June 2023

Open data in the water industry: making the change

Ofwat

About this document

This paper outlines our findings from our review of water company progress on delivering open data and next steps.

We published a discussion document, H2Open – Open data in the water industry: a case for change in October 2021. This set out the benefits of open data and how making more data open would help address some of the challenges the water sector faces from climate change, the environment, changing customer demands and protecting the most vulnerable. We set out that we wanted to see measurable progress in delivering open data in the following 12 months and would review progress in autumn 2022.

We have assessed the progress that water companies have made and this paper sets out our decisions on next steps.

Contents

1

Overview

The water sector is host to a wealth of data and information relating to the water and wastewater services that companies directly provide. There is also data held by water companies that could provide better insight on how the water and wastewater system impacts and interacts with communities and the wider environment. This could help improve performance in the here and now and support planning for the future.

Organisations across all sectors are considering ways to maximise the value of data – technological advances have accelerated the access to data across all aspects of our lives. The benefits of open data have been seen across a range of sectors – including transport and energy. A concerted effort to build the tools, knowledge, culture and processes to deliver open data and its benefits is a necessary part of the change needed.

Ofwat's strategy, Time to act, together set out that an open data approach to information held by water companies could be used to help address some of the challenges the water sector faces.

There is an even stronger user demand for open data in the water sector than there was when we published H2Open – Open data in the water industry: a case for change in October 2021 – from a range of stakeholders including environmental NGOs, citizen scientists, the public, government, and supply chain companies who see opportunities to problem solve. We have heard from these stakeholders as part of this review and the call to action is clear. The recent report by the House of Lords Industry and Regulators Committee called for water companies

to take more action to provide open data on the environmental performance of their wastewater network and treatment works.

We expect the water sector to be collaborating, putting in place the practical foundations necessary and taking action to realise the benefits of open data. This will lead to better outcomes for customers, communities and the environment. This includes improved company performance for customers, better environmental outcomes, new solutions to enable water to be used sustainably and greater transparency to rebuild trust in the water and wastewater system that we rely on.

The objectives of our review of water company progress on delivering open data are to:

- enable the sector to make more progress on open data – helping companies understand benefits of making data accessible;
- understand from the public and stakeholders what they would like to see companies doing differently or more of;
- help us all to understand where water companies currently are on their open data journey compared with a year ago and compared with other sectors – with a view to companies identifying practical further steps and learning that they can harness next and continue to develop; and
- identify good practice that will foster more collaboration and sector-wide improvement.

This paper sets out the findings of our review and our decisions on next steps.

Open data in the water industry: A snapshot

Ofwat will develop a licence condition obligating companies to deliver on the open data challenge

Step change in open data maturity in 18 months

Where companies will be – improved innovation, efficiency, decision making and transparency, leading to:

- Improved company performance for customers
- Better environmental outcomes
- New water sustainability solutions
- Rebuilt trust

Water companies' next steps

- Engage stakeholders to prioritise datasets for immediate open release
- Convene sector-wide event to deliver progress
- Publish industry open data delivery roadmap in October 2023
- Continue to deliver open data enablers in a balanced and integrated way

Where water companies are now

- Some progress made on open data enablers, especially data infrastructure
- Benefits typically delivered via shared data
- Most water companies have low open data maturity
- Learnings from other sectors available

2

Our review of water company progress

What we did

We undertook a targeted review focused on the largest water and wastewater companies where we see the impact of open data as having the largest benefits to customers, the environment and society. Open data will benefit other parts of the water sector, such as the business retail market.

In H2Open, we set out that we wanted to see measurable progress in delivering open data in the following 12 months and would review progress in autumn 2022. We recognised that the water industry was at an early stage of this journey, and outlined that we wanted to see progress against three key enablers:

- a strong data culture and the development of capability and skills;
- improved collaboration on open data across the industry; and
- established data infrastructure.

We engaged PwC to undertake the review of company progress. PwC worked with us to develop a progress assessment framework that assesses open data maturity and is capable of being repeated. The framework was informed by best practice in other sectors, our H2Open publication and through two workshops – one with water companies and another with stakeholders including the Environment Agency, CCW and the Open Data Institute. The framework included questions that sought to assess progress on putting in place the activities and enablers for open data (for example collaboration, data culture/skills/capability and data infrastructure) and the delivery of outcomes and benefits from open data. The assessment of company progress on open data is based on the responses companies provided. The framework uses eight progress statements using cross industry best practice for different activities to define the journey from 'started' to being a cross industry 'leader'. We have published PwC's report alongside this paper.

We also engaged with other stakeholders in the water sector, government agencies and regulators, organisations dealing with open data in other sectors, and environmental NGOs. We engaged with the public through our website and social media where we asked: what data companies should make available openly, what would be the benefits, what progress people think companies have made on open data and what challenges and opportunities people see from opening up more data.

What we found

Open Data Progress Assessment Framework

The key findings from PwC's work are:

- Where benefits are being delivered to key beneficiaries, this is typically only through shared data.
- A small number of open datasets have been released.
- Progress in developing all open data enablers (such as data infrastructure, data culture and capabilities, collaboration) has been limited across the water sector.
- The water sector is at the beginning of its open data journey, with the majority of companies being categorised as being in the lower levels of maturity.

PwC found that there are lessons to be learned from sectors that have further progressed their open data journeys, and set out a number of next steps that water companies can take to increase the level of progress on open data across the water sector.

Recommendations to accelerate the release of open datasets

As progress in releasing datasets for public access has been limited across the water sector, companies should look to:

1

Identify priority datasets and set stretching targets to release them such that they accelerate the development of companies' general open data capabilities to support further data releases in the future. Pilot releases of datasets should be conducted and a 'learn by doing' approach should be adopted to iteratively improve on each subsequent data release.

2

Review datasets that have been shared with only specific user groups or organisations, and where appropriate assess the steps required to make these openly available.

3

Identify datasets that have been released for public but not in machine readable format and convert these to appropriate formats which can be readily processed by a computer so that individual elements can be accessed and modified by users, for example releasing the data in .csv format.

4

Release datasets with an open licence to encourage use and reuse of the information freely and flexibly.

Recommendations on development of enablers

Water companies have started to lay the foundations for open data by investing in data infrastructure, but further progress should focus on development of enablers in a balanced and integrated way.

5

Companies should develop comprehensive open data strategies, clear roadmaps for delivery with associated delivery KPIs, and set up sufficient accountability and strategic oversight to ensure company board and senior/executive management buy-in, for example by tying delivery of strategy to executive performance.

6

Companies should develop a culture of open data in their organisation, for example by developing and delivering open data literacy training to create greater understanding of open data across all levels of their organisation.

7

Industry-wide collaboration is helpful for development of data portals, facilitation of knowledge sharing and development of common standards that enhance interoperability of data. However, such initiatives should be supported with adequate funding, resources and active participation from all companies in order to be effective. Further, priority-based, measurable and time-specific targets should be set to ensure maximum progress is achieved through these collaborative efforts. Such collaboration should also involve engagement with independent experts to draw on learnings from other sectors. Importantly, companies should not rely solely on collaborative groups for ensuring progress.

8

Companies should actively engage with data users and have a well-defined feedback loop, especially to identify priority datasets and improving quality of data release and associated documentation.

Wider engagement

Our wider engagement found that stakeholders want to see more progress and are looking for companies to act and regulators to support that action.

Stakeholders identified a range of datasets that they wanted to see opened. These included detailed water consumption data, data relating to sewage overflows, leakage, water quality, hosepipe ban data and data on profits, dividends and executive pay.

There were differing views on exactly how more progress could be made – reflecting the complexity of this work. Suggestions included:

- the sector focusing on clear objectives and common themes for open data releases;
- making sure that data infrastructure, common standards and governance was developed, while in parallel release more datasets openly in order to learn by doing;
- the importance of companies including a narrative with data releases to help understanding;
- building more data and digital skills across the water sector to take full advantage of open data and digital transformation more generally. There needs to be more collaboration to reduce the demand for these skills; and

- the development of feedback loops with data users and other stakeholders to help prioritise data release and deliver benefits.

Overall, we have seen some examples of progress on making data more accessible such as through shared data or data visualisation in interactive maps. We have observed an overemphasis on the enabling development of data platforms and an underemphasis on strategic leadership, planning and skills development. We have observed the absence of an effective forum to make practical progress collectively across the entire sector. There are opportunities for the sector to act together to address this gap.

The range of views stakeholders provided, along with the different datasets highlighted, demonstrates the need for water companies to be engaging directly with stakeholders and data users to identify priority datasets and for this to inform the actions companies take in delivering open data.

Stakeholders say they want to see more progress, including on opening water quality and consumption, sewage overflows, leakage, hosepipe ban, profits, dividends and executive pay datasets

3

Next steps

Outcomes we want

Ofwat was clear in H2Open that we want to ensure that an open and trustworthy data ecosystem in the water sector is established at pace.

We want to see the value for customers, communities and the environment delivered through open data. We want to help realise the benefits of open data. We set out below the actions that will be needed to deliver this.

The findings from PwC's review of water company progress and our engagement with stakeholders has demonstrated that more work is needed to deliver open data and the associated benefits and outcomes.

This will require water companies to take more action than is currently evidenced – both individually and collectively. This means working collaboratively across the sector so that learning is disseminated and progress is accelerated. Working much more closely with data users and experts will be crucial to successful and effective delivery.

We acknowledge the work that has been undertaken and is ongoing across the sector which means that key activities are happening, and some open data is being released. We understand the challenges involved and time needed to put in place the enablers for this change. This is consistent with what we have learned from other sectors. However, we expect faster progress on the delivery of tangible outcomes.

We expect water companies to be able to demonstrate more evidence of tangible progress during 2023 and 2024.

This will require water companies to take more action than is currently evidenced
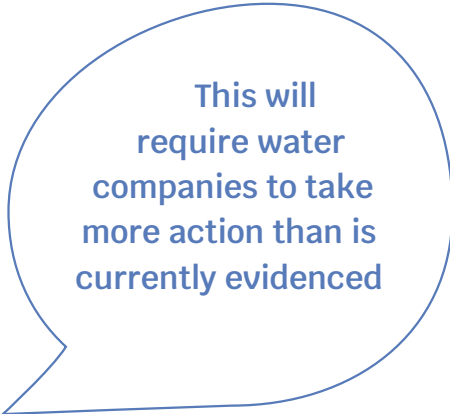
What we expect companies to do

The recommendations set out in the PwC report provide water companies with a range of specific actions to be taken. We expect to see companies make progress individually and collectively to implement these recommendations at pace, working closely with stakeholders and relevant experts as they do so.

This will require leadership from companies to develop a clear roadmap for the industry as a whole, working with experts and data users to develop a strategy and roadmap to make data more open and accessible to others. Learning from other sectors will be important to ensure lessons are learned and progress can be made more quickly.

The companies are best placed to decide how they deliver these actions. We do however anticipate that delivering the scale of change necessary will require strong sector leadership and proactive action by all companies – individually and collectively. **Progress will require an effective forum that operates across the sector to deliver change**, working with data users and appropriate experts and we have an expectation that this is part of the solution.

We expect the water companies to work at pace in response to this report by **convening a sector-wide event to start to deliver progress**. We expect the sector to bring together all companies, stakeholders and relevant data experts from other sectors and to determine the actions needed and set out a roadmap for the delivery of these actions. Feedback from the review and learning from other sectors is that identifying

a theme for this event, for example water sustainability, may support its success. We expect the resultant roadmap to be published in October 2023.

We expect to see water companies continue to progress the delivery of the enablers of open data while also learning by doing by **opening up more datasets now and creating feedback loops with customers and other data users**.

We expect companies to proactively **release more open datasets voluntarily and in line with obligations**. We note that there are requirements in place on companies in relation to environmental data. Companies have an existing obligation under regulation 4 of the Environmental Information Regulations 2004 to progressively make **environmental information available to the public by electronic means which are easily accessible**. There will also be a further duty on companies to report on storm overflow spills within an hour of them beginning and ending once s.141DA of the Water Industry Act 1991 is brought into force.

We expect companies to be able to demonstrate a **step change in their maturity in relation to open data over the coming 18 months** and be prepared to reassess their position against the progress assessment framework. This will require senior leadership in companies and across the sector to drive the change necessary across all necessary enablers – not just data infrastructure, but also through the development of a strong data culture, capability and collaboration.

What we will do

We will continue to **engage with all stakeholders and will support the sharing of good practice.** We will continue to mature Ofwat's open data approach and how we can apply open data principles to Ofwat's work.

We will continue to **ensure the delivery of open data outcomes by companies through our regulatory functions and other activities.** We have set out our requirements for companies to adopt an open data approach to their annual performance reports due by 15 July 2023 and to explain the rationale for the approach taken.

Ofwat will continue to **support efforts around innovation and open data through programmes such as the Innovation Fund,** which just provided £4 million in additional funding for Stream, an open data-enabling project led by Northumbrian Water[1]. A key emphasis for the next phase of the Innovation Fund is how we can ensure widescale adoption of the innovations we've funded to maximise impact, including by leveraging open data, a key enabler of innovation in the sector.

Ofwat, the Drinking Water Inspectorate and the Environment Agency have secured funding from the Regulators Pioneer Fund for a project commencing in September 2023 to collaboratively **explore whether and how more of the data they each collect and hold can be proactively shared and potentially made publicly available.**

We have considered the regulatory tools that we have to ensure delivery of the benefits of open data by water companies. We acknowledge the progress that has been made by the companies in sharing data and making data more accessible. However the review has found limited cross-sector progress in making water sector data freely available to everyone to access, use and share.

Given the crucial role that open data can play in helping to address the water sector challenge and the benefits of increasing access to water company data, **we have decided to start work to develop new powers that would enable us to take action against water companies that are not making sufficient progress in this area.**

We will commence work on a licence condition that would **require water companies to deliver the outcomes and expectations we are seeking** on behalf of customers and the environment. In doing so, we will consider examples from other sectors where similar measures have been introduced such as the energy sector. This will help us all to make better use of the information available, and take a targeted approach to holding individual companies to account.

1. On 16 May, we announced that Stream had been awarded a further £4 million from the Ofwat Innovation Fund. Stream aims to deliver open data infrastructure that will allow data users to search, understand and access open and shared data, and allow providers to publish data openly and share sensitive data securely. Ofwat requires Stream to share its achievements and learnings across the sector and will monitor Stream's progress on a quarterly basis.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.