

STORM OVERFLOWS: MISSION IMPOSSIBLE?



In England, the Government has made its intentions clear that it expects to see a significant reduction in the frequency of storm overflow releases and any associated harm caused to our rivers and seas.



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There are over 15,000 storm overflows in England, and they are a normal, legal and previously acceptable means of managing high flow rates in sewers during heavy rainfall, not least to prevent networks becoming overwhelmed and sewer flooding occurring in homes and businesses.

Government has responded to pressure from the public, members of parliament and campaigning organisations and individuals. It certainly seems that during Covid restrictions communities came to appreciate their local water environment more than ever and witnessing discharges of untreated, albeit diluted, storm sewage seemed unwarranted and unacceptable. Moreover, an increasing amount of people are enjoying wild swimming and have understandable concerns for their health and safety.

Water companies themselves have acknowledged that the status quo is unacceptable, and everyone is aware that population growth and climate change will make matters worse if nothing is done. In particular, pressure mounted once data from event duration monitors (recording the frequency and duration of releases) was made public over the last 2 or 3 years; a classic case of managing what you measure. The regulatory intervention to insist on this monitoring has been highly effective and consequential.

Driving Improvements

The commitment to drive improvements was set out in the Environment Act 2021 and a subsequently published draft Storm Overflows Discharge Reduction Plan. In the autumn we should see the final plan, prepared following a consultation and no doubt balancing a desire to deliver rapid improvements with constraints associated with affordability and deliverability. Meanwhile water companies are hard at work on planning activities to understand the amount of construction and investment necessary to meet new expectations in preparation for the 2024 Price Review. Governments in Wales and Scotland are taking a slightly different path, but they too are exposed to the same pressures to reduce the frequency of storm overflow releases.

In setting out on this mission to improve the storm overflow situation the Government, its regulators and the water companies realised they had insufficient knowledge of the costs and benefits of different policy options. Is it feasible to completely

eliminate storm overflows? Is it affordable to reduce the frequency of annual releases to 40, 20 or 10 times? What is the current impact on water quality, how might this get worse if nothing is done and how does it improve under different policy scenarios? Should improvements be achieved through constructing more capacity in sewer networks or by reducing the input of stormwater by retrofitting water butts, rain gardens and urban trees?

The Government's Storm Overflows Taskforce hence commissioned Stantec to undertake an independent, radical, first of its kind national assessment of costs, benefits and methods. This 'Storm Overflows Evidence Project' was published in two parts in late 2021 and early 2022 and is a key evidence-base supporting the Government's policy direction. The Government's current proposals (just for England) focus on limiting the frequency of releases to not more than 10 times per year on average or fewer than this where it is necessary to protect environmental water quality or public health in bathing waters. This programme of work is to be completed by 2050 but with a prioritisation by certain waterbodies ensuring that there is rapid progress in the immediate 10-year future. Cost estimates have high uncertainty but are likely to be in the region of +£60bn, an unprecedented increase in wastewater network investment in the whole period since privatisation more than 30 years ago.

Challenges

Clearly there are questions about the affordability of this investment and how it may impact water bills, an issue in sharp focus because of current cost of living pressures and inflation in other utility bills. There are also other pressures on water bills too, for example, improve our resilience to drought, remove significant quantities of phosphorous. The storm overflows burden also falls unevenly across the country with communities in the midlands, the north and at the coast requiring the biggest improvements. Policy makers will need to balance the benefits of this improvement programme against its costs, especially in the short term.

There are also legitimate questions about the capacity of the sector to plan, design and deliver these improvements quickly. Moreover, there are concerns about a demanding timetable for improvement leading to conventional storage and tunnel type solutions, rather than a greater use of

sustainable drainage technologies, which can deliver significantly greater societal benefits and improved resilience to a range of climate change effects.

Opportunities

It is certain that the benefits of incorporating green infrastructure into solutions are considerable, although the Storm Overflows Evidence Project indicated that costs might be higher though more uncertain than for conventional sewerage based solutions. The Stantec authored research describes how each hectare of non-permeable surface generated storm runoff, managed through retrofitted green infrastructure measures, could realise up to £25,000 of benefits annually, and more if protection from extreme heat benefits is included. This summer of heat-waves has certainly made us question the liveability of our urban areas and appreciate the coolness of green space. The other significant components of the benefit are associated with greater resilience to flooding from extreme rainfall, improved 'place' and public amenity and associated health benefits to communities. Whilst green infrastructure retrofit solutions alone are unlikely to be sufficient to address the whole storm overflow problem, their use at scale can deliver significant benefits to communities as a whole and are worth considering anyway as part of the normal cycle of urban regeneration and renewal. Green infrastructure is a key tool for sustainable climate adaptation, storm overflow related or not, but if not connected to urban water management, becomes a lost opportunity.

What I'm describing here is beyond the usual and expected duties of the water company. It becomes the responsibility of a partnership of organisations including the water company but also local government, businesses, landowners, the voluntary sector and the community itself. The collaboration required across these organisations is significant and for the long term. Water companies are only now starting to act as part of these partnerships and good practice is being forged through bodies such as the Living with Water Partnership in Hull and Haltemprice where Yorkshire Water is but one partner behind a blue-green plan being developed with support from Stantec. In Hull, the focus is protection from surface water flooding, but the challenges are similar to the storm overflow problem and the solution rests in a collaboration between organisations to seize on opportunities,

make every pound of investment count and understand the long-term benefits associated with place making and wellbeing.

Collaboration takes time and fully integrated catchment-wide solutions to the overflow problem, which also deliver an array of wider benefits at lower cost and with additional benefits are complex to finance. Therefore, I believe it is inevitable that the early phases of the improvement programme for storm overflows will rely more on tried and trusted conventional sewerage solutions, albeit supported by active control technologies to ensure that use of existing infrastructure is optimised. However, it is incumbent on everyone in the sector to redouble efforts to make true partnership planning work. Water companies are well positioned to show leadership here. An immediate opportunity is through newly statutory, second cycle, Drainage and Wastewater Management Plans but these will need to improve in this regard over earlier endeavours at long-term planning. Policy alignment between Government departments (national and local) will also be required spanning transport, health, housing, communities as well as the environment. Fixing storm overflows using partnership-delivered green infrastructure is a classic 'levelling up' opportunity.

The combination of skills and capability required to plan, design and deliver city-wide solutions to nominally water based problems is substantial. Everyone from architects to planners and from gardeners to hydraulic engineers needs to be involved. There is engineering, digital, communication and environmental challenges at every turn and as such this presents an opportunity for a newly invigorated workforce, attracting new talent to a sector which is suddenly more potent than 'mere' drainage engineering. Service providers like Stantec are working now to assemble and develop the array of talents to support its clients in meeting these needs. Professional bodies such as the Institute of Water and the Chartered Institution of Water and Environmental Management also have a key role to play in building capacity and capturing good practice.

It is critical as an industry we act now to ensure we have the capacity and capability to deliver for the future and turn this significant challenge into an opportunity to create multiple benefits for our communities.