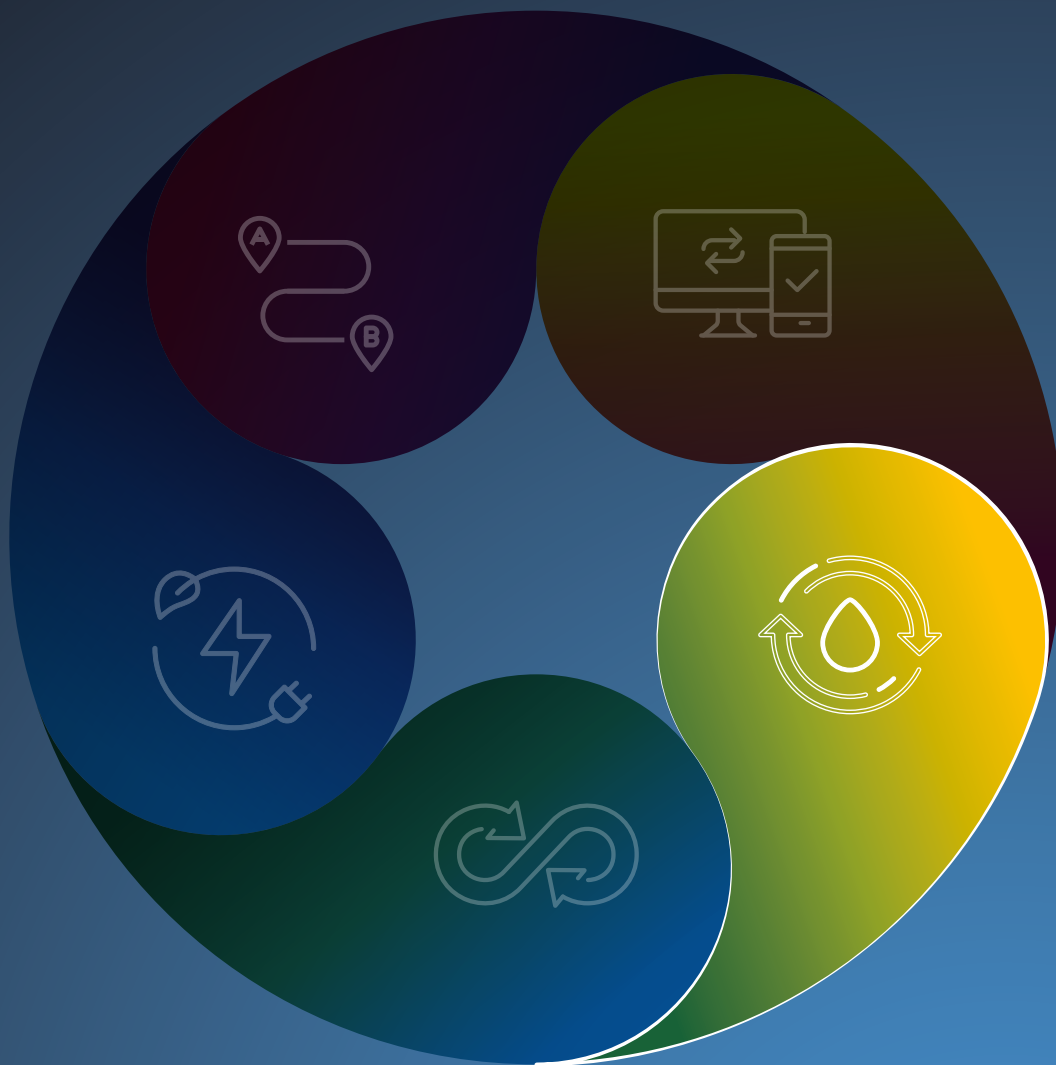




Comisiwn **Seilwaith**
Cenedlaethol **Cymru**
National **Infrastructure**
Commission **Wales**

WATER SECTOR INFRASTRUCTURE INSIGHTS EXECUTIVE SUMMARY



in partnership with



The National Infrastructure Commission for Wales (NICW) commissioned Arcadis to assess the current and future infrastructure needs across the energy, water, transport, digital, and circular economy sectors, and to identify the key issues requiring Welsh Government attention.

This summary focuses on the water sector, examining water quality (that is the quality of water in the environment) and water resources (natural sources of fresh water) to identify the most critical risks and priorities for Wales.

Water is a vital sector, underpinning and impacting public health, economic growth, nature, and cultural identity in Wales. Delivering the ambitions of the Well-being of Future Generations (Wales) Act depends on a resilient, well-managed water system. However, the water sector faces a range of challenges and increasing pressures from shifting demand and the effects of climate change.

The water sector operates within a complex regulatory landscape across Welsh, UK, and international levels, with responsibilities split between government, regulators, water companies, and land managers. Co-ordinated action and stronger policies are required across all parties. It is noted that the Cunliffe Review will bring about some changes.

CURRENT ISSUES AND CHALLENGES



WATER QUALITY

- Existing River Basin Management Plans, designed to manage water quality, lack sufficient enforcement, funding, and impact.
- Only 40% of Welsh waterbodies achieve “good” ecological status. The one-out-of-all approach to this metric means that improvements may be masked.
- The assessment of chemical status of waterbodies in Wales does not include PFAS and mercury, potentially giving a false impression. It is essential that they are understood and managed.
- Storm overflows release untreated sewage during heavy rainfall, a risk that will intensify with climate change.
- Pollution from roads, private sewers (e.g., septic tanks), and misconnections is largely unregulated and poorly monitored.
- Intensified farming practices contribute to significant nutrient pollution in Wales and whilst regulation is in place, there is a need to monitor and manage this.
- Sustainable drainage systems provide benefits, but funding for their long-term maintenance is uncertain.

- Historic river modifications (dams, weirs, culverts) continue to restrict ecological recovery and species movement.
- Nutrient neutrality issues are impacting development opportunities and there are regulatory barriers to the use of nature based solutions to remove nutrients.



WATER RESOURCES

- Whilst Wales is a wet country and has adequate water resources currently, security of future supplies will require sound management and funding.
- Whilst water company Water Resource Management Plans do look at non household water demand, more needs to be done to better understand wider needs and future pressures from agriculture and industry, including new sectors like data centres and hydrogen.
- Wales currently has high leakage rates, in part, due to the rural nature of supply zones and high pipe length per customer.
- Drinking-quality water is widely used for non-essential purposes, while rainwater harvesting and water reuse remain under-utilised.
- Contaminants such as micro-organisms, nitrates and pesticides, and metals present increasing challenges for treating drinking water.
- Much of the infrastructure Wales relies on to provide drinking water is ageing and the rural nature means that there are many small treatment works, meaning costs of maintenance are high.
- Water is not currently valued as a strategic resource.



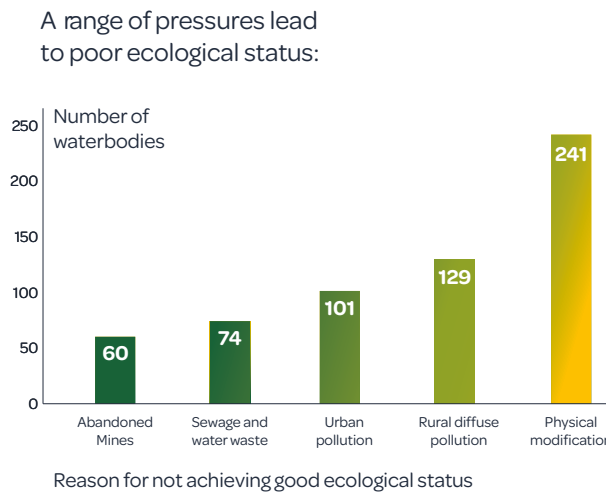
WHERE ARE WE NOW

Percentage of Welsh waterbodies at 'good' ecological status

40% in 2024 compared to **16%** in England.

Remains as per 2021 and up 3% from 2015.

1 NRW Assessment of Water Quality in Wales 2024



2 Minister for Climate Change's response to the Chair of CCEI Committee (2021)

Across Wales, in Special Areas of Conservation, there are

8 nutrient neutrality catchments

These focus on managing nutrients to facilitate development but often lack funding to help sites recover

3 NRW: Advice for Planning Authorities

Water consumption (per person per day) is high in parts of Wales

149 Dŵr Cymru Welsh Water
131 Hafren Dyfrdwy

Compared to 137 average across England and Wales (in 2024/25, three year average)

4 Discover Water: Amount we Use

Water companies are working hard to reduce leakage.

Leakage rates (per property per day) :

169 Dŵr Cymru Welsh Water
145 Hafren Dyfrdwy

Compared to 109 average across England and Wales (in 2024/25, three year average)

5 Discover Water: Leaking Pipes

High leakage rates reflect the rural nature of supply zones and high pipe length.

WALES **9.25m** of water main per customer
ENGLAND **5.47m** of water main per customer

6 Drinking Water 2024, DWI, 2025

FUTURE CHALLENGES

WATER QUALITY

1. Urban and agricultural runoff may increasingly negatively affect water quality and impact nature, despite investment and regulation.
2. Without stronger regulation, chemical pollution (e.g., forever chemicals and microplastics) will become a more significant threat to water quality.
3. Ageing infrastructure and ongoing maintenance of features like sustainable drainage systems (beyond the required 30 year commuted sum) will challenge local authority budgets and long-term water quality outcomes
4. Population growth and increasing food demand may drive more intensive agriculture, and could increase nutrient loads and pollution risks. Further regulation and enforcement will be required.
5. Climate change will pose an increasing threat to water quality with more frequent flooding causing increased urban run-off.

WATER RESOURCES

1. Climate change may increase the risk of drought, pressure on water supply, and leakage rates beyond currently forecast rates.
2. It will become more important to manage the increasing and competing needs for water, including increasing need from agriculture and industry, including needs of new users.
3. As water becomes more scarce in England, there may be more pressure to export water.
4. There are likely to be challenges to the implementation of nature based solutions, such as land take required, ownership and maintenance.

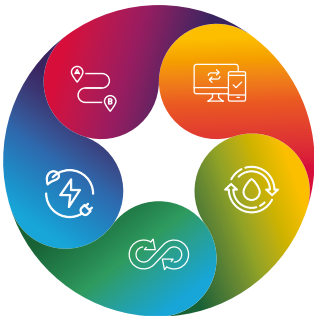
Across both water quality and water resources there is a need for a joined-up catchment level approach to decision making. This will ensure activities, issues and impacts are considered holistically, across the catchment.

There is also a need to increase the uptake of Nature-based Solutions to provide multiple benefits.

FUTURE AMBITION

This study suggest that Wales should pursue a sustainable, catchment-based water system that supports both people and nature by:

- Integrating water quality, water resources, biodiversity, and land management.
- Tackling pollution holistically across agriculture, urban areas, and infrastructure.
- Scaling up nature-based solutions alongside traditional infrastructure.
- Investing in asset maintenance, resilience, and long-term future-proofing.



PRIORITY ACTIONS

This review has identified a range of issues and challenges that require further action.

Top priorities are to:



Please see the main report for full details of other key actions identified.



For more information,
please scan the QR code.

