

Written evidence from Thames Water

About Thames Water

We are the UK's largest water and wastewater services provider. Every day we supply around 2.6 billion litres of the highest quality drinking water to nine million customers across London and the Thames Valley. We recycle around 4.6 billion litres of wastewater safely back to the environment for 15 million customers.

Overview

- Rivers should be beautiful, natural places for recreation, relaxation and inspiration. Although legal and permitted, 'storm' overflows are unacceptable - to us, our customers and for the environment. It won't be easy, quick or cheap, but we want, over time, to eliminate them.
- Often overlooked in discussions about storm discharges, the Thames Tideway Tunnel is a huge, landmark project that is tackling all of the largest sewage overflows into the River Thames in London, at a cost of £4.9 billion. This 15 mile-long sewer, the width of three double decker buses, will be complete in the mid 2020s, intercepting the vast majority of the millions of tonnes of sewage overflowing into the tidal Thames every year from the capital's overloaded Victorian sewer system. The first phase, known as the Lee Tunnel, is already operational.
- In addition, our current investment programme includes projects totalling £114m to increase sewage treatment and / or storage capacity to better protect rivers, as well as partnerships to install sustainable drainage to better manage surface water flood risk.
- While current discharge monitoring requirements in rivers across our region are effective for operational purposes, we are developing an approach that will better inform the public of sewer discharges to help them make choices about recreational water use.
- With strong government and regulatory support for long-term investment in infrastructure, water companies will be better able to maintain river water quality while managing population growth and climate change.
- Drainage and Sewerage Management Plans (DSMPs), with a planning horizon of at least 25 years, provide the necessary long-term perspective to manage future wastewater issues by bringing together the different authorities with responsibilities in this area to co-create efficient solutions.
- DSMPs can also enable us to do more to tackle urban diffuse pollution by creating a framework for regional and local organisations and interest groups to implement interventions that include sustainable drainage solutions (SuDS).
- By looking at overall ecological outcomes alongside individual metrics we can measure our progress in enhancing water quality by evaluating if we have created the appropriate combination of conditions in water for wildlife to thrive.
- The most common cause of pollutions from Thames Water's waste network is blockages created by 'unflushable' items such as wet wipes, and fats and oils being poured down the drain. Our 'Bin it, don't block it' awareness campaign has successfully reduced the incidence of blockages, but policy interventions are also needed to ensure manufacturers take responsibility for the impact of their products.

- We are making industry-leading interventions to tackle pollution at source through coordinating sustainable, nature-based solutions with partners across our catchments. Evolutions in regulation can help realise the value of these newer approaches, which risk being discounted if they are judged by conventional analyses.

How adequate are the monitoring and reporting requirements around water company discharges?

1. The current monitoring and reporting requirements for discharges are designed to meet regulatory and operational needs. We ensure that the Environment Agency are kept fully and regularly informed of any discharges from our network or treatment works.
2. However, further monitoring is needed to gather more data on the number and duration of discharges so we can target more detailed investigations and prioritise future investment efficiently. We have so far installed monitors to record the duration of overflows at 462 sites, supporting the ambitions of the Storm Overflows Taskforce to boost transparency. We now have 98% coverage of permitted discharges, including settled storm sewage from treatment works.
3. We also plan to install 18,500 sewer depth monitors, providing sewer level alerts to enable more pro-active interventions before blockages expand and cause overflows.
4. There has been a significant increase in interest in swimming in rivers since the initial COVID-19 restrictions came into effect as people have sought outdoor spaces to exercise and enjoy themselves safely. We want to do more to better inform the public of sewer discharges to help them make choices about swimming in inland waters.
5. Our systems are effective in supervising and controlling our assets but currently unsuited to providing public information due to the time needed to manually process the data. Within 2-3 years we expect to have a new system which should allow us to publish comprehensive information on discharges in close to real-time.
6. We are working with the End Sewage Pollution group to develop a trial system of notifications for our sewage treatment works in Oxford. This will be done jointly, matching the needs of river users with what is currently technically possible with our systems. We will then use the learning from this system to develop a new and more comprehensive approach, once the technology required for that is in place.

Is adequate investment being made in adapting water treatment systems to future climate change?

7. The Public Accounts Committee noted in its recent inquiry into water supply and demand that the Environment Agency ‘now estimates that England will need an extra 3.6 billion litres per day by 2050 to avoid shortages’¹. Water resource availability is lowest in the east and south-east of England, with water able to be taken sustainably from the environment in these areas during less than 30% of the year in 2019².
8. Given these constraints, greater water efficiency in appliances and fittings is essential for us to continue to provide reliable services. Our research shows a third of businesses have leaks,

¹ [Public Accounts Committee inquiry, Water supply and demand management](#), 2020

² Figure 1, p.15, [Water supply and demand management, Report by the Comptroller and Auditor General](#), Department for Environment, Food & Rural Affairs, 2020

while about five per cent of all households have leaky toilets, which can each waste up to 400 litres – the equivalent of eight baths full - every day.

9. We strongly support the introduction of water efficiency labelling; minimum efficiency standards for appliances, and for equivalent standards to be incorporated into building regulations.
10. Reducing leakage from our network remains our top priority. We met our latest leakage target (2019-20) with a year-on-year reduction of 13.8%, our best performance for 30 years³.
11. Reducing leakage, installing smart water meters and using water wisely will not on their own bridge the gap between supply and demand. We are developing a proposal for a major new reservoir containing 150 billion litres of water near Abingdon, Oxfordshire, and assessing the potential for a major transfer from west of our region. We are also looking to develop new groundwater sources, including innovative aquifer storage and recovery, as well as a water transfer from the Midlands, via the Oxford canal.

How could drainage and sewerage management plans, introduced by the Environment Bill, play a role in reduced sewer discharges?

12. As we experience the effects of climate change, a growing population and rising customer demand, it is even more important that we plan ahead to protect and enhance our services for the future. According to the latest ONS data, London's population is set to grow by 434,000 by mid-2028, a 4.9% increase from mid-2018 levels⁴.
13. We are developing a Drainage and Sewerage Management Plan (DSMP) that will enable us to address wastewater pressures sustainably and affordably over 25 years, working with our stakeholders to plan sustainable interventions.
14. While a range of organisations have formal responsibilities for managing flood risk, water does not respect the boundaries between areas or organisations, so collaboration in preparing DSMPs is essential. We are working with a wide range of stakeholders to develop a comprehensive and effective DSMP. This involves region-wide forums, such as the Environment Agency and London Councils; 27 Catchment Partnerships and 13 Thames Regional Flood and Coastal Committee sub-committees, as well as interest groups and the general public.
15. Between September and December 2020, we held more than 70, two hour-long virtual workshops to brief partner organisations on the outputs of our modelling work and to understand the risks they are concerned about.

How effective are the planning policy and standards around sustainable drainage systems to reduce urban diffuse pollution in England? Should local authorities and highways agencies be given a duty to prevent pollution to watercourses without prior treatment?

16. Urban diffuse pollution has a significant detrimental impact on river water quality. Road runoff occurs when accumulated sediments and pollutants are washed off from road surfaces into rivers. It contains more than 300 pollutants and causes acute and long-term harms to river and wildlife health.

³ p.33, [Annual Performance Report](#), Thames Water, 2020

⁴ [Office for National Statistics – Subnational population projections](#), 2020

17. A recent Thames21 study of water pollution from roads in outer London, also involving the GLA and Environment Agency, showed that every road examined failed on maximum permitted levels of at least two of the six key pollutants that were tested for⁵. In the same study, the impact of road runoff was listed by the Environment Agency as a factor for London's rivers failing to achieve 'good' status in all but three cases⁶.
18. The second phase of the Thames21 urban diffuse pollution project is now looking at a 'SuDS decision support tool' which would investigate how authorities can be informed of the appropriate treatment system to be applied to a certain section of road⁷.
19. Legislative change is also necessary to prevent sewer overflows containing diffuse pollution, by incentivising developers to adhere to the SuDS hierarchy. Enabling Schedule 3 of the Flood and Water Management Act 2010 would remove the automatic right for developers to connect surface drainage to combined sewers, providing a critical lever to sustainably manage the impact of new developments.

What are the best indicators for river water quality that could be used as targets being developed under the Environment Bill? How could the designation of inland bathing waters by water companies affect the costs of achieving the associated water quality standards?

20. Setting targets based on individual parameters, such as nitrates and phosphorus levels, can help secure progress in addressing particularly problematic pollutants.
21. However, different groups have different perspectives on the most appropriate indicators. Water quality factors such as phosphorus, nitrogen and ammonia are highly significant for wildlife and environmental quality and tend to be preferred by environmental groups. For recreational water users such as swimmers and boaters, the key concern is viruses and bacteria in the water.
22. Considering outcomes rather than individual inputs is necessary to ensure improvements in overall river health. By recognising the wide range of impacts within a catchment it is possible to tackle multiple challenges, involving all the relevant organisations and individuals with a stake in and responsibility for resolving them.
23. Legislative designation of stretches of rivers as suitable for swimming would set the highest standards for river quality. This is an ambition that we would welcome and strive to achieve, but also one that would put significant upward pressure on bills. Meeting water quality standards suitable for swimming requires extensive pre-treatment of effluent as well as ultraviolet treatment, both at a very significant cost.
24. Water companies are responsible for reconciling differing perspectives and prioritising investment to equitably address customers' needs and meet statutory requirements. Research shows that litter pollution is the single biggest water quality concern among our customers, while calls to achieve bathing water standards are strong but more limited. While we will continue to explore how this could be achieved in a more cost-effective manner, we will progress improvements to river water quality now that include taking action to reduce sewage overflows and minimising the polluting content of sewage, such as wet wipes, through customer education.

⁵ p.2, pp.16-18, [Spatial Quantification of Road Runoff Pollution in Greater London](#), Thames21, 2019

⁶ p.6, [Spatial Quantification of Road Runoff Pollution in Greater London](#), Thames21, 2019

⁷ p.3, [Spatial Quantification of Road Runoff Pollution in Greater London](#), Thames21, 2019

What is the impact of plastic pollution and other materials on drainage and water quality in rivers and what should be done to mitigate it?

25. 85% of the 75,000 blockages we clear annually from our sewers (with average annual clearing costs of £18 million) are caused by items that should go in the bin, with wipes that typically contain plastics making up 90% of blockages' content. Blockage levels have now worsened because of an increased use of antibacterial wipes and toilet roll alternatives during COVID-19.
26. To tackle the issue of plastic pollution, we would like to see the creation of an Extended Producer Responsibility Scheme for manufacturers of plastic containing products commonly flushed.
27. This would incentivise compliance with the industry's Fine to Flush standard and ensure that manufacturers of wet wipes pay the full costs of raising awareness about the harm their products can cause, and of clearing up the blockages and pollution they can lead to.
28. We are working with UK Water Industry Research on the Chemical Investigations Programme (CIP), which runs from 2010 to 2022. CIP is improving our understanding of the sources of chemicals entering rivers through treatment works, and helping determine potential solutions to treat trace chemical substances. The final phase of the project is currently investigating the issue of microplastics in wastewater.

How can consumers be persuaded to change their behaviour to minimise pollution?

29. In our latest campaign to encourage consumers to bin, rather than flush, plastics; and not to pour fat and oil down drains, we use the message 'Let life flow' to convey the benefits for consumers of avoiding disruption through blockages both in their homes and our sewer network.
30. Our campaigning from January to March 2020 prior to COVID-19 led to blockages falling to a level 10% lower than the 2017-2019 average. Our targeted coronavirus campaign initially brought the number of blockages back below the average by May 2020, but the impact of COVID-19 on blockage levels continues.
31. To support our efforts and prevent customer confusion, it is particularly important for manufacturers to avoid the term 'flushable' on wipes, unless the products meet the industry's Fine to Flush standard which indicates whether a wipe will effectively disintegrate in the sewerage network⁸.

What is the required investment level needed to minimise storm overflows vs the scope for sustainable drainage and nature-based solutions?

32. To manage the challenges of population growth, urbanisation and changing rainfall patterns linked to climate change, we are seeking to slow the flow of water through the environment, such that SuDS and nature-based solutions have an increasingly bigger role to play.
33. We are progressing a pioneering and industry-leading approach to catchment management through our Smarter Water Catchments initiative. This holistic approach to managing catchments is developing multi-objective and partner catchment plans for the River Chess in Buckinghamshire; River Evenlode in Oxfordshire and River Crane in west London.

⁸ Response to CMA Consultation: Misleading Environmental Claims, Water UK, 2020

34. We are also launching a programme to better manage surface water across our area, working with five local authorities in three strategic partnerships. Each partnership will receive up to £3m in funding to deliver eco-friendly projects to minimise the rainwater entering the sewerage system.
35. We support the use of SuDS, which can be more cost-effective and sustainable than conventional engineering solutions. However, SuDS will not always be effective in extreme conditions, and can be more variable in outcome. SuDS are best implemented as part of a wider investment plan to reduce the risk of overflows. Our current work is providing valuable insights to enable their future use on a wider scale.
36. Our investment plan for 2020-25 will significantly increase the treatment and/or storage capacity at some of our sewage works, totalling £114 million. This includes work at Oxford, Witney, Chesham and Fairford sewage treatment works to enhance water quality in the Rivers Thames and Windrush in Oxfordshire, the Chess in Buckinghamshire, and the Coln in Gloucestershire respectively.
37. In addition, the £4.9bn Thames Tideway Tunnel will intercept the vast majority of the millions of tonnes of sewage overflowing into the tidal Thames every year from the capital's overloaded Victorian sewer system. It is under construction and scheduled for completion in the mid 2020s.
38. The foul sewer system, even when designed to be separate from rainwater, suffers from infiltration from a range of causes, but particularly when groundwater levels are high. To reduce the discharges that result from this we are working with the Environment Agency to produce Groundwater Impacted System Management Plans, outlining short-term mitigation and a long-term strategy to deal with infiltration in priority areas.

How effective is Ofwat's remit and regulation of water companies? Does it facilitate sufficient investment in improvements to treat water quality, including sustainable drainage system outflows and nature-based solutions such as constructed wetlands?

39. Ofwat's independent economic regulation takes place within the policy framework set by Government, as set out in the strategic policy statement, the last version of which was published in 2017⁹.
40. The government's revision of its strategic policy statement ahead of the next regulatory review in 2024 provides a route to evolve this framework and place appropriate emphasis on investment to meet changing policy priorities. This could support investment in water quality both by placing a greater overall priority on rivers, and by requiring a longer-term perspective.
41. Meeting the requirements of legislation underpins much of the investment in companies' business plans. In the absence of such requirements, companies must demonstrate their customers' willingness to pay for improvements that will boost standards.
42. Under this approach there is the prospect of a divergence between the expectations of some customers and environmental groups – and indeed government itself - who are seeking improvements in river water quality, and the willingness to pay of our wider customer base. This could lead to the expectations of the former group not being met. The strategic policy

⁹ [The government's strategic policy statement to Ofwat, incorporating social and environmental guidance, 2017](#)

statement could seek to reconcile this issue by placing greater emphasis on the need for investment in this area.

43. The government recognises in the National Infrastructure Strategy the need to support long-term investment to ‘balance the needs of current consumers with those of future consumers’¹⁰. In practice, striking this balance will involve ensuring that positive choices are made so that challenging issues are not deferred to future regulatory reviews, and future customers do not pay a disproportionate share of the costs of investment that will ultimately be needed.
44. This approach was strongly supported by our customers through research on intergenerational fairness¹¹. It found that the majority of customers value consistency in bills rather than any short-term reductions. It also found that customers recognised that they had benefitted from the investments made by previous generations, so felt they should expect to do the same for future generations.
45. We have been working closely alongside Ofwat and the Environment Agency throughout the last year to explore how we can create Integrated Constructed Wetlands (ICW) across our region, and the regulatory barriers that may exist. We welcome the flexibility and willingness that both bodies have expressed to implement such nature-based solutions and are in the final stages of discussions with the Environment Agency about the use of ICWs to improve the quality of our final effluent.
46. Whilst these are positive steps, the regulatory barriers that we are surmounting for ICWs will remain for all nature-based solutions, and more flexibility in the regulatory framework is necessary to facilitate their promotion. In order to encourage more uptake of these solutions through the Price Review process, we believe that a longer-term approach to regulation looking at the next twenty-five years is needed to ensure sustainable water and wastewater provision.
47. Ofwat’s main criteria for evaluating company performance remains efficiency. Nature-based solutions will in some situations cost more but deliver wider benefits. In others they may fail to deliver the required outputs, requiring further investment to meet environmental standards. A long-term perspective will allow the variable effectiveness of nature-based solutions to be fully understood and investment provided to those which show the greatest potential over time.

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¹⁰ p.72, Chapter 4, Economic Regulation, [National Infrastructure Strategy](#), HM Treasury, 2020

¹¹ Long term investment and intergenerational fairness, research conducted by Britain Thinks for Thames Water in 2016.