A PERFECT STORM

BUILDING RESILIENCE INTO THE UK WATER NETWORK THROUGH AMP8

SPECIALIST REPORT 2024

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A PERFECT STORM

CHAPTER 1
INTRODUCTION

The United Kingdom is on the cusp of an unprecedented investment in its water and sewage infrastructure. Between 2025 and 2030, a staggering £88 billion[1] is set to be poured into upgrading and improving the nation's water networks. This level of funding is nearly double the current investment levels and represents over 40% of the total investment planned for the rest of Europe during the same period.

The primary focus of this large-scale public spending is clear - to modernise the UK's ageing water infrastructure and enhance service levels for customers. However, the question remains: is this enough to truly future proof the nation's water systems and prepare them for the multitude of challenges on the horizon?

A PERFECT STORM

Water companies across the UK are facing a perfect storm of complex and interconnected issues that threaten to overwhelm their ability to provide reliable, sustainable, and cost-effective services. These challenges range from the pressing need to address rapidly deteriorating infrastructure to the looming impacts of climate change, population growth, and stringent environmental regulations.

One of the most daunting tasks is confronting the realities of ageing water and sewage networks. A significant portion of the UK's pipes, treatment plants, and other critical assets are approaching or have already exceeded their designed lifespans. This ageing infrastructure can often be inefficient, prone to leaks and breakdowns, and may pose significant risks to public health and the environment. Addressing this issue promptly and thoroughly is important to avoid potentially serious consequences.

Compounding this challenge is the increasing frequency and intensity of extreme weather events driven by climate change. Intense rainfall and prolonged droughts are putting unprecedented strain on water infrastructure, leading to service disruptions, flooding, and water scarcity issues. Water companies must adapt to these changes to ensure the resilience of water systems.

In addition to these environmental pressures, the UK's water infrastructure must also contend with the demands of a growing population and the associated need for new housing developments, warehousing facilities and commercial spaces. As urban areas expand and new communities emerge, the existing water networks must be expanded and upgraded to meet the increased demand for water supply, sewage treatment, and storm water management services. Failure to address this issue pro-actively could result in flooding and environmental degradation.

Water companies are not without financial pressures either. Rising costs due to inflation, coupled with higher interest rates, are making it increasingly difficult to secure the necessary funds for large-scale infrastructure projects. Additionally, the public is losing faith towards water companies, creating an environment of intense scrutiny and a focus on accountability. Regaining public trust and demonstrating a commitment to transparency and operational excellence will be crucial for water companies moving forward

Finally, the water industry must also play a pivotal role in achieving the UK's ambitious net zero emissions targets. Transitioning to more sustainable and energy-efficient practices, while simultaneously reducing the carbon footprint of water and sewage treatment processes, will require significant investment and operational changes.

A LONGER TERM APPROACH

In the face of this perfect storm, it is evident that the unprecedented investment planned for the upcoming AMP8 period (2025-2030) has become critical. However, while this funding will undoubtedly provide some level of resilience and service improvement, longer-term thinking and strategic planning are required to truly revitalise the UK's water infrastructure in a sustainable, cost-efficient, and most importantly, rapid manner.

This white paper explores the opportunities associated with leveraging existing assets and infrastructure to prepare for and mitigate the long-term challenges facing the water industry. Rather than relying solely on temporary stop-gap measures, a comprehensive approach that focuses on maximising the potential of current assets, embracing sustainable and circular design, and fostering innovation in financing and delivery models is crucial for ensuring the long-term viability and resilience of the UK's water networks.

As the saying goes, there is no need to reinvent the wheel. By drawing upon best practices and lessons learned from both within the water industry and other sectors, this paper seeks to provide a roadmap for water companies to navigate the oncoming storm and position themselves for a more sustainable and resilient future.

[1] https://www.constructionenquirer.com/2024/07/11/ofwat-clears-88bn-amp8-water-spending-spree/

CHAPTER 2
THREATS

Water companies in the United Kingdom are confronting a confluence of complex and interconnected challenges that pose significant threats to the reliability, sustainability, and cost-effectiveness of their services. This perfect storm of issues encompasses ageing infrastructure, the impacts of climate change, population growth, rising costs, public scrutiny, and the need to transition towards net zero emissions. Navigating these challenges successfully will require a comprehensive understanding of their nature, scope, and potential consequences.

AN AGEING INFRASTRUCTURE

One of the most pressing issues facing the UK's water industry is the rapid deterioration of its ageing infrastructure. A significant portion of the nation's water and sewage networks, including pipes, treatment plants, and other critical assets, are either approaching, or have already exceeded, their designed lifespans. This is not just exacerbating leaks and breakdowns but also poses significant risks to public health and the environment. A recent report from the Royal Academy of Engineering[2] highlighted how human faecal matter in our rivers is putting the public in danger and highlights the need for widespread testing of the country's waterways. This was around the same time that thousands of residents in Devon had to resort to drinking bottled water after their supply was polluted with the parasite Cryptosporidium apparently because of a faulty valve in the network. This cost the water companies £3.5 million in compensation[3].

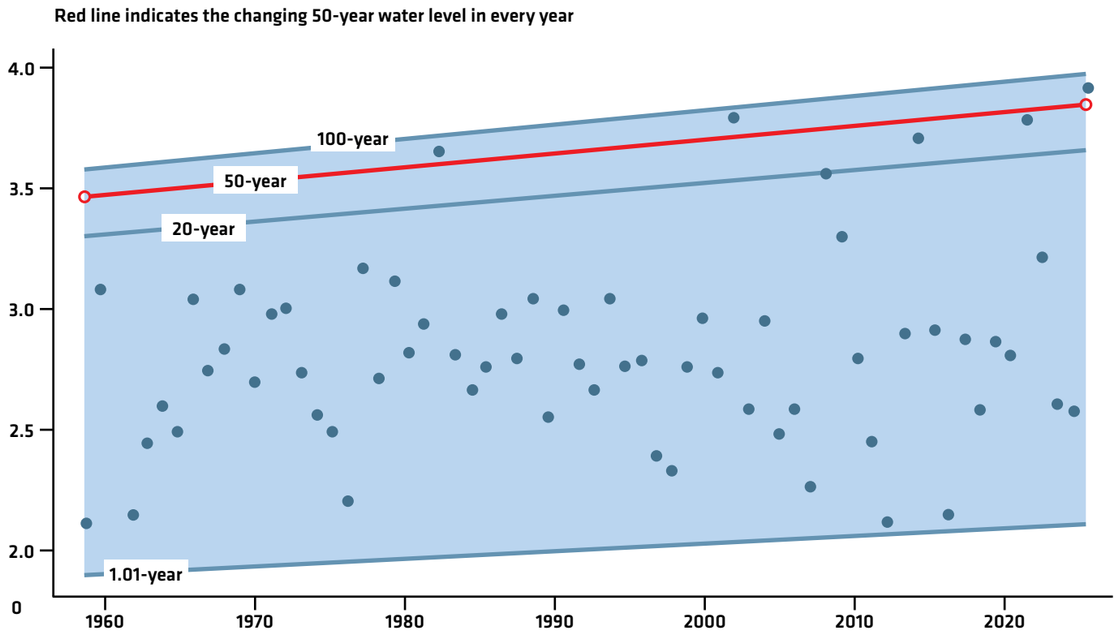
The issues are being addressed, but slowly. Analysis of Water UK data by the Angling Trust in 2021 showed that on average, **UK water companies replace 0.05% of their water and wastewater pipe networks every year[4].** In contrast, most European countries replace their pipes at a rate of around **0.5% every year.** Even when you consider the current AMP8 period is delivering roughly double the sum of previous iterations, that's still only **0.10% every year.** At the 0.05% replacement rate, it would take water companies **2,000 years to restore the country's current water infrastructure** unless priorities and thinking change.

The industry and its financial regulator, Ofwat, says that water companies lost an average of **2,924 million litres of water a day** in 2021-22, equating to **1.06 trillion litres over the year[5],** although Ofwat said the figures remained provisional until it has completed validation checks. The UK's crumbling infrastructure is also exacerbating droughts and leading to the implementation of hosepipe bans, which bring further social and economic pressures.

Additionally, ageing treatment facilities struggle to meet modern standards for water quality and environmental compliance, potentially exposing communities to health hazards and contributing to the degradation of natural ecosystems.

Failing to address this infrastructure crisis in a timely and comprehensive manner could have severe consequences, including widespread service disruptions, reduced water quality, water shortages, and environmental degradation. The cost of inaction or reliance on temporary fixes could ultimately outweigh the upfront investment required for comprehensive infrastructure renewal and modernisation.

[2]https://www.bbc.co.uk/news/articles/cv22dl509vjo. [3]https://www.reuters.com/world/uk/uks-pennon-pay-35-million-pounds-compensation-brixham-water-contamination-2024-05-21/. [4]https://www.theguardian.com/environment/2022/aug/23/water-companies-in-england-expecting-sewers-to-last-2000-years. [5]https://www.theguardian.com/environment/2022/aug/19/water-firms-england-wales-litres-leaky-pipes-ofwat#:~:text=The%20industry%20and%20its%20financial,it%20has%20completed%20validation%20checks.



The 50-year water level on the River Trent has risen in 65 years. Circles indicate the highest water levels.

EXTREME WEATHER EVENTS

The impacts of climate change are becoming increasingly evident, and the water industry is being heavily affected. Extreme weather events, such as intense rainfall, prolonged droughts, and heat waves, are putting unprecedented strain on water infrastructure, leading to service disruptions, flooding, and water scarcity issues.

In recent years, the UK has experienced several severe flooding events, resulting in widespread damage to infrastructure, property, and communities[6]. These events have highlighted the vulnerability of existing water and sewage networks, which were often designed and constructed based on historical climate patterns that no longer accurately reflect current and projected conditions.

Conversely, prolonged droughts and heat waves are straining water resources, leading to shortages and the need for short-term water rationing in some areas. As temperatures rise and precipitation patterns shift, the demand for water is expected to increase, further exacerbating the strain on existing infrastructure and resources.

To ensure more resilient water systems, infrastructure must be adapted to these changing climate patterns.

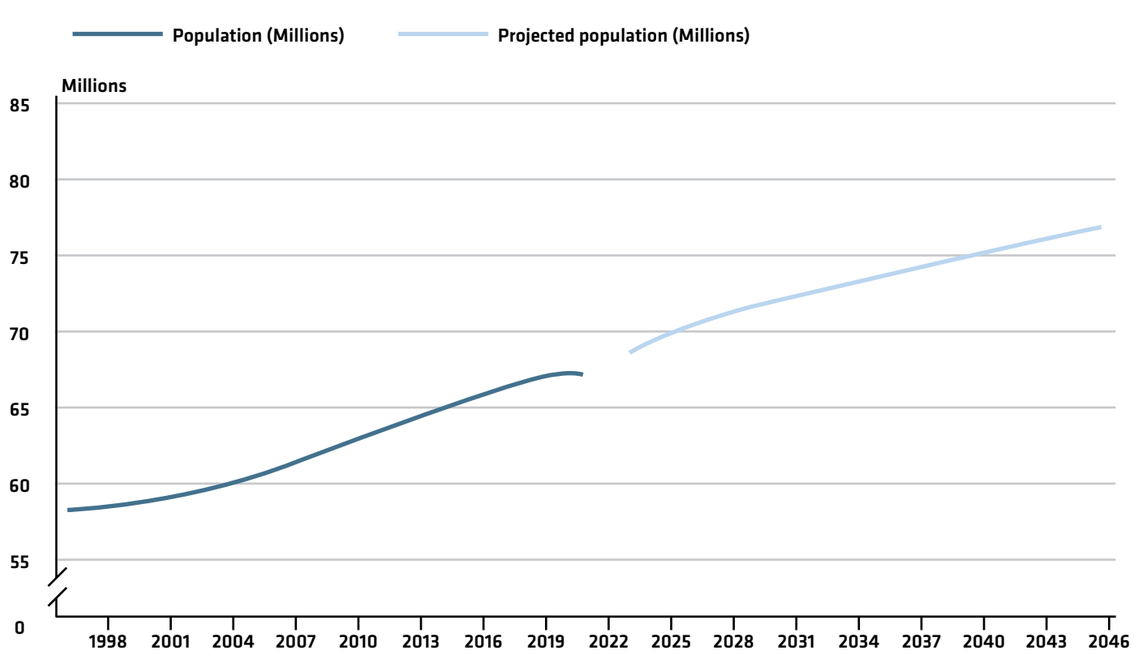
[6]https://phys.org/news/2024-01-extreme-uk-analysis.html

POPULATION GROWTH AND HOUSING DEVELOPMENT

The UK's population is growing, and with it comes an increased demand for housing and associated infrastructure[7]. As urban areas expand and new communities are created, existing water networks must be expanded and upgraded to meet the increased demand for water supply, sewage treatment, and storm water management services.

According to projections by the Office for National Statistics, the UK's population will reach 70m by the middle of 2026, far more rapidly than ever previously estimated[8]. This growth, coupled with the government's ambitious housing targets, will place significant strain on water infrastructure, particularly in areas already experiencing high demand and limited capacity.

Ensuring that water infrastructure keeps pace with population growth and urban expansion will require strategic planning, significant investment, and coordination among water companies, local authorities, and housing developers. This is the only way to eliminate the risks of future service shortages, environmental degradation, and limitations being imposed on housing development, which would negatively affect economic growth.



[7]https://www.ft.com/content/33ce1cda-cee4-417a-9178-3663e69704d2. [8]https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2021basedinterim

RISING COSTS AND FINANCIAL PRESSURES

Inflationary pressures, worsened by global economic uncertainties and supply chain disruptions, are driving up the costs of materials, labour, and energy required for water and sewage treatment processes. Additionally, the current environment of rising interest rates is making it more expensive for water companies to finance large-scale infrastructure projects through borrowing.

These financial pressures come at a time when significant investments are needed to address the challenges of ageing infrastructure, climate change adaptation, and population growth. Water companies may be forced to make difficult trade-offs between essential infrastructure upgrades and maintaining affordable services for customers, potentially exacerbating existing tensions with regulators and the public.

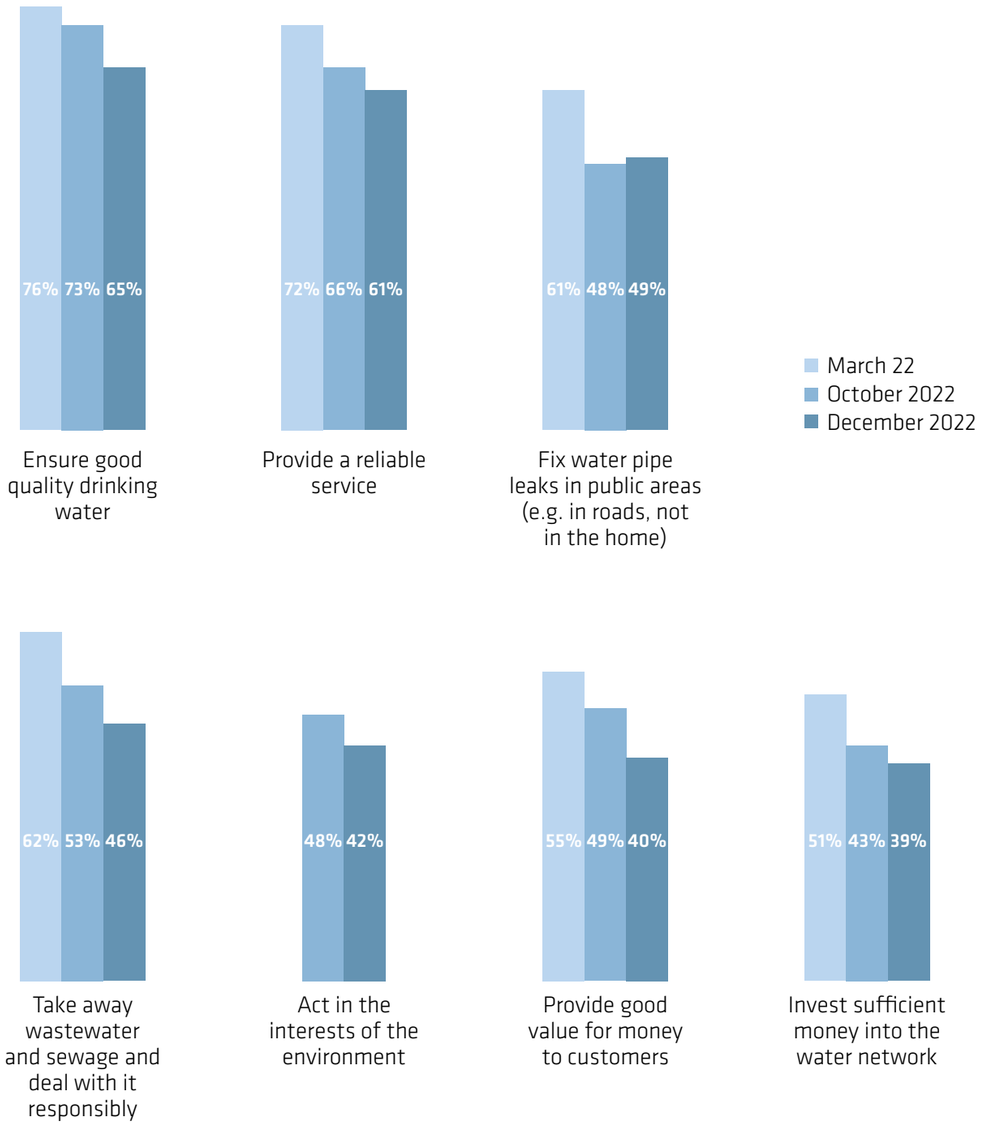
Addressing these financial challenges will require a multifaceted approach, including exploring alternative financing mechanisms, fostering innovation in service delivery models, and implementing cost-saving measures through operational efficiencies and digital transformation.

The unfortunate truth for water companies is that costs can often only be offset by public money. In 2024, it was announced that water companies in England and Wales would raise customer bills by 6% from April 1st[9]; a necessary increase but one which, nevertheless, once again brings businesses under public scrutiny.

At the end of May 2024, water companies in England and Wales approached the regulator, requesting bill rises of up to 91% over the next five years[10].

[9]https://www.bloomberg.com/news/articles/2024-02-02/uk-water-bills-to-rise-despite-chronic-leaks-sewage-spills?embedded-checkout=true.
[10]https://www.bbc.co.uk/news/articles/ce55vp78n40o#:~:text=Water%20companies%20in%20England%20and,compiled%20by%20the%20consumer%20watchdog.

LEVEL OF TRUST IN WATER COMPANIES TO DELIVER ON A RANGE OF ACTIVITIES



PUBLIC HOSTILITY

In recent years, water companies have faced increasing public scrutiny. This erosion of public trust has created an environment of stricter accountability and heightened expectations for transparency and operational excellence[11].

Recent challenges in water management have led to concerns among some members of the public regarding water companies' performance. Issues like water quality incidents, infrastructure problems, and service interruptions have prompted discussions about the industry. Various public figures and environmental groups have expressed their views on these matters. Some customers have also raised questions about the relationship between water bills and service quality, leading to debates about industry practices and priorities.

The public's reaction towards water companies was the discussion of a parliamentary report by the Industry and Regulators Committee in March 2024[12]. The report highlighted widespread public frustration and scrutiny towards water companies with the committee finding that water companies have been overly focused on maximising financial returns at the expense of the environment, operational performance, and financial sustainability. It criticised Ofwat for failing to ensure companies invest sufficiently in water infrastructure, choosing instead to keep bills low.

The report called for stronger accountability measures, including linking executive pay to performance, increasing penalties and prosecutions for environmental pollution, and giving Ofwat powers to prevent directors that are responsible for serious incidents from continuing in the sector. Overall, the committee urged the government to take a more joined-up approach, publish a National Water Strategy, and ensure adequate funding for regulators to enforce environmental compliance.

Regaining public trust and demonstrating a commitment to transparency, environmental stewardship, and customer-centric service delivery will be crucial for water companies moving forward. Without action, water companies could open themselves up to even greater regulatory scrutiny, reputational damage and push-back from the public when looking to secure the necessary funds for infrastructure investment. And if nothing changes? The threat of a return to public ownership continues to loom.

[11]https://www.ofwat.gov.uk/trust-in-water/

[12]https://committees.parliament.uk/committee/517/industry-and-regulators-committee/news/194330/failures-of-regulators-water-companies-and-government-leaving-public-and-environment-in-the-mire/

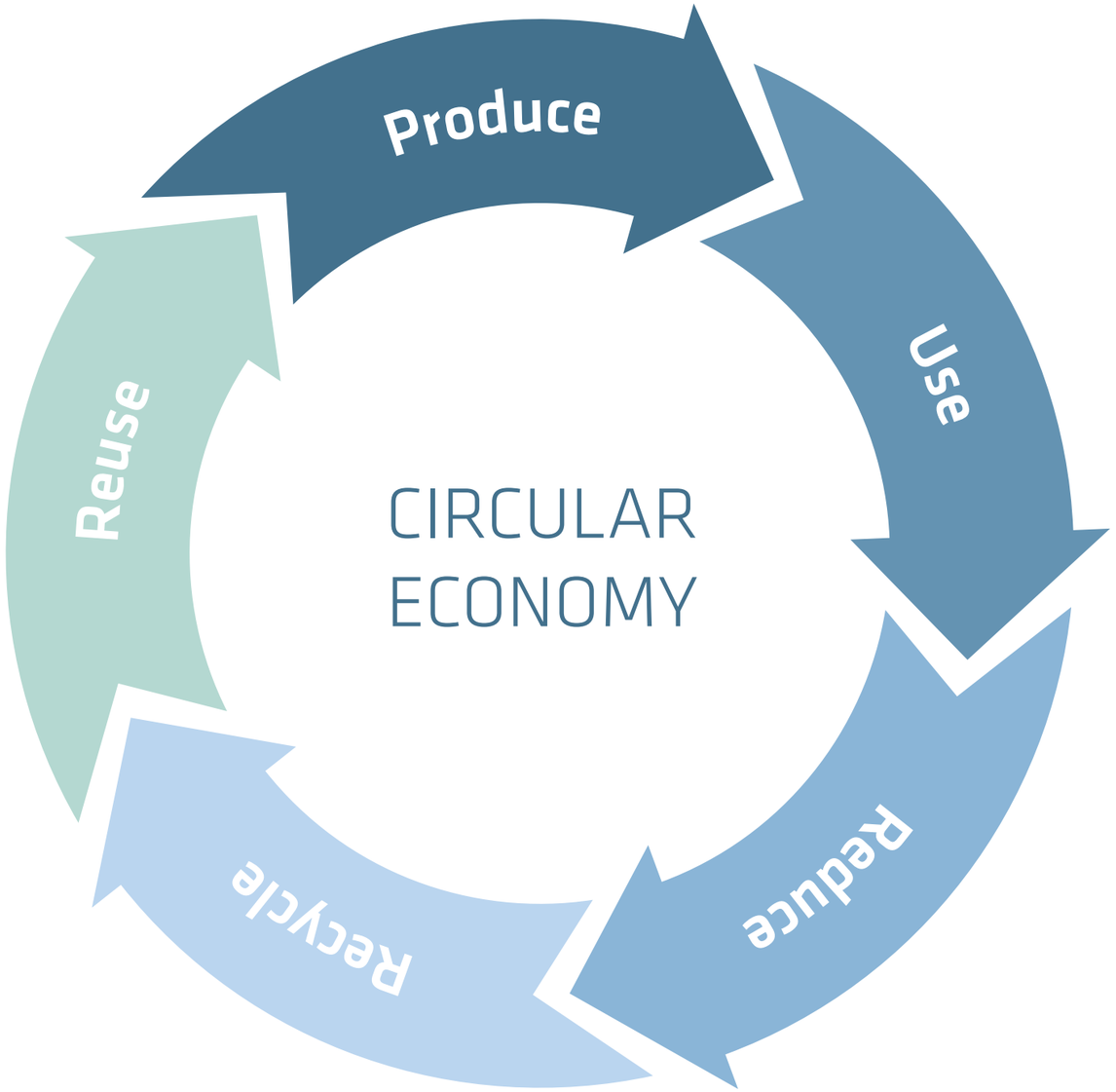
NET ZERO TARGETS

The UK government has set ambitious targets for achieving net zero greenhouse gas emissions by 2050, and, while – at the time of writing - there are currently no specific emissions reduction targets for the sector, the water industry has a vital role to play in this national effort. Water and sewage treatment processes are energy-intensive, and the industry's operations contribute significantly to the nation's overall carbon footprint. Currently, the UK water industry contributes one per cent of the country's greenhouse gas emissions, making it the fourth most energy intensive industry[13].

Transitioning to more sustainable and energy-efficient practices, while simultaneously reducing the carbon footprint of water and sewage treatment processes, will require significant investments and operational changes. This may include the adoption of renewable energy sources, the implementation of energy-saving technologies, and the optimisation of treatment processes to minimise energy consumption.

Additionally, water companies must address the embedded carbon emissions associated with the construction, maintenance, and eventual decommissioning of new infrastructure assets. Embracing circular economy principles, such as the reuse and recycling of materials, could help mitigate the environmental impact of these activities. Furthermore, by maintaining, refurbishing and re-purposing existing infrastructure, there is less reliance on new construction projects.

As the water industry navigates this perfect storm of challenges, comprehensive and proactive action is required. Addressing these issues in isolation or through piecemeal efforts is unlikely to yield sustainable and effective solutions. Instead, a holistic approach that integrates long-term planning, strategic investment, and innovative thinking will be crucial for ensuring the resilience, sustainability, and cost-effectiveness of the UK's water infrastructure for generations to come.



[13]https://www.ciwem.org/assets/pdf/Policy/Reports/A-Blueprint-for-carbon-emissions-reductions-in-the-water-industry.pdf

CHAPTER 3

MAXIMISING EXISTING ASSETS THROUGH A SUSTAINABLE APPROACH

As the UK water industry grapples with the formidable challenges ahead, it is critical that, where viable, existing assets are maintained and optimised. A strategic approach that leverages current infrastructure through optimisation, rehabilitation, and modernisation as well as the addition of new facilities could yield significant benefits in terms of cost-effectiveness, sustainability, and resilience. Many assets are not necessarily in their current state due to negligence; but more because the remedial solutions and technology have either not been available or water companies have not been made aware of them.

ASSESSING EXISTING ASSETS

The first step in taking stock of existing assets is to conduct a comprehensive assessment of their current condition and remaining lifespan. For the structure or facility itself, this process can involve carrying out advanced surveying, testing and monitoring activities to assess the structural integrity, capacity, performance and anticipated lifespan. Assessment of the services provided by the assets and their current and future capacities, operational efficiencies etc., can be achieved by monitoring and data analysis.

By accurately determining the condition and efficiency of existing assets, water companies can identify those in need of investment before prioritising and developing tailored strategies for optimisation, rehabilitation, or modernisation. Assets that require partial or complete replacement present an opportunity for water companies to implement forward-thinking designs that address future challenges. When undertaking such replacements, design and construction needs to pay heed to future demands, climate change, sustainability, circular principles, and other emerging considerations to ensure long-term resilience and efficiency of the water infrastructure.

EXISTING ASSET OPTIMISATION, REHABILITATION AND MODERNISATION

For those assets that are to be retained, water companies can explore a range of strategies to extend their lifespan, improve performance, and enhance resilience. These strategies may include:

1. ASSET OPTIMISATION:

Implementing operational adjustments, process improvements, and advanced control systems to maximise the efficiency and capacity of existing infrastructure. This approach can often yield performance gains without the need for major capital investments.

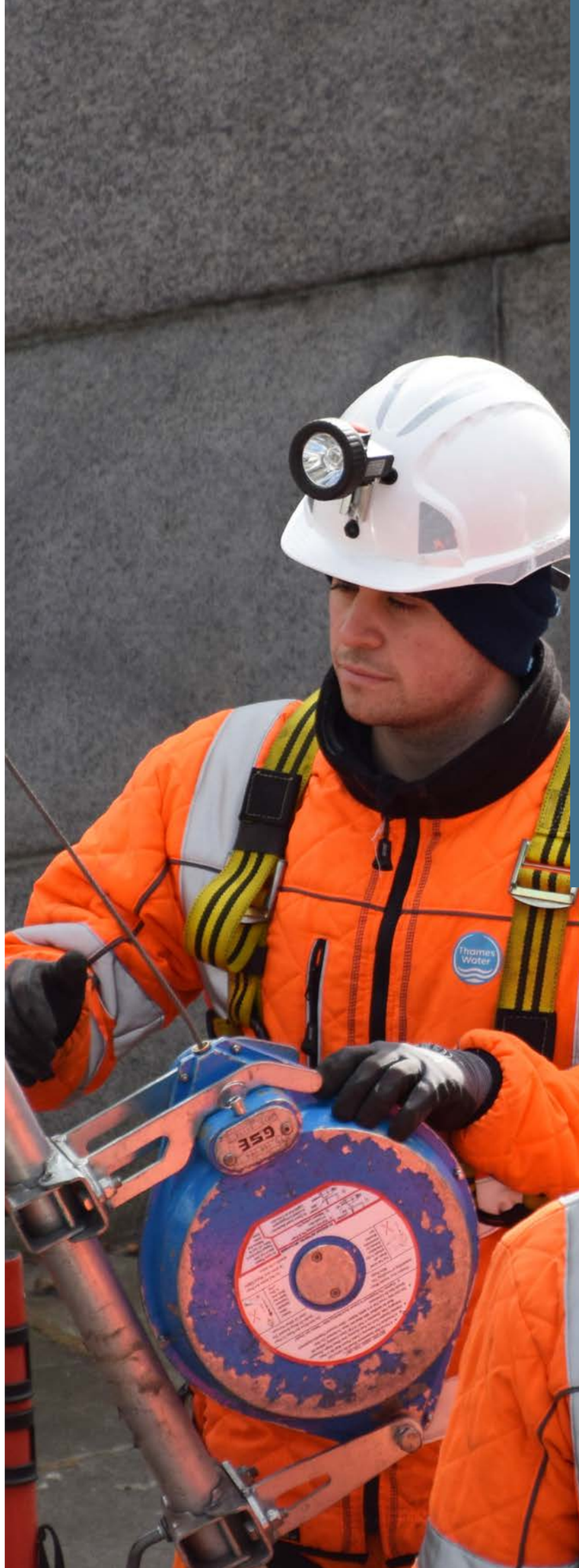
2. ASSET REHABILITATION:

Employing techniques such as structural repairs, strengthening or protection and component replacement to address specific deficiencies or deterioration in water and sewage networks, treatment plants, and other assets. These targeted interventions can extend the useful life of existing infrastructure for decades and delay the need for full-scale replacement. At times it may be necessary to recover assets considered to be at end of life.

3. ASSET MODERNISATION:

Upgrading existing assets with new technologies, automation systems, and energy-efficient equipment to improve performance, enhance monitoring and control capabilities, and reduce operational costs and environmental impacts.

By leveraging these strategies, water companies can unlock the untapped potential of their existing infrastructure, extracting maximum value from assets that may have been previously deemed obsolete or in need of replacement. This approach not only minimises the environmental footprint associated with new construction but also reduces the overall capital expenditure required to maintain and upgrade water systems.



INNOVATIVE MORTAR SAVES LANDMARK UK SEWAGE PLANT FROM ACID DAMAGE

The Howdon sewage treatment plant in Wallsend, North Tyneside, is the largest facility of its kind on England's east coast between Edinburgh and the River Thames. Capable of processing 12,000 litres of wastewater per second and serving 1 million homes, the plant recently underwent a £15 million upgrade to address significant structural damage caused by biogenic sulphuric acid attack. This corrosive process, common in wastewater environments, can dissolve concrete and corrode steel reinforcement at a rate of up to 25mm per year.

To combat this issue, Sika MonoTop-4400 MIC was specified for the repair work. This innovative dry-spray repair mortar, made from calcium aluminate cement, induces a 'bacterio-static' effect that inhibits acid generation at the source, preventing further attack and deterioration. The product's rapid strength gain and ability to adhere to damp concrete surfaces made it an ideal solution for this challenging environment.

The repair work was completed in just three days while the plant remained fully operational. By using Sika MonoTop-4400 MIC, the need for repeated re-application of traditional repair materials was eliminated, resulting in long-term cost savings and reduced maintenance requirements for these critical assets. This innovative approach to concrete repair in wastewater treatment facilities demonstrates the potential for more durable and efficient infrastructure solutions.

UPGRADING EXISTING ASSETS

The last major potable water reservoir to be completed in the UK was Severn Trent Water's Carsington Reservoir in Derbyshire, which opened its gates in 1992. Recently, Portsmouth Water embarked on the construction of a reservoir in Havant, which is expected to become operational in 2029, after a nearly 40-year drought in reservoir-building projects. This drought is set to be further alleviated as Anglian Water is actively pursuing plans for two additional reservoirs. However, even with an optimistic timeline, these new reservoirs are not anticipated to come online until 2035 at the earliest, highlighting the significant lead times and challenges associated with such large-scale infrastructure projects.

Construction of a new reservoir is a major undertaking requiring significant land, finances and ultimately, emissions. Repairing and protecting existing but unused, underutilised or underperforming potable water tanks and reservoirs, however, does not; although there are specific challenges that must be carefully considered to ensure the safety and integrity of the water supply.

Any materials used for rehabilitation or protective coatings of potable water tanks and reservoirs in the UK must be certified for contact with drinking water supplies. These materials need to be rigorously tested and approved by relevant authorities, such as the Drinking Water Inspectorate (DWI) and the Water Regulations Advisory Scheme (WRAS), to ensure they do not leach harmful chemicals or contaminants into the water supply. Strict adherence to standards like BS 6920 and compliance with regulations outlined in the Water Supply (Water Quality) Regulations is paramount to safeguarding public health. Products must also carry appropriate certifications from organisations like NSF International or WRAS to demonstrate their suitability for use in potable water infrastructure.

The materials application process also poses challenges. Water tanks and reservoirs are often classified as confined spaces and have complex geometries. Proper surface preparation, including thorough cleaning and removal of any contaminants or loose materials, is also crucial for ensuring the longevity and effectiveness of rehabilitation measures.

Another challenge specific to water tanks and reservoirs is the need to maintain structural integrity and water tightness. Any repairs or rehabilitation work must be carefully designed and executed to prevent leaks or compromises in the structural strength of these critical assets.

Furthermore, the operational requirements of water tanks and reservoirs must be considered. Assets will often need to be taken out of service for extended periods to complete the necessary work, which can disrupt water supply and distribution systems.

Careful planning and coordination with water utilities and customers are necessary to minimise service interruptions and ensure adequate water supply during the refurbishment process.

It is also crucial to have a comprehensive quality assurance and quality control programme in place to ensure that all rehabilitation work meets the highest standards of safety, performance, and durability. This may involve thorough inspections, testing, and monitoring throughout the project lifecycle, as well as post-installation evaluations to verify the effectiveness of the repairs or protective measures.

By addressing these challenges with the right solutions and prioritising safety, material compatibility, structural integrity, and environmental stewardship, water companies can successfully rehabilitate and protect potable water tanks, reservoirs and other critical water infrastructure, extending their lifespan and ensuring a reliable and safe water supply for communities.

INNOVATIVE CFRP SOLUTION SAVES £4M IN HISTORIC RESERVOIR RENOVATION

In a 1930s underground potable water reservoir in Scotland, engineers faced the challenge of strengthening the beam and block roof structure for re-purposing as a storm water attenuation reservoir. The project required a solution that would minimise additional load, be applicable in confined and damp spaces, reduce long-term maintenance costs, and comply with DWI regulations. After considering CFRP fabrics with epoxy adhesives, the team opted for the Sika Carbodur Grid system, which uses a bi-directional CFRP grid embedded in cementitious mortar.

This innovative approach allowed for easier application in the damp environment, minimal substrate repairs, and added very little weight to the structure. The solution, combined with an elastomeric cement-based waterproof membrane for DWI compliance, resulted in a total project cost of £1m, saving £4m compared to replacement. Moreover, the careful material specification enabled the client to retain the structure for drinking water storage, significantly enhancing the asset's value.

INCORPORATING SUSTAINABILITY PRINCIPLES

As water companies seek to maximise the value of existing assets, it is imperative that sustainability principles are integrated into the planning and design processes. This approach not only aligns with the industry's commitment to environmental stewardship but also ensures long-term resilience and cost-effectiveness.

One key aspect of sustainable infrastructure planning is the adoption of circular economy principles. This involves designing assets with a focus on material reuse, recycling, and resource recovery, minimising waste and reducing the environmental impact associated with new construction and demolition activities. By embracing these principles, water companies can reduce their reliance on virgin materials, lower their carbon footprints, and contribute to the development of a more sustainable and resilient economy.

Additionally, incorporating sustainable design principles, such as energy-efficient technologies, renewable energy sources, and natural water treatment systems, can significantly reduce the operational costs and environmental impacts of water infrastructure. These approaches not only align with the country's net zero targets but also enhance long-term operational resilience by reducing dependence on finite resources and minimising exposure to volatile energy markets.

By integrating sustainability principles into infrastructure planning and design, water companies can ensure that existing assets are not only optimised for performance and longevity but also contribute to a more sustainable and resilient future for the water industry and the communities they serve.

CHAPTER 4
GOING BEYOND AMP8

The unprecedented £88 billion investment planned for the AMP8 period (2025-2030) represents a critical juncture for the water industry, as it seeks to revitalise and future-proof the UK's water infrastructure. However, the sheer scale of this investment, coupled with the complexity of the challenges facing the industry, necessitates a strategic approach that extends beyond traditional financing models and delivery approaches. Innovative financing and delivery models, drawing upon lessons from other sectors and changing typical procurement thinking, can provide the necessary resources, expertise, and efficiencies to drive the transformation envisioned beyond AMP8 and set the stage for long-term sustainability.

INNOVATIVE CONTRACTING AND PROCUREMENT STRATEGIES FOR AMP8 PROJECTS

As water companies prepare for AMP8, sustainability and net zero targets have become central considerations. Water companies must therefore explore innovative contracting and procurement strategies that align with the long-term objectives of sustainability, resilience, and whole-life asset performance. No longer should tenders consider just the upfront cost of sustainable materials, but the whole lifecycle costs instead.

Outcome-based contracts, which link payments to measurable performance targets and service levels, can incentivise private partners to prioritise long-term asset performance and operational efficiency – critical considerations for the infrastructure investments made during AMP8.

Furthermore, collaborative procurement models, such as early contractor involvement (ECI) and integrated project delivery (IPD), can facilitate closer collaboration and alignment between water companies, contractors, and suppliers from the outset of AMP8 projects. This approach can streamline decision-making, foster a shared understanding of project objectives, and enable the integration of diverse expertise throughout the project lifecycle.

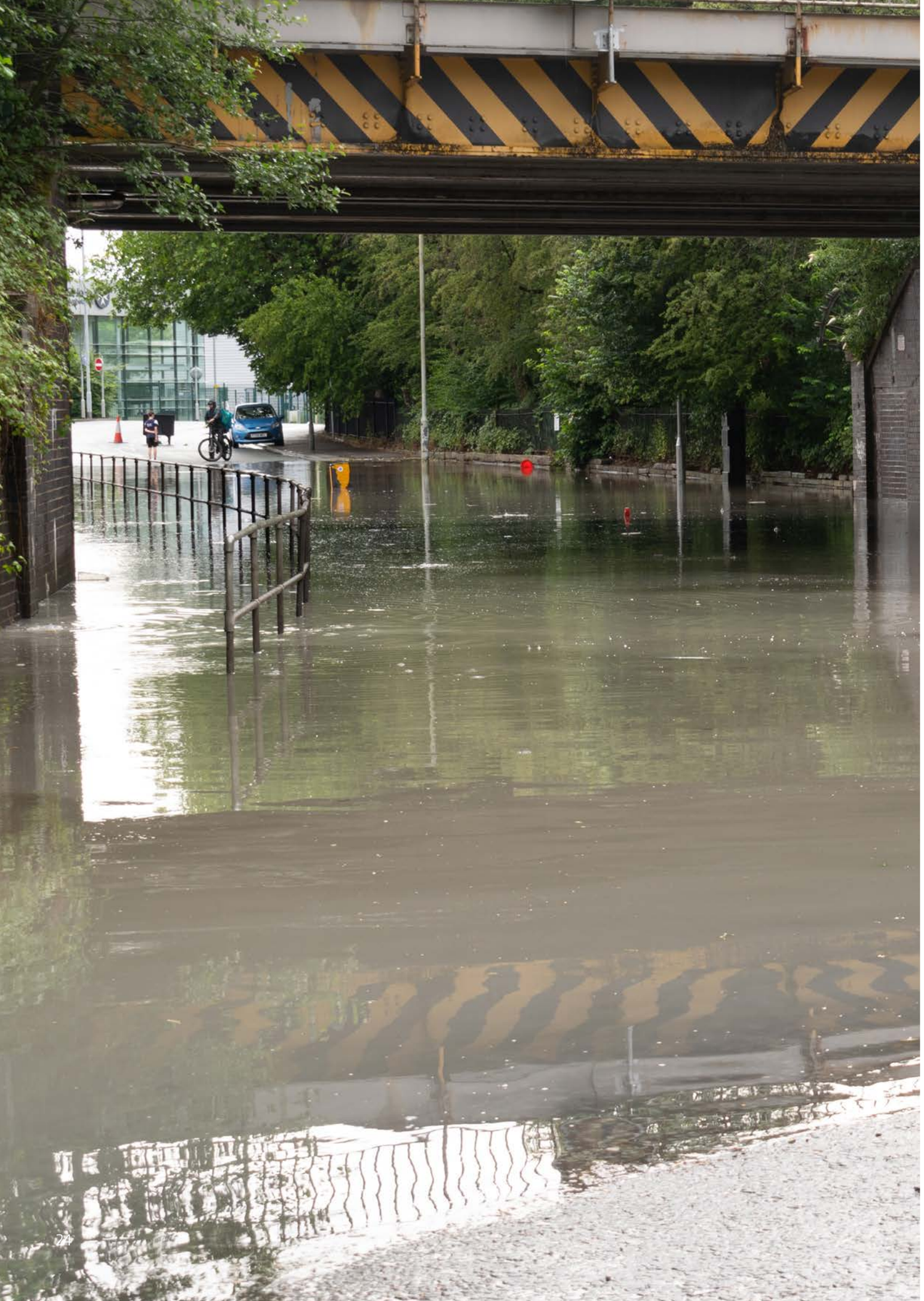
FOSTERING COLLABORATION

Fostering collaboration and knowledge-sharing across the industry is crucial for accelerating progress and promoting best practices that can inform future investment cycles.

Industry-wide platforms and forums focused on AMP8 initiatives can facilitate the exchange of experiences, lessons learned, and emerging trends. These platforms can also serve as incubators for the development of standardised approaches, guidelines, and templates specific to the AMP8 context, reducing duplication of efforts and promoting consistency across the sector.

Furthermore, collaboration with academic institutions, research organisations, and industry associations can drive innovation and facilitate the transfer of knowledge from other sectors, enabling water companies to learn from successful models applied during AMP8 and adapt them for future investment cycles.

By fostering an environment of collaboration and knowledge-sharing centred on the AMP8 investment cycle, the water industry can collectively learn from successes and failures, and continuously refine and adapt its approaches to meet the evolving needs of the UK's water infrastructure beyond 2030.



CHAPTER 5
CONCLUSION

The challenges confronting the UK water industry are formidable - rapidly deteriorating infrastructure, escalating climate change impacts, population growth straining resources, rising costs from inflation and interest rates, intense public scrutiny over service issues, and the imperative to transition to more sustainable, low-emission operations. However, the unprecedented £88 billion investment planned for AMP8 from 2025-2030 presents a powerful opportunity to drive sweeping transformation, as the catalyst behind longer-term approaches.

Rather than primarily relying on expensive full asset replacement programmes, water companies must maximise their existing asset base through optimisation, rehabilitation, and modernisation efforts. Adopting circular economy principles like design for reuse and recycling can minimise waste. Incorporating sustainability features like energy efficiency, renewable power, and natural treatment systems improves eco-performance. Comprehensive asset condition assessments allow precise prioritisation of investment needs.

To supplement conventional financing from customer bills and government, AMP8 necessitates a different approach to procurement and return on investment, necessitating the need for more innovative contracting models. Outcome-based contracts incentivising long-term performance, and collaborative approaches like integrated project delivery, can promote innovation while aligning stakeholders. Early contractor involvement during planning can streamline decision-making.

Water companies can support delivery of the ambitious AMP8 agenda by fostering a collaborative environment across the industry. Establishing platforms and forums focused on AMP8 initiatives allows sharing of best practices, lessons learned, and emerging trends around asset optimisation, contracting, and delivery strategies.

This cross-pollination of ideas is invaluable for the water sector to continuously adapt its strategy beyond 2030 as societal needs, environmental conditions, and technological capabilities evolve.

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