

# *Future Water Report Card*

If you want to make a difference...



## How high performing are our water and wastewater networks?

Future Water convened a programme called Networks November. Through a month-long package of events, workshops and engagement, the association brought a diverse group of people together to scrutinise all things relating to water sector networks. Capturing an incredible amount of information, and merging this with the insights shared by over 100 stakeholders, the Future Water Report card has emerged – a state of the nation type assessment of eight key aspects relating to our pipes and sewers.

This comprehensive evaluation encompasses the diverse areas of asset health, leakage, sewer issues, research, people and innovation. Adopting an academic A\*- F grading system to convey how well the Future Water Association community thinks the sector is doing in each area. The intention is for this to serve as a clear and valuable resource for utilities, suppliers, regulatory bodies, policymakers and other stakeholders within the industry as they develop network policy and practice. It's a barometer of where the sector is and compass for the future focus!

## Report card recommendations and categories

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# Recommendations

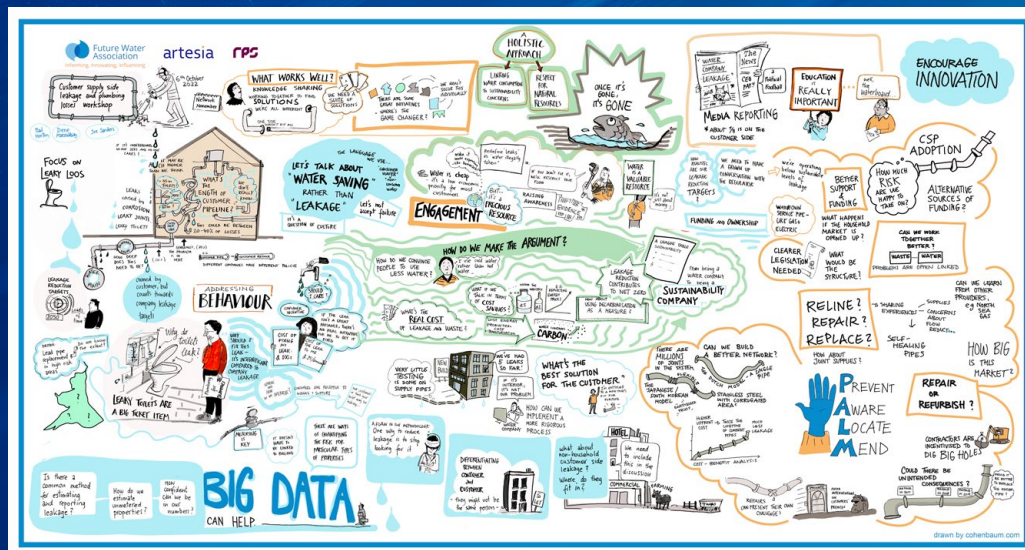
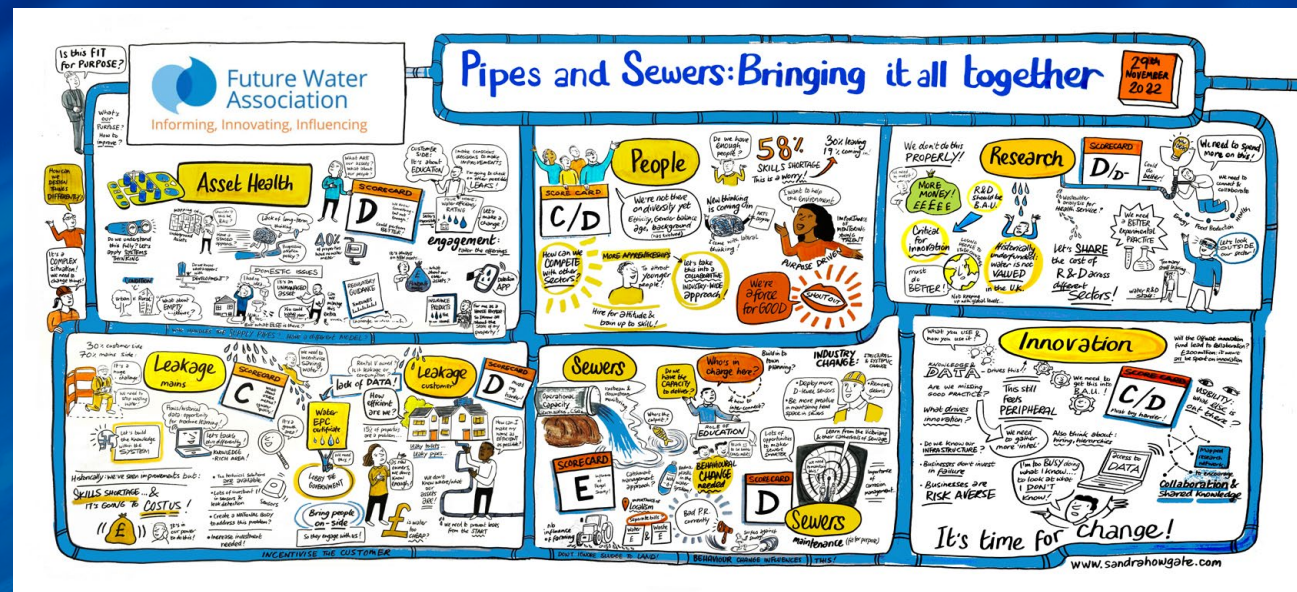
The Future Water community makes the following recommendations, to help us all do better in future...

- Establish a leakage suppliers network group to enhance interaction within the supply chain, supporting the leakage roadmap and the National Leakage Research and Test Centre's initiatives.
- Formulate a plan for universal smart metering adoption to improve accuracy in water supply measurement.
- Require local authorities, drainage boards, and agencies to participate in implementing drainage and wastewater management plans, reinforcing their efficacy.
- Develop comprehensive strategies to attract talent, including the creation of a Water Academy, to address personnel shortages and promote diversity.
- Infuse innovation throughout the industry's operations and undertake a thorough innovation landscape analysis to highlight current status and gaps.

- Expand water companies' responsibility to encompass all supply-side pipes, enabling more informed investment decisions for addressing client-side leakage.
  - Conduct a comprehensive and more regular, surveys of performance and asset health across the sewer system, leveraging GIS, BIM, and AI systems for enhanced asset records.
  - Embrace surface water management strategies, coordinating cross-industry efforts to alleviate pressure on Combined Sewer Overflows (CSOs).
  - Urgently investigate the feasibility of separating sewer systems, outlining associated challenges, costs, and benefits. Assess these against other interventions, such as surface water management, rainwater harvesting, grey water schemes and others.
  - Prioritise routine maintenance and predictive maintenance systems to ensure optimal infrastructure upkeep.
  - Direct regulatory efforts toward asset health management, incentivising maintenance and comprehensively understanding asset deterioration and residual life, through a standardised methodology (including regular asset surveys).
- All the actors in the sector – including water companies, supply chain, local authorities and regulators – need to play their part to implement these recommendations and ensure we have a successful and sustainable water industry capable of meeting the challenges now and in the future.



A cross section of people were brought together across several workshops driving new thinking, new ideas and offering an opportunity to collaborate...





# Mains Leakage

## – Grade: C



An excessive focus on the economic aspects of leakage deterred innovation and creative problem-solving from 2000 to 2020.

A marked shift in approach has occurred in recent years, characterised by a clear roadmap towards halving leakage, a pressing issue identified by UKWIR and a target addressed by several Ofwat innovation fund recipients. The primary obstacle remains funding, as driving down leakage necessitates investment, with the emergence of new solutions requiring time for implementation. Achieving accurate usage data hinges on transitioning to 100% metering at the earliest feasible juncture, so that the true amount of leakage is known at the micro level.





# Asset Health

## – Grade: D

A comprehensive grasp of asset health remains elusive within the sector, underscoring the need for a systems thinking approach.

Such an approach is constrained by the lack of extensive survey data, plus there is no industry standard framework for measuring asset health and risk. Pipes and sewers constitute just one facet of a complex system, incorporating treatment plants, pumping stations, control centres and more. The inadequacy of maintenance options for pipe networks, coupled with subpar performance of new networks, underscores the urgency of research into “no-dig” repair techniques.

Enhancing insights into network health requires meticulous sample analysis, alongside contemporary tools like satellite-based ground movement and soil type analysis. A dearth of data hampers understanding, limiting the effectiveness of asset management tools.



# People

## – Grade: C/D

The sector faces a concerning exodus of professionals, exacerbating an already pressing need for talent.

While strides have been made in diversifying backgrounds, challenges persist in terms of gender and ethnicity representation. Engaging with educational institutions and rectifying misperceptions are pivotal in showcasing the sector's opportunities across varied disciplines. The industry has to show that it is an exciting and forward thinking sector in which to work.

The sector's workforce requirements span IT, mathematics, communication, manual labour, innovation, engineering, manufacturing and more. Nurturing talent necessitates academies, on-site training, mentoring programs, supporting professional registration and robust engagement with the workforce of tomorrow.





A transition from reactive to proactive maintenance efforts is underway, with network monitoring initiatives providing valuable insights for performance enhancement.

Despite advancements, wastewater lags behind clean water in terms of sensor deployment. Augmenting sewer maintenance necessitates heightened investment and intelligence-driven decisions. Currently asset static and dynamic data is limited, so collecting comprehensive data, including depth and condition information, is vital for efficient upkeep.

Wider sewer surveys and alignment with Drainage and Wastewater Management Plans are instrumental in driving necessary change.

# Sewers Maintenance – Grade: D







# Customer Side Leakage – Grade: D

Customer side leakage poses a multifaceted challenge.

With a significant percentage of households lacking metered water supply, the extent of customer side leakage remains enigmatic. Unclear responsibilities compound the issue; water companies bear penalties for leakage stemming from customer pipes, even though homeowners are accountable for maintenance. Addressing this conundrum necessitates broader metering implementation and homeowner engagement.

Centralised ownership of supply-side pipes is recommended to streamline decision-making regarding leakage remediation. It would also bring focus to the challenge of replacing lead pipes.



# Innovation

## – Grade: C/D

While efforts to stimulate innovation have surfaced, and Spring (centre of excellence) has been established, integration within core business operations of water companies remains insufficient.

Time constraints, coupled with risk averse procurement (driven by financial and regulatory penalties) impede the incorporation of innovative approaches. Beyond the Ofwat Innovation Fund, the regulator could champion innovation through outcome-based regulation and extended evaluation periods. A global comparison highlights the sector's sluggish pace in embracing innovation, underscoring the need for comprehensive surveys to identify gaps and opportunities within pipe and sewer-related innovations.





# Research

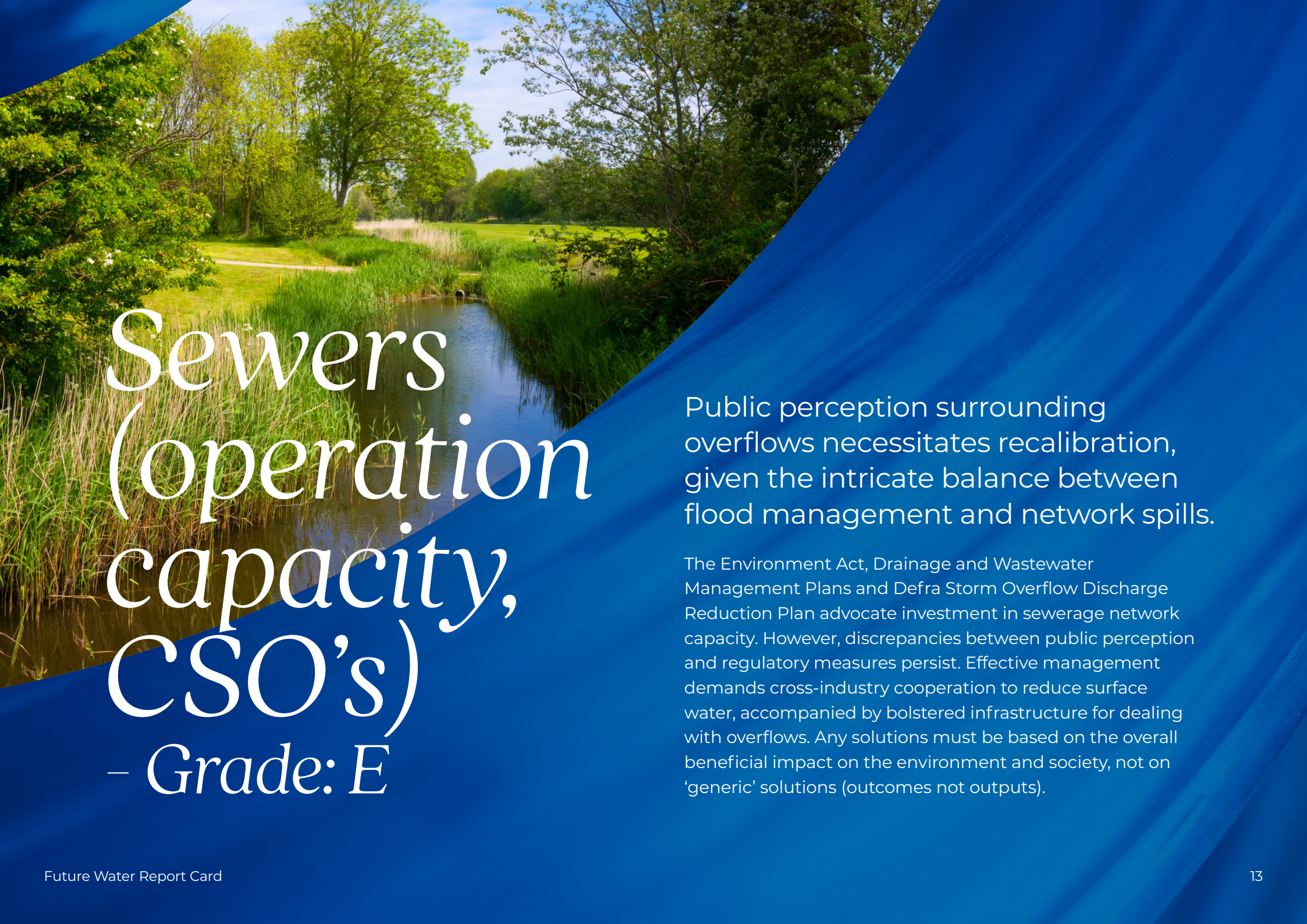
## – Grade: D/E

Research investment within the water sector lags behind other industries, especially in terms of understanding the performance of assets, systems, and the impacts of the sector on the wider environment.

UKWIR's pursuit of impactful research is constrained by limited resources, although notable work within academia exists at lower Technology Readiness Levels (TRL). Enhancing research spending, spanning low to high TRL, aligns with the sector's innovation strategy. A coordinated funding approach involving various stakeholders, including UKRI, Innovate UK, water utilities, suppliers and others is essential for realising research-driven outcomes.







# Sewers (operation capacity, CSO's) – Grade: E

Public perception surrounding overflows necessitates recalibration, given the intricate balance between flood management and network spills.

The Environment Act, Drainage and Wastewater Management Plans and Defra Storm Overflow Discharge Reduction Plan advocate investment in sewerage network capacity. However, discrepancies between public perception and regulatory measures persist. Effective management demands cross-industry cooperation to reduce surface water, accompanied by bolstered infrastructure for dealing with overflows. Any solutions must be based on the overall beneficial impact on the environment and society, not on 'generic' solutions (outcomes not outputs).



