

# MURKY WATERS

## ADDRESSING THE POLLUTION CRISIS

Pollution problems are deeper and more complex than simple narratives suggest. Sustainability First's Clare Davidson seeks views on causes and solutions.

Water pollution is not new. But it has become a polemic topic. The Environmental Audit Committee (EAC) Water quality in rivers report from January 2022 was blunt: "Rivers in England are in a mess. A 'chemical cocktail' of sewage, agricultural waste and plastic is polluting the waters of many of the country's rivers. Water companies appear to be dumping untreated or partially treated sewage in rivers on a regular basis, often breaching the terms of permits that on paper only allow them to do this in exceptional circumstances."

And yet, some people in the sector are unambiguous that there has been improvement since privatisation 35 years ago. Helen Wakeham, director of water at the Environment Agency, talks of the raw sewage on beaches and Blackpool's first water tests 30 years ago. "You should have seen things in 1990," she comments.

Similarly, Emma Wren, technical director at engineering firm Mott MacDonald, argues that "the quality of effluent of sewage at treatment works has improved massively," partly due to changes in agricultural and industry practices. Government data shows as much. There is 80% less phosphorus and 85% less ammonia in rivers compared to 1990. Cadmium and mercury levels in the water environment have also fallen.

However, despite pumping billions of pounds into sewage treatment, "improvement in our rivers appear to have stalled or be in decline," argues Sustainability First associate David Elliott, a water specialist and former chief innovation officer of Wessex Water.

There is a consensus among many different commentators that the current system needs to change, urgently.

### Outdated infrastructure

Many point to the outdated infrastructure we rely on. Wren explains that it was designed in the Victorian era for a smaller population, who used water differently. Water that once was absorbed back into dirt roads now sits on the surface of tarmac roads and paved over front gardens, with nowhere to go.

The mechanism that was intended as an exceptional release valve is no longer enough. Combined Sewer Overflows (CSOs) or storm overflows, combine rainwater and drain water and cut the risk of overloaded sewers causing flooding during rainfall, especially in people's homes. Because CSOs operate – in theory – infrequently in times of heavy rainfall, the wastewater is meant to be sufficiently diluted to prevent significant harm to water bodies.

But a Lords report from March 2023 made clear that demands on water supply and the sewage network had increased, leading to "a network unable to cope" reliant on "releasing polluted water into the environment".

Even if we have outgrown our infrastructure, a complete overhaul is not on the cards. Separating wastewater and stormwater systems (eliminating storm overflows) would cost between £350bn and £600bn, an oft cited report by engineering firm Stantec estimates. This could up household bills between £569 and £999 per year and would be "highly disruptive and complex to deliver nationwide".

### Mismanagement and wrong targets

The broader point is that the focus on sewage has, experts say, missed the real point: namely that how we manage and interact with water isn't sustainable. If anything, this suggests campaigners have underestimated the scale of the problem.

"If you looked at our situation from Mars you would see we want [water] purified and the moment we get it [on our property] we throw it away. It makes no sense," says Elliott. As we pave over more of our communities, there is nowhere for rainwater to go except into our sewers; we are essentially treating a valuable product as a waste when it lands on our property only to demand it back in drinkable form so we can clean our toilets with it.

Water companies have spent billions on meeting targets set by the regulators but "they may have been the wrong targets," argues Elliott. In other words, we may have lost sight of the desired outcome.

### Grey area

When it comes to addressing the issue of storm overflows there has been an over-reliance on 'grey' solutions – concrete, in the form of storm tanks, that catch visible pollution but fail to address other pollutants, some of which can be very toxic, like particulates from car tyres carried into sewers from storm water running off highways. An alternative is nature-based (or catchment-based) solutions that are exactly that – using nature's ability to reduce harm and enhance the environment.

Water policy manager Ali Morse of the Wildlife Trusts argues that there is a perceived level of certainty about traditional infrastructure that means "concrete [solutions] represent certainty and nature-based solutions represent uncertainty – this is a false view".

One option (storm tanks) is very carbon intensive, therefore worse in terms of climate change. The other, "catchment-based solutions, (which look at water at the start of its journey) have wider co benefits," explains Daniel Johns, managing director, Water Resources East. Moreover, storm tanks use vast amounts of concrete and are expensive, which ultimately impacts the bill payer.

What is lacking is a sustainable drainage system that enables biodiversity and keeps rainwater (and pollution) out of the sewage system in the first place. We cannot build our way out of this problem, people argue.

There is no panacea. "Nature-based solutions are a significant part of the story. But there is not just one solution. We will need every solution in our arsenal as well as conventional innovations," explains the Environment Agency's Wakeham. Also, despite catchment-based plans with good results, these tend to be pilots rather than scaled up.

Mott MacDonald's Wren echoes this. Good examples need to be publicised, she argues. For example, the previous government highlighted in its Plan for water Wessex Water's "effective use of reed beds to accommodate excess water when groundwater infiltrates the sewerage network, reducing overflow to rivers. The reed beds, meanwhile, provide a valuable habitat for species such as dragonflies and warblers".

### Regulatory input

Economic regulator Ofwat has been criticised for an over-emphasis on keeping bills low for years, at the expense of investment. Repeatedly people say Ofwat made this the priority in consecutive price review periods, when firms submitted their business plans to the regulator.

At the same time, people suggest firms have tended to build new treatment processes rather than upgrade existing infrastructure. One person commented that Ofwat is full of economists; they do not always share the concerns of environmentalists.

Lack of investment in maintenance, and not enough updating of mains and sewers to prevent leaks, is a repeated refrain.

If the focus of Ofwat has failed to address wider issues of degradation, enforcement by the Environment Agency has also come under attack. But specialists are quick to add that repeated budget cuts and understaffing have hugely undermined the Agency's ability to act effectively.

In fact, many of choices we face are beyond the control of water companies. While water firms are responsible for the pipes, they are not responsible for everything that ends up in those pipes. A CIWEM report on storm overflows shows that agriculture is responsible for around the same amount of pollution (40%) as

water companies. The polluter is seen as the carrier not user of water, says Darren Rice, regulation director, Anglian Water.

Farmers should comply with the Farming rules for water but the report from the EAC Water quality in rivers inquiry showed these are not adequately checked and enforced, again due to lack of resources within the Environment Agency. Only half of farmers are aware of the rules and few had any contact with Agency about them.

Housing and the built environment also have a role to play. "[We need to] stop adding more connections into older systems and separate out surface water with measures such as rain gardens and water butts looking at where [water] inadvertently ends up," says Wren. Different building regulations could help but this is not being systematically adopted.

Manufacturers also influence the water system and we face new challenges. "Forever" PFAS chemicals as well as medicines and lifestyle drugs that increase microbacterial resistance are prevalent. "What choices or trade-offs do we want to make?" Elliott asks. Do we want to manage health through more pharmaceuticals which end up in our rivers, and to build more roads and highways leading to more car pollution run off?

### The wider system

Specialists repeatedly say the solution needs a multi-party coordinated effort. Ofwat is separated from the Environment Agency and Drinking Water Inspectorate. Unless there's impetus to work together, issues will be addressed separately. Some call for a fundamentally different approach to how we use land and water, and to create both infrastructure that can reabsorb water (SUDS Sustainable Urban Drainage System) and projects that enable nature to play its part.

All too often government policy doesn't align with wider environmental needs. The banning of plastic in wet wipes has begun to swing in favour of the environment. But there are many other areas where the environment appears at best as an after-thought.

Climate change and changing rainfall patterns, together with evolving societal pressures, make water management less predictable and increasingly difficult for sewers and treatment to keep pace.

We are facing longer and more regular droughts which are increasing interruptions to our water supplies while wetter winters and more frequent, heavier storms are leading to more flooding and more pollutants being washed off fields and urban areas. Pollution, bigger towns and cities, and population growth are all putting a strain on our water supplies and water environment.

Without a recognition of the depths of the challenges ahead – and shared responsibilities – it is hard to see how we are going to develop and protect a water system that meets our growing needs and the environment's.

Clare Davidson was communications lead for think tank Sustainability First.

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