ICE submission to the Environmental Audit Committee on water quality in rivers

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About the ICE

The Institution of Civil Engineers (ICE) is a 97,000-strong global membership organisation with over 200 years of history.

It is a centre of engineering excellence, qualifying engineers and helping them maintain lifelong competence, assuring society that the infrastructure they create is safe, dependable and well designed.

Its network of experts offers trusted, impartial advice to politicians and decision makers on how to build and adapt infrastructure to create a more sustainable world.

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Summary

The ICE welcomes the Environmental Audit Committee's follow-up evidence session to the impactful 2022 report on water quality in rivers.

The key priorities should be:

- There is a need to reform the regulatory system to align it with national priorities such as net zero;
- There is need for a longer-term approach to investment and planning - the five-year cycle is too short;
- The role of nature-based solutions in delivering a better water infrastructure system should be actively promoted and take into account wider benefits over the whole life.
- There is a need to rebuild trust between the public, water companies, and regulators.

These topics were discussed at the ICE's Presidential Roundtable in June 2023, which focused on whether the UK needs a water strategy.

What are the priorities for water infrastructure investment? Is Ofwat facilitating adequate investment in improving water quality and water security?

The Environment Agency recently outlined the policies that the UK government has concluded are necessary to maintain water supplies in England:

- It is recognised that, by 2050, there will be a major shortfall in supply (35%) vs expected demand.
- Demand reduction therefore feels more urgent, with smart metering being encouraged.
- A lot (but not all) of the RAPID projects, including new reservoirs, transfer mains and desalination plants, are likely to proceed.

The aims of the RAPID project over the last five years are to develop projects to deliver the increased volumes required in England and Wales and to understand and develop ways of overcoming barriers to the projects being delivered. RAPID is happening later than it ideally should have done, but great progress has been made over the last four years.

The challenge is understood (as set out across England's draft water resources management plans) and it is important that the plans are implemented in full. However, the plans rely on an increase in supply, combined with a reduction in leakage and a reduction in customer demand. The leakage reduction is proving to be challenging and efforts will need to be stepped up to reduce leakage. A major obstacle could be getting the public to buy into the need to reduce consumption, particularly in light of the erosion of trust between the public, the water companies and the regulators.

The installation of smart meters is critical, not just to reduce consumption but to facilitate leakage reduction. There is evidence that around one-third of current losses are on the customer side through service pipe leaks, plumbing losses, etc., and this cannot be effectively tackled without adequate measurement.

From a security perspective, there is more work to be done, but the water supply network is far more resilient than it was 15 years ago and few areas are now reliant on a single source for their water. The Security and Emergency Measures directive has been implemented and a lot of progress has been made.

The time taken to implement large-scale water resource schemes - a decade or more - should not be forgotten, and ICE supports the National Infrastructure Commission's (NIC) call to improve planning for nationally strategic infrastructure.

On water quality, it is worth pointing out that the UK is one of the few countries supplying near 100% drinking water quality. The value of trust this provides to the UK public and businesses should not be overlooked, and this should not be jeopardised.

How are water and sewage companies adapting to climate change?

River quality and flooding

Climate change will put increased pressure on the UK's rivers and lakes – drying rivers out has a big impact on the ecological health of a river or stream, making them less able to deal with pollution. However, climate change will also increase the risk of flooding. The water companies are responsible for some elements of flooding, but other bodies, including highway authorities, local authorities, and the Environment Agency are also involved in flooding; no one party can deal with this alone.

This was recognised by the NIC report of November 2022 – "Reducing the risk of surface water flooding". The ICE broadly supports the implementation of the NIC's recommendations.

At a systems level, there are concerns that the efforts to reduce discharges from sewer overflows could result in increased surface water flooding. Having many different stakeholders involved in drainage and flooding does complicate matters. The ICE explored some of this further in a recent insight paper into combined sewer overflows.[1]

Meeting net zero commitments

The water companies and Ofwat have committed to becoming net zero operationally by 2030 and have net zero embodied carbon by 2040. What this means in reality should be open to examination.

[1] ICE (2023) Civil engineering insights into combined sewer overflows

The government and regulators have pushed the water companies to approximately double their capital programmes between 2025 and 2030. The ICE would like to see the adoption of more nature-based, sustainable solutions rather than the energy-intensive storage and treatment options which have been employed in the recent past. Otherwise, the increased capital spend can only result in increased embodied and operational carbon.

Water companies also generate greenhouse gases such as methane through their operations; efforts are being made to deal with this in a positive way, and those lessons should be shared.

How effective is Ofwat's regulation of water companies and how are they working with the Environment Agency to assess compliance?

In simple terms, the quality and effectiveness of the regulation is variable. Some aspects are effectively regulated whilst others are less effective. For a long time, the industry and its regulators have arguably taken a short-term view, which is not ideal for a sector which demands a long-term approach. Approximately 80% of the assets owned by the water companies are its water supply network and sewerage network.

Current replacement rates of water mains and sewers are far too low, resulting (if sustained) in the need for sewers to last more than 1000 years, with similar longevity for water mains in many areas. This is not sustainable, yet it is difficult to see how this issue will change with the current regulatory structure.

It is also important to consider that the short-term approach is detrimental to the development of the supply chain and the much-needed recruitment of personnel into the water sector. Efforts to improve this have not been effective to date.

What progress has there been in urban planning and development in relation to water supply and treatment?

Too little progress has been made. The ICE is particularly concerned about the approach to urban drainage – ideally water supply and drainage would be a core factor in urban planning and development, but this is not the case. In England, Schedule 3 of the 2010 Flood and Water Management Act has still not been implemented, which means that many new housing developments still have a right to send all of their surface water into the combined sewers, making spills from sewer overflows more frequent.

This is not the case in Wales and Scotland, where Schedule 3 has been implemented and is proving to be effective.

If the water infrastructure system is to move towards more sustainable drainage solutions, then a way must be found to effectively ensure that water and drainage are a core consideration for urban planning and development. With respect to water supply, developers will increasingly face limitations unless the recommendations of the Regional Resource Management plans are fully implemented.

How can water companies and other industries be more transparent about their impact on water quality?

100% of inland sewer overflows are now monitored for spill frequency and, increasingly, this data is being released into the public domain – this has represented a step change in transparency.

From 2025, the water companies will have to start monitoring the impact of the overflows on water quality. Water companies will learn a lot from this exercise and through studying the data and research, it is hoped that this could evolve

into a world-leading programme that enables operators to understand the impact of sewer overflows and discharges from wastewater treatment works and inform future works.

Policymakers and practitioners are still learning about the potential public health implications of antibiotics that can pass through wastewater treatment works and pass into watercourse, the impact of the build-up of some “forever chemicals” that do not easily break down in the environment, as well as micro-plastics and other pollutants.

There is a need to be transparent and open about these issues, so the public understand the risks and buy into the solutions. An upcoming report from the National Engineering Policy Centre, of which the ICE is a member, will shed further light on this topic.

The water companies are large polluters, but they are not doing so on their own. The level of monitoring being applied to the water companies is not being applied to other polluters – it is known that highway run-off can cause significant pollution, as well as agriculture and manufacturing.

The Environment Agency will need resources to deal with these sources of pollution if the water quality in the country’s rivers is to improve to the standards that the public is demanding.

How effective are current sewage discharge monitoring systems and how will ‘real-time’ data on water quality in receiving waterbodies be monitored, published and used?

The monitoring system is not perfect as:

- It does not include coastal discharges, as these environments can be too severe.
- At any one time a lot of the monitors are not functioning as they should, possibly due to the speed of implementation – this will need improving.
- The causes of many “dry weather discharges” are not understood by commentators, creating an unhelpful narrative and resulting in the wrong priorities being pursued, in some cases.
- Legal implications of the data present complications.

The water companies and regulators are still learning how to deal with this data, and more is coming. The sector should aspire to real-time data on water quality in receiving bodies, but there needs to be a debate and discussion about how it should be published and used.

In conclusion, the challenges facing the UK water sector in 2024 are very different to the challenges it faced in 1990, when the current structure of the industry was formed.

The ICE recommends that the government should form a vision for the water sector that it wants in 2050, have an honest debate with the public about priorities and costs, and then decide how best to deliver the agreed vision.