its resilience to increased demand from growth and against external factors such as power outages.

The graph below shows how our investment has increased resilience at the site over time, shown by the reduced level of risk. It also shows how our planned investments will further reduce risks over the next two AMPs.

Figure 10: East Worthing risk profile vs investment



Through our ARM processes we quantify site risks, converting them into monetised risk values using customers’ willingness to pay and ODI penalties, shown as the line in the

above graph. Our investment at East Worthing focussed on the most significant risks to resilience first. This includes dual-power supplies to improve resilience against third-party failures.

By the end of AMP6, the key critical points of failure will have been addressed – leaving us with two options for AMP7 regarding the structural condition of the main incoming wet well. Our plan includes the lower-cost option, using an innovative approach to deliver structural reinforcement.

This is a strong example of how we assess risks, allowing us to target investment over a number of years to cost-effectively deliver measurable improvements to resilience.

7.6. We are investing to secure retail resilience

By adopting an outsourced model for customer service we ensure we have access to a flexible, skilled workforce provided by industry leaders – with capacity to cope with increased demand without loss of service quality. It also reduces our cost-to-serve, supporting wider efficiencies and financial resilience, and means our in-house customer teams can focus on supporting customers in vulnerable circumstances, helping customers move home and managing operational incidents.

We analysed a number of delivery models and assessed costs and risks associated with each, allowing us to select a retail delivery model that offered certainty of implementation and the lowest cost. Evolving our delivery model will support a more financially and operationally-resilient retail service to customers. (For more detail see Chapter 9.)

During AMP6 we improved our customer-facing website. As well as adding an incident tracker and enabling customers to manage their accounts online, we have increased its capability to cope with increased traffic so customers can find the information they need – particularly during incidents. For example, during the Freeze / Thaw incident in early 2018, we saw website visits increase by 548% compared to normal levels⁹ – with no reported loss of service.

7.7 Creating a resilient water utility – Financial resilience

Our financing plan supports our business plan and the management of risks over AMP7. Our capital structures are financially resilient, shown by testing them across a number of different operating and macroeconomic scenarios.

The primary financial risks we face are from interest rates, inflation, liquidity and credit ratings. These are managed through a series of measures, including index-linked debt and swaps, ensuring loan maturities are not concentrated, and maintaining a minimum level of cash.

We commissioned two independent expert studies to understand the impact of risks materialising on our financial resilience. One study by Oxera considers the impact of individual risks and our ability to mitigate them, examines correlations and analyses the impact on our Return on Regulatory Equity (RoRE). We have derived a number of scenarios based on these individual risks, to test the impact of some significant risks materialising within AMP7, such as severe weather or compliance failures occurring together.

We provided the same scenarios to KPMG, who carried out a second study assessing our financeability, including in the scenarios we created.

To alleviate projected financial constraints over AMP7, we commissioned a strategic review of our group's existing capital structure, with proposed mitigating options to address expected AMP7 financeability constraints. We have also commissioned KPMG to review our AMP7 financeability.

To address any potential future financeability issues during AMP7, we have, with the support of our shareholders, begun the process of raising £700 million of additional capital. This process is the culmination of our proactive approach to maximise benefits to our customers.

We will use the additional capital to reduce our interest cost by £425 million by 2030 and reduce the net debt to RCV ratio from 80% to 70%. This will ensure our actual capital structure remains financially resilient, with sufficient headroom to respond to future challenges.

Additionally, we have focussed on transforming our financial performance. For example, we:

- significantly reduced our bad debt charge by £14 million between FY2017 and FY2018
- forecast reducing our retail cost-to-serve by 19% and 9% in the last two years of AMP6.

(For more on our financial resilience, see Chapter 16, and for our Board's assurance, see Chapter 2.)

7.8 Championing a resilient utility of water – Environmental resilience

A resilient environment is critical to ensuring resilience in the round. We rely on the environment for the water we drink, for irrigation in food production and cooling in power generation.

Our region has a rich natural environment, with 83 bathing waters, two national parks, two world-renowned chalk streams and hundreds of Sites of Special Scientific Interest. It supports our economy, attracts visitors and needs to be protected.

Environmental protection is integral to much of our thinking – including our **5 transformational programmes**. **Target 100** will help retain water in the environment, **Resource Hubs** will return water to rivers and reduce our carbon footprint by generating renewable energy, while **Sustainable Drainage 2030** will reduce flooding and pollution. We adopted catchment management as the third element of our triple-track approach to securing water resources.

Catchment First is our plan to put catchments at the heart of our decision making in order to achieve a more resilient environment. Our long-term vision is for catchments where groups of stakeholders collaborate to develop solutions and deliver benefits for water quality and availability and biodiversity.

We are enhancing our understanding of the natural capital of our area, how we can improve it and how we can use natural methods to deliver wide-ranging benefits. This could include supporting farmers to manage their land in a different way – limiting sediment, nitrate, phosphates or pesticides running into watercourses, reducing downstream pollution and treatment costs.

The Brighton Chalk Management Partnership (ChaMP) is an example of this type of approach in action. By collaborating with, amongst others, Natural England, the South Downs National Park Authority and Brighton and Hove City Council, we are, collectively, improving the quality of water recharging the chalk aquifers above Brighton and reducing the risk of urban flooding.

(For more information about **Catchment First** and our wider catchment management programmes, see TA.11.WR03.)

Example – Instream resilience on the the Rivers Test and Itchen

Another example of catchment-focussed action is the improvement plans we agreed with the EA for the iconic Rivers Test and Itchen in Hampshire.

Both rivers are designated, with the Itchen classified as a Natura 2000 site, and are subject to sustainability reductions – limiting the amount of water available for public supply during droughts. While these changes have driven improvements to our physical infrastructure, we are also investing in the catchment to enhance the rivers' resilience during low-flow periods.

These measures will be delivered in partnership with regulators, environmental groups and local river users to ensure we can secure the water we need and deliver the widest possible benefits for all who enjoy the utility of water.

(For more about our planned catchment improvements on the Test and Itchen, see Chapter 11.)

7.9 Creating a resilient utility of water – Systems of systems resilience

We have to consider our regional infrastructure as systems of systems to deliver regional resilience in the round. We are working with a wide range of partners to co-deliver innovative schemes, at varying scales, to improve regionwide resilience.

We are leading the creation of a regional water resources strategy (through WRSE), delivering new sources and transfers with neighbouring water companies and collaborating with councils, Local Enterprise Partnerships, contractors, farming groups, and energy companies to generate renewable energy and identify skills needs. **Catchment First** and **Resource Hubs** will collaboratively deliver an integrated approach to the water, energy, agri nexus¹⁰.

We are working with the NFU and EA to develop a range of potential options to secure water for agriculture during dry weather, from using treated final effluent or trading water on a temporary basis to the development of a regional drought order. This would allow the EA to authorise changes to licences of water companies and farmers to ensure water is available for public supply and commercial use. This would be the first action of its type in the UK.

We led a 'sprint' workshop with representatives from other WRSE companies and Anglian Water, the NFU, EA, Defra, DWI, MHCLG, CCW, Local Resilience Forums (LRF) and Public Health England to understand the potential impacts of extreme drought. From this, we will develop a level four drought plan for the South East, seek to solve regulatory and legislative clashes, work with LRFs to improve planning and collaborate across sectors to support preparations for extreme droughts.

We have been working with new developments at Ebbsfleet Garden City and Fawley Waterside to embed sustainable water, wastewater and drainage practices into their plans with some success so far. We will continue collaborating with developers behind critical sites to support, and encourage, sustainable growth.

We are launching Water Levels – a collaboration behavioural change project with Ebbsfleet Development Corporation, Thames Water and WaterAid. In addition to incentivising water efficient homes and pooling resources on 'Smarter Homes' visits, both companies will work with WaterAid to link the amount of water saved to an increase in available clean water in a community in a

partnership country. Customers and stakeholders have told us they prefer incentives to reduce their consumption, rather than penalties, and this type of ‘nudge’ is more likely to encourage sustained behaviour change.

We are working with the University of Kent, the EA and catchment partners on an innovative project to better understand the health of our catchments and build an evidence base to inform decision making. We are collaborating with partners, including Natural England, the local council and the Brighton and Lewes Downs Biosphere, on ChaMP to reduce the amount of pollutants, such as nitrate, entering our water sources.

Our Customer Inclusion Partnership Network (CIPN) is formed of experts in vulnerability, including AgeUK, MIND, StepChange and Citizens Advice, helping us identify and deliver support to our customers. We are also leading a cross-regional working group of water services providers to implement a common approach to supporting customers in the South East.

7.10 We have put resilience at the heart of our strategy

We will deliver a resilient water future for the South East. We have tailored around 70% of our performance commitments to delivering resilience in the round. We have assessed current and future trends, challenges and opportunities, discussed these with customers and stakeholders and used this to inform our ambitious plan.

We are working outside our boundaries, and will drive further collaboration through WRSE to deliver the South East Water Grid. We are working across sectors to realise the utility of water by generating renewable energy and ensuring vital sectors have access to the water they need.

We are transforming our business. Not just our physical assets, but our culture, our capabilities and our people. We will be an excellent water utility by being **brilliant at the basics** and we will champion the utility of water by transforming our business, delivering our long-term outcomes and building a resilient water future for the South East.

Technical Annexes:

TA.7.1	Understanding Operational Risk and Resilience
TA7.2	Corporate Risks: Ethical Business Practices and Modern Compliance Framework
TA 7.3	Understanding risks: high-level risk summary table
TA 7.4	Demonstrating our resilience
TA 7.5	Investing in our people
TA 7.6	Measuring improvements through our performance commitments
TA 7.7	Optioneering and Estimating

References

- ¹ For more information, see TA.12.WW06
- ² More information is in technical annex WW03, WW02 and WW04 respectively.
- ³ Risk Dashboard – Radar Diagram
- ⁴ The Southern Water Code is published on the our website: <https://www.southernwater.co.uk/southern-water-code>.
- ⁵ See technical annex WN03 Water Treatment for more detail on water quality shut downs
- ⁶ National Infrastructure Assessment – page 85
- ⁷ The remaining five solutions were either mutually exclusive or no longer required. Refer to our WRMP for full details.
- ⁸ More detail is in technical annex WW04 – section 5.1.3
- ⁹ Usual weekday traffic is 21,000 page views per day. On 5 March we saw 136,186 page views
- ¹⁰ See Water Futures and Southern Water Futures