

A GLIMPSE OF THE FUTURE OPPORTUNITIES TO MANAGE SURFACE WATER



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At the start of 2020, our world changed, with some devastating consequences. However, it also provided us with an opportunity. A chance to see some

alternative futures that we might be able to learn from and consider in the plans and strategies we create.

As a water industry, we have historically thought about managing wastewater and stormwater in our future urban drainage systems in a traditional manner. This is particularly the case when it comes to making and delivering intervention choices, even recently choosing grey infrastructure over sustainable drainage. We often react to problems rather than risk (probability and consequence of something happening). We tend to accept (intentionally or by default) the significant uncertainties that exist about the future and the data and tools we use to predict it, because that is what we have always done.

This in many ways is understandable. We need to make decisions and intervene. Furthermore, the tools and practices to understand the performance of urban

drainage systems with their multiple variables and interactions with other systems creates complexity – far greater for example than when investigating a river system.

Combined with these challenges, we know the future is not reliably predictable as we have recently seen. No single view of the future will be true. Yet our decision making is often linked to a simplified view that assumes a level of precision which is commonly misinterpreted as accuracy. We have seen the requirement to create more resilient water systems being driven by government and regulators in recent years. And now following the devastating economic effects of COVID19 there are calls for an acceleration in green investment and greener, more sustainable outcomes. In July, Defra, Environment Agency and Ofwat wrote to the Water Companies requesting 'how they can assist with increased green investment?'

Could the water companies bring forward future investment or identify areas of extra investment? What an opportunity to encourage and enable change – as long as this investment is not needed immediately. This is because many organisations will truly struggle to fully implement resilient approaches very quickly because of cost and integration challenges that take time to overcome particularly in drainage networks when creating greener and more adaptable interventions.

So, before we explore what that might look like, what broad observations can we draw from the recent effects of and response to COVID19? We have endured a period of lockdown and we are now adapting to a period of rule changes. But this period provides a unique opportunity to consider the future opportunities to manage flows in urban drainage through a future lens.

During the early weeks of lockdown, there was a level of peace and stillness created which is rarely witnessed. Whilst this created obvious challenges it brought some significant other benefits. Roads were empty, cars didn't move and became expensive exhibits outside houses. We saw a big improvement in air quality. There was an apparent urge to undertake more exercise. Access to green space and the natural environment took on greater importance. Could this be a viable future in 10 to 20 years, even if not so extreme? More people working more frequently from home, lower car ownership, autonomous vehicles. Imagine the effect this would have on the required highway space.

A future opportunity?

So, what could this mean for managing surface water? Well firstly there is potential to offset the forecasted increase in rainfall from climate change by reducing the amount of rapid runoff from the hardstanding needed for our car-based transport system. This surface reduction and subsequent creation of space enables the greater use of green infrastructure to manage the runoff from those remaining surfaces. The triple win then comes by providing such green infrastructure that creates far wider benefits to people and the environment that could importantly help with people's mental health and wellbeing.

During the lockdown and now different phases of recovery, we have seen a change in behaviours where large parts of

communities acted and behaved differently.

Now, we should not compare this year and effects created by the COVID19 directly to the impact of flooding and pollution. However, should we not believe there is real potential to work with communities and recognise that they can be part of the solution to do something different on an individual and community level – even related to stormwater? This should not only relate to interventions in public spaces creating multiple benefits but imagine what we might be able to achieve by working with citizens to implement micro-initiatives on their property – often such a difficult area to intervene.

We as a water industry need to push for, consider and help shape what community investment in green interventions look like. There have been pilots, small local projects and research, completed and ongoing that have started to consider this. A recent research project to kick off is the MAGIC (Mobilising Adaptation –Green-blue Infrastructure through Coproduction) project at University of Sheffield, investigating what will bring communities to the table to participate in being involved in not just the design but implementation and management thereafter. The lessons from this and other projects will help pave the way for more local interventions.

A wider observation of the effects of COVID19 really highlighted how changes in one system then changes another. Therefore, to really ensure that current and future investment provides the socio-economic and environmental benefits for the long term, our approach to infrastructure delivery needs to evolve. We can no longer continue to operate in silos if we are to create common benefits for communities whilst making wise investment choices.

Considering and planning for changes in other sectors outside of water will be needed to create more overarching investment plans. We can see strong linkages between multiple systems both within water (water, wastewater, stormwater) but also in the transportation, energy, health, and housing sectors. By looking outside of our systems, we also have the chance to think and start to account for what is certain, and uncertain in the future. We can create adaptable

plans that will cater more for external influences and enable smarter infrastructure spending choices.

To become more joined up, we need to look at our approach to systems integration, embracing and engaging the planners and operators of other systems to identify and deliver joint outcomes. The challenge for now is that good integration and co-creation takes time and importantly trust. Relationships need to form and build. Co-created programmes of work that balance investment and critically the timing of that investment will be necessary across different systems. However, we cannot afford to put this off. The result maybe interventions that take time and patience but will create multiple benefits and are flexible and adaptable – along with the investment frameworks to support this.

Within the water industry we have some opportunities to build on. Drainage and Wastewater Management Plans can provide part of the strategic platform to kick start this. Key aspects including getting the engagement right and truly applying a long-term lens to drainage thinking, should help provide a foundation for subsequent co-creation. Strategically they may not yet reach and integrate with the other systems partially or fully – but they do provide the opportunity to create the basis for good decision making and place making. However, they themselves would need to become more cross connected. But could this be a particular opportunity for the UK Water Utilities AMP8 programmes onwards if we get the planning right in the preceding AMP7 programmes?

Many of the same challenges and aspirations that were present at the start of the year remain now. For example, tackling the climate emergency and journeying toward net zero Carbon. In the last few months, we may have seen the potential and ambition to do something differently, that will result in a cleaner, healthier and long-lasting environment for future generations. This should not though rely on doing things the same as in the past. Whilst we all hope that we will not have the opportunity to learn from a repeat of another severe bout of COVID19, we should reflect on the learning and chance it has given us to effect change for the future, planning for uncertainty.