

Ofwat Innovation Fund

Learning report

Supporting water-efficient
communities

waterinnovation.challenges.org

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Ofwat, the Water Services Regulation Authority for England and Wales, has established the Water Innovation Fund. Ofwat is a non-ministerial government department established in 1989, when the water and sewerage industry in England and Wales was privatised. Ofwat regulates the water sector in England and Wales.

The Ofwat Innovation Fund is delivered in partnership with Challenge Works, Arup and Isle Utilities.



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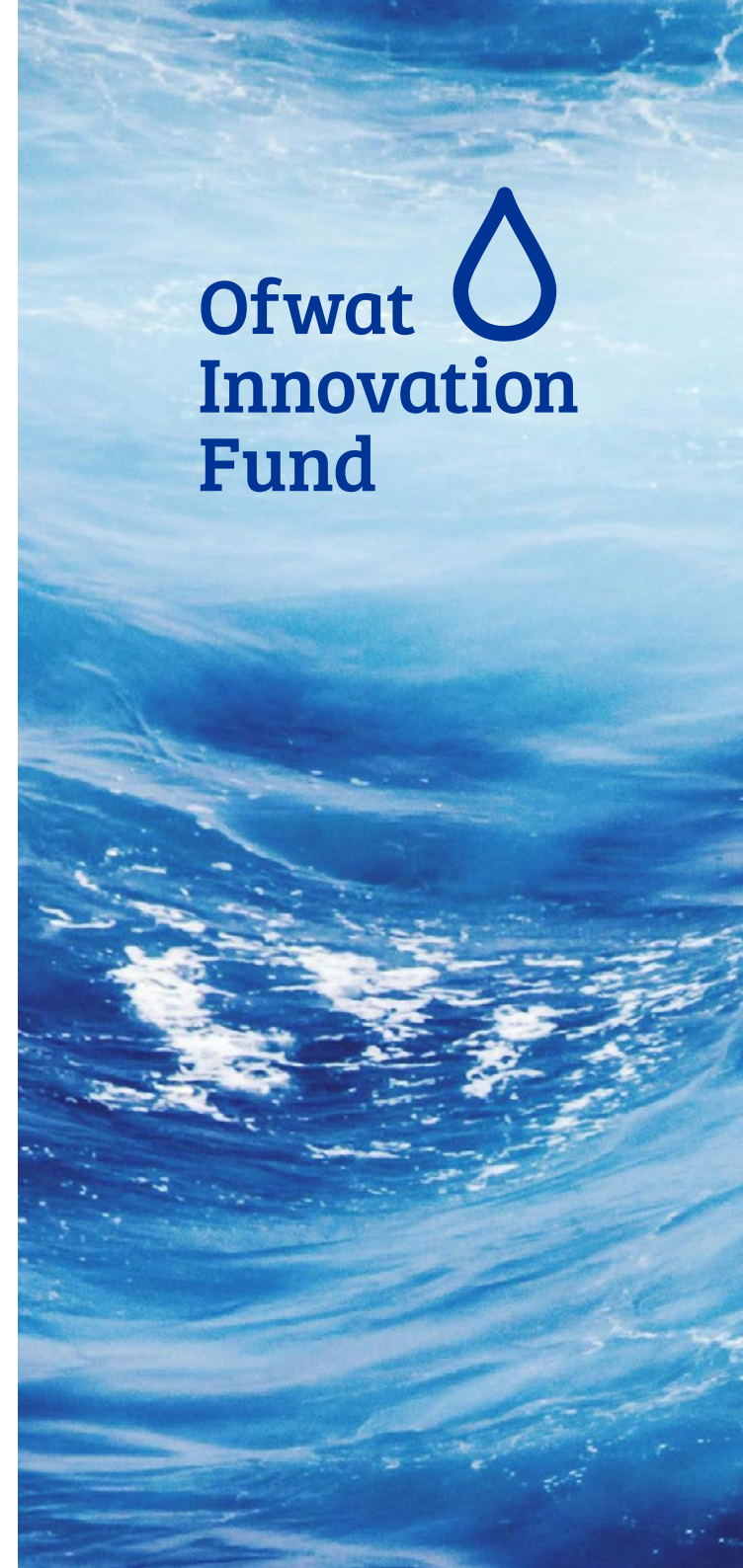
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Our passion and expertise in technology and innovation enables us to connect expertise, investment and inspired ideas across the globe. At the core of all our activities is our ambition to make the world a better place.

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Supporting water-efficient communities

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About this report

Sharing knowledge, information and data is fundamental to ensure successful Innovation Fund projects are scaled up and adopted across the sector. It also reduces the need for multiple companies to trial the same solution.

It is important that knowledge and data are shared at all stages of a project – not just at the end – so that we can all learn from what works and, crucially, what doesn't.

That is why these learning reports are so important. By sharing and learning from each other we can all help the sector meet the challenges it faces and build public trust.

Helen Campbell,
Senior
Director
of Sector
Performance,
Ofwat



Ofwat Innovation Fund

The Ofwat Innovation Fund is a £200 million initiative established by Ofwat, the Water Services Regulation Authority for England and Wales. It aims to enhance the water sector's capacity to innovate and enable it to better meet the evolving needs of customers, society and the environment.

As of May 2024, over £150 million of funding has been distributed to 93 projects.

The Ofwat Innovation Fund has always sought transformational change. At its core is learning – then sharing the information and knowledge gained across the sector. With this comes the opportunity to deploy the solutions developed by the funded projects, realising impact at the greatest scale possible.

What you will learn from this report

This report is aimed at all water sector stakeholders, including water companies and their supply chain partners, academia, policymakers, (E)NGOs and third sector/civic society organisations.

Its purpose is to shine a light on partners' experiences, insights and learnings from across the breadth of the portfolio of funded projects. Sector feedback suggests there is appetite to see more active dissemination of

knowledge and learning from funded projects, in line with Ofwat's ambitions to support the sector's innovation maturity and collaborative nature.

As we approach the latter stages of Asset Management Period (AMP) 7, covering 2020-2025, and projects are near completion or have made good progress towards their aims and objectives, now is the time to reflect, build connections and amplify the learnings and insights from the Fund. We see this report as a starting point for connections both within and outside the sector.








Water-efficient communities

Water customers play a critical role in the commercial water cycle, setting the demand for water use and service provision. As the UK water sector grapples with population growth alongside limited natural water supplies and climate change, it has never been more important to ensure that customers remain

engaged and connected with their water consumption while we meet their water and service needs. Identifying how those customer needs vary and how their behaviour may be influenced to ensure water supplies remain secure requires new thinking and innovative solutions.

Recognising this imperative, the Ofwat Innovation Fund awarded funding to a cluster

of eight projects (as at May 2024). These projects collectively total over £15 million of funding and bring together partnerships from across the UK water sector – utilities, engineering firms, universities, non-governmental organisations and the private sector. Together, they are tackling current industry challenges in supporting customers and securing water supplies across the UK.

	COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
Supporting Customers in Vulnerable Circumstances	 Innovation in Water Challenge	 SEVERN TRENT	 Complete	£214,901	Consumer Council for Water (CCW), South East Water, Thames Water, United Utilities
Water4All	 Water Breakthrough Challenge	 WATER for LIFE Southern Water	 Complete	£616,807	Sagacity, Synectics Solutions, Equifax, Auriga, Waterwise, Advizzo, AgilityEco, Thames Water, Severn Trent, South West Water, Portsmouth Water, Leep Utilities, Affinity Water, Anglian Water, Northumbrian Water, Together
Water Literacy	 Water Breakthrough Challenge	 NORTHUMBRIAN WATER living water	 In progress	£864,484	Groundwork East, Waterwise Project, Northumbrian Water, Dŵr Cymru Welsh Water, Portsmouth Water, South East Water Limited, Southern Water Services, Yorkshire Water, University of Denver, Consumer Council for Water, Consumer Scotland, The Environment Agency, Essex County Council, Kent County Council, Virtual College Limited, Water Research Centre
Fair Water	 Water Breakthrough Challenge	 NORTHUMBRIAN WATER living water	 In progress	£3,784,939	Northern Gas Networks, University of Newcastle upon Tyne, Proctor & Gamble Technical Centres Limited, National Energy Action
Hydro-powered Concentric Smart Meters	 Water Breakthrough Challenge	 NORTHUMBRIAN WATER living water	 In progress	£874,954	SUEZ Advanced Solutions UK, HYDRAO (Smart and Blue), Octo Design, PDL Solutions (Europe) Limited, Synthotech Limited, The Manufacturing Technology Centre, Southern Water Limited, South East Water Limited, Anglian Water Services Limited, Portsmouth Water, CRNS
Water Efficiency in Faith and Diverse Communities	 Water Breakthrough Challenge	 South Staffs Water	 In progress	£270,000	Waterwise, Severn Trent Water, South West Water, Affinity Water, Southern Water, Northumbrian Water, Get Water Fit, Hindu Climate Action, Eco Dharma Network, Cambridge University – Faculty of Divinity, Cambridge Central Mosque
Enabling Water Smart Communities	 Water Breakthrough Challenge	 love every drop anglian water	 In progress	£5,535,000	Thames Water, United Utilities, Arup, University of Manchester, University of East Anglia, Anglian Centre for Water Studies, Community Land Trust Network, Centre for Local Economic Strategies, Dark Matter Labs, KWR, London Borough of Tower Hamlets, Clarion Housing Group, Future Homes Hub, Taylor Wimpey, Thakeham Group, Suffolk County Council, Cambridge Water, Dŵr Cymru Welsh Water, Severn Trent Water, Southern Water
Project Zero	 Water Breakthrough Challenge	 Affinity Water	 In progress	£2,898,000	Albion Water Limited, Aquality Trading & Consulting, BUUK Infrastructure UK No 2, Grapviners, H2OIQ, Hydraloop International, Propelair – Phoenix Product Development, SDS, Skewb

A water-efficient community

In the UK, the challenge of ensuring water security is becoming increasingly pressing, with factors such as climate change, population growth and the imperative for environmental sustainability driving the need for action. Recent droughts have starkly demonstrated the essential nature of reliable water supplies for sustaining society, supporting economic activity and preserving the natural environment. The rising frequency of extreme weather events highlights the urgent need for enhanced drought resilience measures.

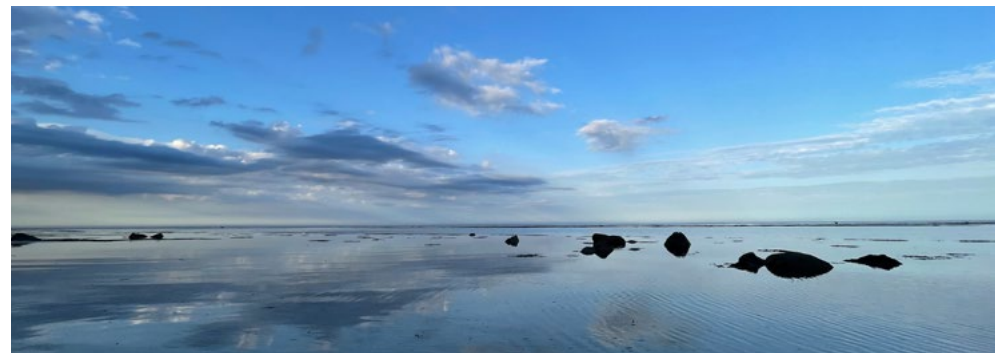
Looking to 2050, England is forecast to face a shortfall of nearly five billion litres of water a day. Addressing this looming deficit requires a multifaceted approach, encompassing improvements to existing infrastructure and exploring alternative water sources. Additionally, encouraging consumers to conserve water is essential for reducing overall demand. Yet, public awareness of water issues remains low, with many consumers taking their water service for granted and lacking an understanding of the intricacies of the water sector, including the identity of their water provider.



























Adding to the complexity of the situation is the economic strain faced by many households amid a cost-of-living crisis. It is paramount for water companies to implement necessary changes while ensuring that vulnerable customers are not disproportionately burdened. Tailored support and services are crucial to ensure equitable access to water for everyone in our society.

A water-efficient community has:

- Water users who understand their consumption, the water cycle and the importance of water conservation for the wider society and environment.
- Water companies who recognise the diverse needs of customers, engage effectively and have tailored services to support them.
- Access to data and technology that can help build knowledge about water use and customer interactions with water services.

The Ofwat Innovation Fund has funded a range of projects that have supported the UK water sector in enabling more water-efficient communities.



	CUSTOMER ENGAGEMENT	DIVERSITY AND VULNERABILITY	SUPPORT AND SERVICES	CONSUMPTION	EDUCATION	BEHAVIOUR CHANGE	SMART METERING
Supporting Customers in Vulnerable Circumstances							
Water4All							
Water Literacy							
Fair Water							
Hydro-powered Concentric Smart Meters							
Water Efficiency in Faith and Diverse Communities							
Enabling Water Smart Communities							
Project Zero							



Building our knowledge




These project-specific learnings and insights were drawn from a series of workshops and interviews. They aim to inform innovative practices and approaches as well as catalyse new relationships to create impact across the UK water sector – for the benefit of customers, the environment and society.

The Ofwat Innovation Fund delivery team worked alongside partners that had received funding and had completed projects, or were part of projects still in flight. Through the course of a 90-minute workshop with partners, as well as other sources of information, the team surfaced insights and learnings that are applicable to others, whether they are delivering projects in similar fields, or looking to apply to future rounds of the Ofwat Innovation Fund.

Knowledge exchange remains a barrier to scaling innovation in the water sector and this has been recognised across a wide range of stakeholders, from water companies and supply chain entities to regulators and policymakers. These reports are part of a suite of measures the Ofwat Innovation Fund is taking, alongside other sector bodies, to catalyse the implementation of the knowledge, outputs and tools generated across the portfolio of funded projects. In this way, through collaborative innovation, it is increasing the capacity and capability of the sector to solve the challenges it faces.



Supporting Customers in Vulnerable Circumstances

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				Consumer Council for Water (CCW), South East Water, Thames Water, United Utilities

As a result of the cost-of-living crisis, an increasing number of water service customers find themselves in vulnerable circumstances. Conventional communication methods often do not meet their needs and they need a more tailored experience. Hard-to-reach customers are a subset of vulnerable customers and, due to

individual circumstances, such as disabilities, they benefit from alternative communication methods. Without adequate insight into their needs, the water sector risks delivering the wrong level of support.

The Vulnerable Customers project, led by Severn Trent Water, used behavioural

science to understand more about the water sector's consumers to deliver more tailored communications. The project conducted research to test how campaigns can be directed to those most in need, and consolidated the findings into an industry playbook to inform other water company engagement strategies.

“ Through this human-centred, iterative approach to innovation, we have a better understanding of the needs of hard-to-reach, vulnerable customers, their circumstances, and the most effective ways to communicate with them. With this, we can build greater connections and trust, so that fewer customers are hard to reach. We were able to have a laser focus on the people we are designing the solutions for, ultimately leading to better products, services, processes and outcomes for vulnerable customers. ”

Richard Powell, Innovation Relationship and Commercial Lead at Severn Trent Water





Key learnings and insights

- ▶ **Engagement should require the lowest customer effort:** when engaging customers, particularly when you are requesting their time, effort or input, make it as easy as possible by travelling to them, at a time that works around their schedule, and providing short and understandable context up front.
- ▶ **Invest in building relationships and trust:** each level of engagement plays a key role in laying the foundations for the next level. The better we understand our customers and the more effectively we can reach them to build awareness, the more likely they are to feel comfortable sharing information with us. The trust built through engaging customers on their terms will make them more likely to engage further, enabling mutual action to improve their situation.
- ▶ **Customers and their needs are extremely diverse:** creating customer personas was not feasible in the timescales but, through the project engagement activities, the partners began to understand the full range of customer needs, which is fundamental to improving the services and support offered to them.



Benefits

- ▶ **Better understanding of effective engagement strategies:** the project playbook provides tried and tested examples of how to engage hard to reach or vulnerable customers, encouraging others to continue working in this space and improve how services are offered to customers.
- ▶ **Better understanding of customer and community needs:** the project has helped build sector-wide understanding of different customer demographics and what they need from water service providers.
- ▶ **Long-term strategies for engagement and support of vulnerable customers:** the research and outputs have informed the way in which companies can identify and engage with customers in vulnerable circumstances.

Challenges and gaps

- ▶ **During the project, the team experienced unforeseen challenges around language.** At early community engagement events, many customers who did not have English as their first language wanted support with understanding their water bills initially rather than finding out about vulnerable customer support. This highlights the importance of understanding customer needs and ensuring that people's basic needs are met before conversations progress further.
- ▶ **There is more work to be done to test the playbook and develop effective methods for driving change through engagement.** The team hopes the playbook will be a live document that evolves over time as others continue to build valuable knowledge about customer engagement.
- ▶ **Identifying customers in vulnerable circumstances can be a challenge.** A centralised Priority Services Register for all utilities, or a waiver process where customers' data can be shared, would significantly improve understanding of vulnerable customers while also making their lives easier.







Deliverables, tools and resources: the **Engaging Hard-to-Reach, Vulnerable Customers Playbook** outlines 'plays' other companies can use when engaging customers across four phases: understand, build awareness, learn and promote action.



Find out more: openinnovation@severntrent.co.uk

Water4All

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				Sagacity, Synectics Solutions, Equifax, Auriga, Waterwise, Advizzo, AgilityEco, Thames Water, Severn Trent, South West Water, Portsmouth Water, Leep Utilities, Affinity Water, Anglian Water, Northumbrian Water, Together

A significant number of water customers are financially vulnerable and unable to pay their water bills, impacting bill costs for all and tipping more customers into water poverty. The Water4All project, led by Southern Water, used customer research and data to develop a proof-of-concept model for identifying vulnerability and proactively

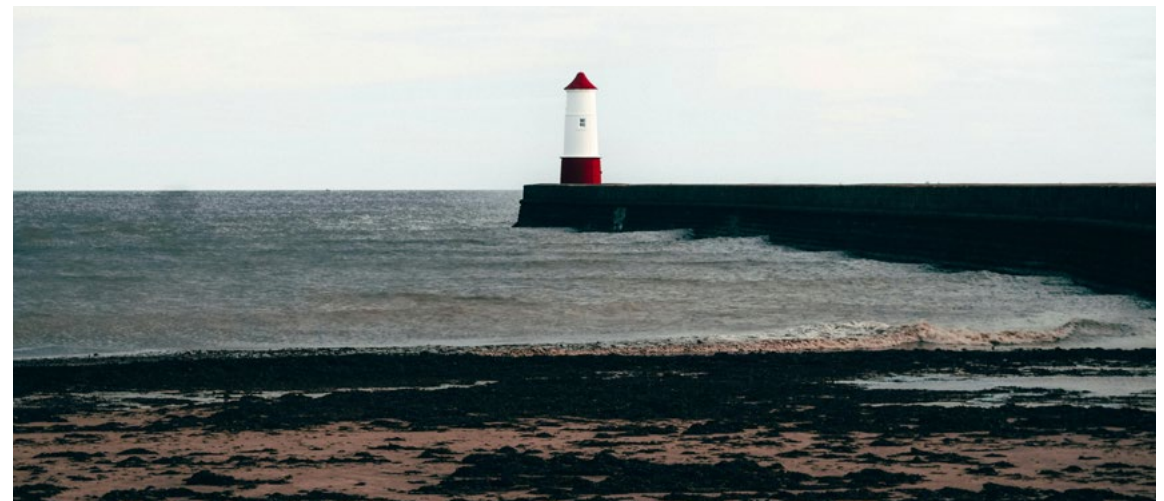
engaging customers with a tailored approach to offer support.

The Water4All project, delivered by a consortium of leading multi-sector experts, used billing, affordability, fraud and benefits data with advanced machine learning and statistical

modelling techniques to identify affordability and vulnerability. The Tactical Data Model was supported by detailed user research to build understanding of engagement strategies and provide guidance on how to reach customers who are eligible for additional support.

“ With the cost of living spiralling, many people are struggling for the first time in their lives – and not everybody knows help exists, or is comfortable claiming. While we do our very best to support all our vulnerable and low-income households, it is a challenge reaching everyone who is eligible for support. This is why this project has been so valuable in making sure nobody is left behind. ”

Rachel Ryan-Crisp, Head of Customer Services and Vulnerability Lead, Southern Water





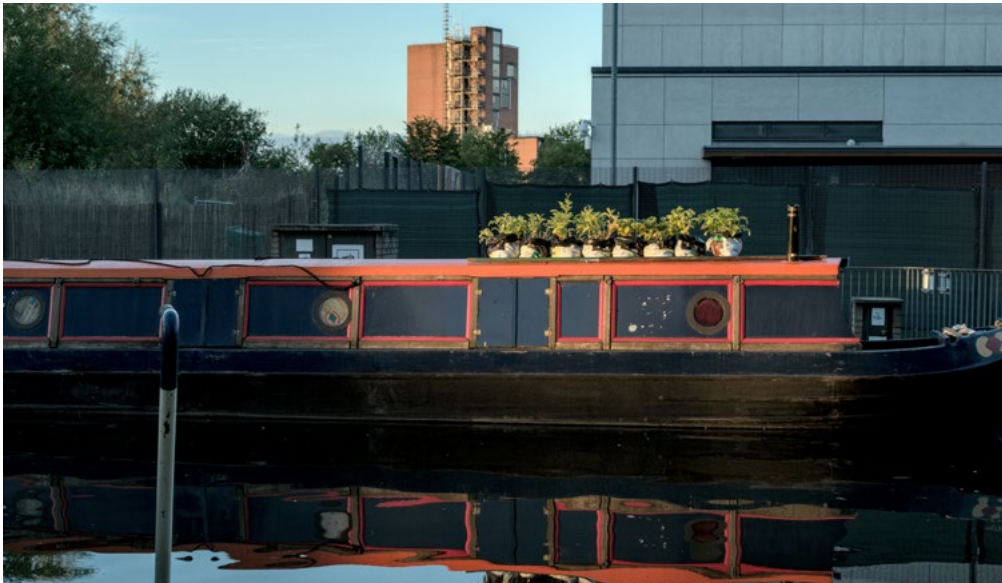
Key learnings and insights

- ▶ **Customers need more support:** there are more households eligible for discounted tariffs than water companies have funding to support. Consumers' finances are broadly worsening, with 42% of people across England and Wales reporting that their financial situation was worse compared to a year earlier, and 61% of bill payers reporting they expect their situation to worsen over the next year.
- ▶ **Engagement preferences:** most users would prefer to be approached by an organisation offering assistance by email (42%) or written letter (25%). However, there is still a role for both proactive and reactive telephone activities.
- ▶ **Identifying vulnerability:** it is possible to apply a data-driven approach to identify vulnerability, but the integration of this data into systems and processes can be challenging, particularly due to the sensitivity of data and requirements around GDPR.
- ▶ **Customer personas:** customer research insights have informed the development of key customer personas. These describe the characteristics and traits of water customers, helping to identify the varying support needs across different customer groups and inform the development of engagement strategies to improve users' paths to affordability. Four priority customer personas that would most benefit from support were defined as part of the project: Off-Radar Pensioners, Struggling Families, 'Just about Managing' Young and Single, Dependent Destitute.
- ▶ **Working with trusted organisations:** few consumers identified utility suppliers as a common or trusted provider of financial help. Partnerships with trusted national organisations/charities may help generate positive customer responses.



Benefits

- ▶ **Building the sector's understanding:** enabling utilities to accurately identify financial vulnerability, engage and intervene proactively and offer defined and targeted support.
- ▶ **Data-driven proof of concept:** the project developed a proof of concept for identifying customers experiencing financial vulnerability.
- ▶ **Customer support journeys:** showing how those identified can be engaged through a customer journey that offers support by increasing access to aids such as social tariffs.
- ▶ **Engagement and collaboration:** across the water sector and within other sectors, helping to build learning and best practice from other projects and inform adoption approaches.



Challenges and gaps

- ▶ Building an industry standard definition for vulnerability and enabling infrastructure around open data sharing for a public service register could further help companies to better serve their customers.
- ▶ There are greater opportunities for collaboration between sectors and other data sources, such as the Cabinet Office's vulnerability data, currently only used for fraud prevention.
- ▶ Companies interested in deploying this learning should review their data management policy and ensure it can enable the use of customer data in this way.
- ▶ Behavioural science is an iterative continuous improvement process. Recommendations are subject to change as new evidence is uncovered and learnings are generated.
- ▶ Customers' appetite to support hardship funds through regular contributions from their water bills was not measured during the project, but research has already been conducted by water suppliers and industry bodies into this area.







Deliverables, tools and resources: see any updates on this project on the **Fund website**



Find out more: bluewave@southernwater.co.uk

Water Literacy

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				<p>Groundwork East, Waterwise Project, Northumbrian Water, Dŵr Cymru Welsh Water, Portsmouth Water, South East Water Limited, Southern Water Services, Yorkshire Water, University of Denver, Consumer Council for Water, Consumer Scotland, The Environment Agency, Essex County Council, Kent County Council, Virtual College Limited, Water Research Centre</p>

Water is significantly undervalued. Despite the UK’s rain-drenched reputation, demand for fresh water increasingly outstrips supply. Linked to this is the need to raise awareness of the value of water, connecting people’s water use to the environment

it comes from and the processes required to get it from source to tap.

The Water Literacy Programme is an accredited learning experience that aims to inspire, motivate and educate professionals to play their part in

addressing the environmental impact of water scarcity in the UK. On Water Literacy’s accessible and action-orientated one-day course, participants are empowered to embed change in their organisations, at home and in their communities.

“ Our aim is to protect our precious water resources and our environment for generations to come, and Water Literacy education is a fantastic way to do this. ”

Tom Andrewartha, Customer Strategy and Campaign Delivery Manager, Northumbrian Water





Key learnings and insights

- ▶ **Early engagement:** the huge amount of interest from the sector and other stakeholders in raising awareness of the value of water meant there were few barriers to overcome in terms of gaining buy-in for the work. It was important to communicate about the work early, through presenting at conferences and events, to gain traction and interest, particularly as the project has sector-wide benefit.
- ▶ **Supporter network:** the informal network of companies and individuals who would like to remain engaged means supporters can be kept aware of project developments as well as creating a pipeline of people and organisations interested in piloting the Water Literacy course.

Benefits

- ▶ **Increased awareness of the value of water:** the educational techniques used to convey key messaging about water will be refined and can be used to inform wider water company campaigns.
- ▶ **Reduced water consumption:** through increasing knowledge about the value of water, alongside information about saving water. This will help defer the need for additional supply-side options for water reduction and enable water companies to meet their regulatory requirements.
- ▶ **Improved customer engagement:** by building customer knowledge about the roles of water companies in the UK with a greater shared understanding of processes, values and needs.

Challenges and gaps

- ▶ **Behaviour change:** changing behaviour is hard, particularly when it comes to reducing customer consumption in the long term.
- ▶ **Raising awareness:** raising awareness of the value of water is a huge and long-term challenge for the water sector and its stakeholders. The Water Literacy project is just one part of the wider awareness jigsaw and more effort is needed to change public perception in order to drive down sustained water consumption.
- ▶ **Connection to other initiatives and actions:** the UK government has been actively engaging with energy campaigns and there could be value in a similar water efficiency campaign due to its connection to the DEFRA 10-point roadmap.
- ▶ **Ensuring longevity:** it is important that any changes in behaviour are sustained and that the Water Literacy course will remain accessible to organisations or individuals looking to obtain accreditation. Programme sustainability could benefit from more government or regulatory involvement as the water scarcity challenges facing the UK are critical to the country.



Deliverables, tools and resources: see any updates on this project on the [Fund website](#)



Find out more: innovation@nwl.co.uk

Fair Water

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
			<div style="background-color: #c8e6c9; padding: 5px; display: inline-block;">£3,784,939</div>	Northern Gas Networks, University of Newcastle upon Tyne, Proctor & Gamble Technical Centres Limited, National Energy Action

The Fair Water project, led by Northumbrian Water, aims to test and develop more effective and sustainable water and energy solutions for people's homes. Particularly targeting low-income households, the elderly and the vulnerable, the project seeks to reduce carbon emissions through enhanced energy and water efficiency measures. Recognising that everyday household tasks such as washing dishes, doing laundry and bathing

consume significant amounts of both resources, the project focuses on encouraging behaviour changes and developing innovative products for task-based water usage.

However, acknowledging the diversity of individual circumstances and preferences, the project emphasises the importance of tailored solutions. Through collaboration with partners, Fair Water

aims to offer personalised strategies for reducing water and energy consumption with minimal disruption to daily life. Central to the project's success is active engagement with customers to understand their use patterns and preferences, ultimately driving the development and testing of effective solutions for each household's individual needs.

“ This unique collaboration brings knowledge, resources and connections – which are essential for the co-creation of solutions for customers. Along with our partners we will develop products and services that enable delivery at scale, and will also support customers, including the vulnerable and hard-to-reach, through changes that will deliver a better quality of life for them, and the outcomes that society needs. ”

Angela MacOscar, Head of Innovation, Northumbrian Water





Key learnings and insights

- ▶ **Alternative messaging can help improve engagement:** customers aren't necessarily interested in reducing water consumption, and many may not be aware of their current water use. More relatable messaging could include focusing on the carbon or energy related benefits of reducing water use.
- ▶ **Expect lower response rates:** 8,000 emails produced 245 replies (2.1% rate). This was lower than expected and led the team to adapt and include postal mail. It can be challenging to secure varied and segmented demographics for trial involvement as customers' circumstances are different. In general, the team have found that single people and retirees tend to have a higher response rate than young families, for example, likely due to the time they have available to engage. There have been interesting lessons learned on the complexity/difficulty of recruiting customers to take part in trials.
- ▶ **Give customers options and continuous incentivisation:** when conducting outreach and engaging customers for trials or changes to their service it can be beneficial to include different options for how they can engage. For

example, some customers may not be willing to install an in-home device or share their data, but they may be willing to join a focus group or supporter network. If you are going to offer an incentive for participation, then it is best to offer this continuously throughout the engagement to ensure customers are rewarded each time they contribute to the trial or may be inconvenienced by it.

- ▶ **Measuring highly granular, point of use consumption is challenging:** the project initially intended to use smart meter data to provide the consumption data needed to test different interventions but it was not available frequently enough to provide insight into how water is being used. Instead, the project will deploy in-home devices to measure consumption closer to one-minute frequency.
- ▶ **Customers are diverse:** grouping them does not appear to show strong correlations with water use. Early findings from the project suggest that, even when grouped together by population traits or by water consumption volumes, there is not a strong correlation between high-volume water use and specific demographics.



Benefits

- ▶ **Improved customer engagement:** build trust between customers and companies to help improve and inform engagement activities, and provide more personalised service, communications and interventions.
- ▶ **Increased evidence for impact of interventions:** build evidence of the effectiveness and acceptability of different water-related innovations in real customer settings, including vulnerable groups.
- ▶ **Deliver carbon/greenhouse gas emission and per capita consumption (PCC) reductions:** the project aims to demonstrate how PCC can be reduced below 118lpd, which could reduce greenhouse gas emissions by around 3.4 MtCO₂e.

Challenges and gaps

Tech solutions should enable customers to have the right information to change their behaviour around water use but current solutions require a lot of customer intervention. At the end of the project the team will have a view of what can be achieved with granular, point of use customer data. This will help to build understanding of what future requirements may look like for technology and innovation as well as how this data can be used to drive effective behaviour change when it comes to water use.






Deliverables, tools and resources: see any updates on this project on the [Fund website](#)



Find out more: innovation@nwl.co.uk

Hydro-powered Concentric Smart Meter

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				<p>SUEZ Advanced Solutions UK, HYDRAO (Smart and Blue), Octo Design, PDL Solutions (Europe) Limited, Synthotech Limited, The Manufacturing Technology Centre, Southern Water Limited, South East Water Limited, Anglian Water Services Limited, Portsmouth Water, CRNS</p>

Climate change is driving the need to conserve water as a key resource. Current concentric water meters can only provide very basic and occasional information as they are constrained by the limits of battery power. This project seeks to overcome

this by using the flow of water to provide limitless power to the meter. This allows live, rich data to be provided to the consumer and utilities, enabling action to reduce consumption and prevent leaks.

In addition to saving water, further sustainability benefits will arise from longer meter lifespans, reduced maintenance and the elimination of environmentally harmful batteries.

“ Having hatched the idea at Northumbrian Water’s Innovation Festival in 2021, this funding provides a fantastic opportunity to develop a prototype of the world’s first concentric hydro-powered smart meter, enabling the use of granular data to reduce customer PCC and removing the need for environmentally damaging batteries. ”

**Gary Adams, Head of Smart Programme,
Northumbrian Water Limited**





Key learnings and insights

- ▶ **It is possible to generate energy from smart meters:** mathematical models have been used to confirm smart meters can be designed to generate energy from water flow. This energy could be used to power the meter, transmit data or power integrated sensors for monitoring other parameters such as pressure, temperature or noise.
- ▶ **Outside the box thinking is needed to drive behaviour change:** by exploring how others are driving per capita consumption reductions, it is clear that successful strategies require thinking differently about customers and how to engage them with water use data. Examples of this include where utilities have awarded community-level prizes for neighbourhoods that have demonstrated lasting reductions in consumption.



Deliverables, tools and resources: see any updates on this project on the [Fund website](#)



Find out more: innovation@nwl.co.uk

Benefits

- ▶ **Reducing the operational cost of smart meter technology:** demonstrating that it is possible to create a hydro-powered water meter will stimulate supply chain activity that drives the development of these meters. Hydro-powered devices may last longer compared with battery powered alternatives.
- ▶ **Build understanding of water usage:** by creating a device that provides high-resolution data that can be used by water companies and customers to understand consumption better.
- ▶ **Enable future-ready solutions:** by being self-powered, hydro meters will provide a platform to support future meter innovation and introduce more meter features through edge computing, such as identifying customer-side leakage.





Challenges and gaps

Once the project has concluded it will have demonstrated the feasibility of creating a hydro-powered smart meter. It is hoped that this stimulates activity in the supply chain and meter manufacturers transform smart meter technology into a high-value data source.

Work being conducted in the UK and globally has demonstrated that incorporating sensors such as pressure and noise can have upstream benefits around identifying leakage in the distribution network. Developing hydro-powered meter infrastructure may help further enable this sort of integration to increase the business case for adopting smart meters in the UK.

There is a need to explore how we install smart water meter infrastructure in the UK. Boundary boxes create physical restrictions that can limit further development around the technology. Alternative approaches, such as inside houses or on the side of external walls, could help enable more future-proof devices. There is more opportunity to explore this with new-build houses and collaboration between water companies, developers and the supply chain could help enable this rather than continuing to install infrastructure that we know to be restrictive.

Water Efficiency in Faith and Diverse Communities

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				Waterwise, Severn Trent Water, South West Water, Affinity Water, Southern Water, Northumbrian Water, Get Water Fit, Hindu Climate Action, Eco Dharma Network, Cambridge University – Faculty of Divinity, Cambridge Central Mosque

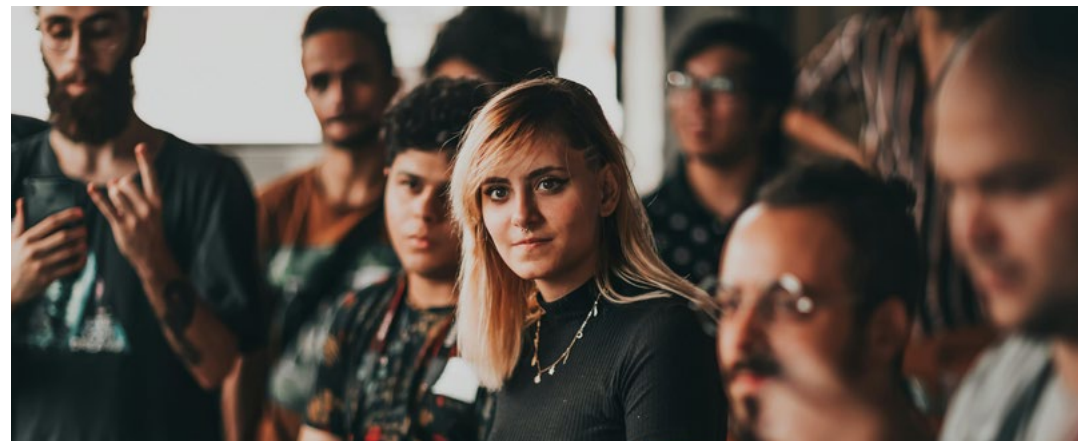
The project is establishing a deeper understanding of how water is used and valued in different faiths and cultures. It combines independent research with proof-of-concept trials engaging faiths and diverse communities in the way they use water. It is developing a comprehensive, evidence-

based water efficiency engagement and support framework for water companies to adopt. The project brings together experts, academics and faith groups to develop and introduce new bespoke water saving interventions and behaviour change campaigns linked to faith and culture. This could

lead to significant environmental and social benefits, such as reducing per capita consumption for water, building public trust and value, as well as supporting hard to reach vulnerable customers by opening new channels of engagement and communication.

“ This project will help us to provide more inclusive water-efficiency support measures, and water-saving interventions and technologies, that truly support our diverse faith communities and hard to reach customers, so we can all work better together to use water wisely and safeguard water supplies for the future. ”

Caroline Cooper, Directory of Strategy and Regulation at South Staffs Water





Key learnings and insights

- ▶ **Diversity:** there is much diversity between religious communities but also within them. This includes how they see water and environmental action, and whether it is connected to their religious life or not. This creates challenges in terms of engagement and action, highlighting the importance of building knowledge of, and engagement with, these groups to develop strategies.
- ▶ **Water cycle learning has moved on:** changes in the way schools teach the water cycle means younger generations are more aware of the importance and value of water than ever before. Environmental teachings are already in education and after-school programmes within many religious communities and water companies can help build on these existing learning platforms to further enhance messaging.
- ▶ **Awareness of cultural sensitivities:** when engaging with customers of different faiths or cultures, it is important to understand cultural sensitivities and how they may impact their water needs, and how sometimes it may have no connection to religion. This understanding can help companies to engage around specific activities as well as being sensitive to cultural needs. Religious or cultural festivals held in community centres or places of worship, can be useful times to engage or share key messaging through community leaders, as visitor numbers are often higher than normal.
- ▶ **Allow time for ethnographic research and engagement:** ethnographic research, engaging with communities and building trust with community leaders takes time and should not be rushed. Faith leaders are busy people and asking them to engage with a water company is a further demand on their time, particularly if the relationship is cold or they are already sceptical of water companies. It pays to spend time building understanding to help grow relationships before asking for actions.
- ▶ **Equity, diversity and inclusion:** water company staff often don't represent the communities they serve. Without this representation or presence within the communities, it can be even more challenging to engage as there is a lack of cultural understanding. Improving EDI within companies can help strengthen relationships with community groups.



Benefits

- ▶ Producing a water efficiency framework for engaging and supporting faiths and diverse communities that water companies and others can adopt.
- ▶ Establishing new channels of communication and relationships for saving water and supporting vulnerable customers.
- ▶ Driving down per capita consumption and contributing to the long-term resilience of water supplies in the UK.
- ▶ Developing a future workforce in the water sector with improved equity, diversity and inclusion (EDI) and representation of faith and diverse communities.

Challenges and gaps

- ▶ **Managing sensitive data:** before engaging it may be necessary to collect special category data in order to understand which communities to engage. This information is sensitive and robust IT security protocols need to be in place to ensure it is handled appropriately. This includes establishing a data controller and defining how the data will be processed and stored.
- ▶ **Building stakeholder trust:** enough time should be allowed to engage and build stakeholder trust before establishing a change strategy. It is important to recognise common objectives, and consider the value exchange for how the change will benefit the local community.






Deliverables, tools and resources: University of Cambridge report on Water and/in religious relations



Find out more: see any updates on this project on the [Fund website](#) and contact InnovationTeam@south-staffs-water.co.uk

Enabling Water Smart Communities

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
			<div style="background-color: #c8e6c9; padding: 5px; display: inline-block;">£5,535,000</div>	<p>Thames Water, United Utilities, Arup, University of Manchester, University of East Anglia, Anglian Centre for Water Studies, Community Land Trust Network, Centre for Local Economic Strategies, Dark Matter Labs, KWR, London Borough of Tower Hamlets, Clarion Housing Group, Future Homes Hub, Taylor Wimpey, Thakeham Group, Suffolk County Council, Cambridge Water, Dŵr Cymru Welsh Water, Severn Trent Water, Southern Water</p>

Enabling Water Smart Communities (EWSC) is an innovation project exploring the relationship between integrated water management, community engagement and practices and housing development to unlock new opportunities for cross-sector delivery and stewardship. Enabling

water smart communities requires groups of organisations and communities to embrace principles of water stewardship to deliver and care for housing and water cycle assets for the benefit of people and the planet. The EWSC project is exploring and piloting how new roles,

partnerships and stewardship agreements might enable water-smart communities. The Enabling Actions identified from this project include scaling of innovative approaches to Integrated Water Management (IWM) within the housing sector and elsewhere in the industry.

“ This project is urgently needed to bring together a wide range of development partners to identify and break down barriers to integrated water management. It is essential that we come together at a time when water demand is only going to continue through both growth and climate change, to demonstrate a replicable approach for future sustainable development. ”

George Warren, Integrated Water Management Lead at Anglian Water





Key learnings and insights

- ▶ **Communities already employ a range of creative and sustainable water practices:** water companies need to recognise and integrate these existing community practices into their operations to rethink their business-as-usual approaches. The project has developed a comprehensive database that catalogues the various ways communities engage with water. This resource is intended to inform future interventions aimed at building water-smart communities.
- ▶ **Build a shared vision:** when engaging with customers around water practices it is essential to create a shared vision with communities. Aligning objectives and targets early in the engagement process ensures mutual understanding and success for all parties involved.
- ▶ **The interaction between water and housing is complex:** the relationship between water management and housing development requires a nuanced understanding of drivers, levers and potential opportunities for benefit sharing. Effective collaboration between water companies and housing developers is crucial for creating and embedding sustainable solutions effectively. Early-stage collaborative

design mechanisms can bring these disparate parties together to align on common goals.

- ▶ **Defining a water-smart community:** a water-smart community is a place where water is central to the design, where people embrace the principles of water stewardship and where they are empowered by assets and systems to use water wisely and with care for the environment. The project has created a flexible framework to allow users to join the initiative at any point in their journey towards enabling water-smart communities.
- ▶ **Developing frameworks and tools:** the Enabling Water Smart Communities Framework organises potential actions into nine areas, spanning values, assets and stewardship at different levels of system complexity. It can be used by people to help map and prioritise actions as well as identify collaboration opportunities.
- ▶ **Water utilities as anchor institutions:** water utilities are well placed to act as place-based anchor institutions with a focus on local economic development, environmental stewardship, and addressing climate challenges. Their significant assets, workforce and influence can drive positive

social and environmental outcomes. Enabling water-smart communities will require them to collaborate closely with other anchor institutions such as councils and universities.



Benefits

- ▶ Providing evidence to inform future Water Resource Management Plans (WRMPs) and Drainage Wastewater Management Plans (DWMPs).
- ▶ Proposing new legislative and policy changes to facilitate IWM adoption.
- ▶ Leveraging additional funding for IWM implementation and adoption in housing developments.
- ▶ Developing innovative stewardship models that involve communities as collaborative partners in IWM solutions.
- ▶ Improving customer relationships through a sense of place and ownership in housing developments.
- ▶ Advancing future innovation in IWM technologies through trials and scaling activities.
- ▶ Building a better understanding of how communities can be engaged in the design and delivery of IWM solutions.



Challenges and gaps

- ▶ **Mobilising cross-sector action:** further development of cross-sectoral communications is needed to keep water issues relevant in the housing sector. This includes promoting water neutrality for developers. Much more needs to be done to enable effective cross-sector partnerships and activities with these stakeholders.
- ▶ **Regulatory barriers for 'wholesome' water:** current Drinking Water Inspectorate regulatory barriers need to be addressed to clarify what constitutes wholesome water, facilitating better water management practices. At present, the definition of wholesome water can create barriers to novel technology use and IWM implementation.
- ▶ **Overburdened capability and capacity:** organisations feel overwhelmed by the scope of the transition required to achieve long-term strategic objectives in relation to sustainable water management and lack the capacity to address them effectively. Water-related challenges require collective action and investment, which is hindered by unclear responsibilities and limited private investment.
- ▶ **Long-term change requires ownership:** implementing long-term changes in water management necessitates ownership and collaboration among different stakeholders. Understanding and defining the roles and responsibilities of various sectors, including councils and housing, is vital.







Deliverables, tools and resources: find the Model, Framework and further resources on the **Enabling Water Smart Communities website**.



Find out more: ewsc@anglianwater.co.uk

Project Zero

COMPETITION	LEAD WATER COMPANY	PROJECT DELIVERY	FUNDING AWARDED	PARTNERS
				Albion Water Limited, Aquality Trading & Consulting, BUUK Infrastructure UK No 2, Grapviners, H2OiQ, Hydraloop International, Propelair – Phoenix Product Development, SDS, Skewb

This £2.9 million project will deliver a sustainable, water-saving solution in response to new housing developments. Project Zero will minimise water demand and offset water consumption with new technologies, to ensure the total water use in the community remains the same as it was before the new homes were built. The project will manage the usage and offset requirements across three sites

by installing water-saving devices in residential properties – shower heads, tap inserts and larger infrastructure such as greywater recycling and rainwater harvesting units. This will minimise demand in customers’ homes. Installing larger technologies in commercial buildings such as schools and leisure centres – for example, greywater recycling and ultra-low flush toilets –

will offset customer usage and maintain existing baseline network demand. By monitoring usage patterns and trends at a detailed level, Project Zero can adopt an open-data approach and share anonymised insights into water usage with the wider innovation market.

“ We are excited by what we have seen can be achieved by the communities we are working with in Mid-Bedfordshire. Our results show that by working closely with the local community, change can be achieved, resulting in significant gains in water saving. The trial at Bidwell in Houghton Regis will be a trend setter for the industry as it explores new ways to trial how to build new housing developments while at the same time not putting added pressure on our finite water resources. It will create a blueprint for the industry and show us how we can adapt and become more resilient to the impact of climate change by building new homes that are water efficient and encouraging behavioural change. ”

Lina Nieto, Water Net Zero Manager at Affinity Water





Key learnings and insights

- ▶ **In-person events are an effective way to engage customers in water saving:** in-person events are crucial for engaging customers in water-saving initiatives, as they allow for direct interaction and immediate feedback. Face-to-face meetings at local events help to capture community interest and inform campaign messaging. It is essential to engage with and listen to the community at the project's outset. Door-knocking efforts have proven to be more successful than other methods (email, letters, etc) for gaining involvement in water-saving initiatives, but it is important to ensure the details of door knockers are shared with the community first to avoid distrust.
- ▶ **Apply a personalised approach to marketing and embedding in the community:** a personalised approach to marketing that embeds the campaign within the community builds trust and encourages participation. Hiring local people and creating community ambassadors can further enhance the campaign's effectiveness. Establishing a community group on social media can be an effective way to build a strong sense of community where one doesn't already exist as well as providing a central platform for communication about water saving.
- ▶ **Local schools as targets for efficiency devices and engagement:** schools are highly receptive to water efficiency projects and can serve as effective channels for community engagement. Engaging students through school assemblies and educational programmes fosters early awareness and participation in water-saving activities. Installing water-efficient devices during school holidays minimises disruption and maximises acceptance and implementation. Continuing to engage with schools ensures sustained interest and involvement in water efficiency initiatives.
- ▶ **Water neutrality can be achieved without technological intervention:** behavioural change campaigns can drive significant water reductions without relying on technological interventions, showing that water neutrality is achievable through human action alone. Encouraging residents to take manageable water-saving pledges has led to substantial water use reductions, with the most engaged households achieving double the average savings. The project results show that behaviour change alone can reduce per capita consumption to 105 litres per day.
- ▶ **Engage with local authorities as trusted ambassadors:** collaborating with local authorities from the early planning stages is beneficial for reinforcing key water conservation messages and shaping local policies. Local authorities can provide access to a network of contacts and help to promote water conservation and security.
- ▶ **Misconceptions about water saving need to be changed:** research indicates that many residents believe they do not waste water, which hinders their participation in conservation campaigns. Educating residents about their actual water usage and the potential for significant savings is crucial. Providing clear, comprehensible water use data helps residents understand their consumption patterns better and motivates them to adopt water-saving measures. Addressing misconceptions and providing targeted education can lead to more substantial community buy-in and participation.
- ▶ **Work upfront with developers to plan interventions:** early collaboration with developers is essential for integrating water efficiency measures into new housing developments. Including water-saving fixtures and fittings in the initial planning applications streamlines the process and ensures compliance with water-saving goals. Educating developers about the benefits and requirements of water efficiency ensures better integration and acceptance of these measures in new housing projects.

Benefits

- ▶ **Consolidating best practices:** engaging with the UK energy sector and global water providers to consolidate best practices and provide a practical blueprint for enabling water neutrality at other UK sites.
- ▶ **Reducing water wastage:** supporting customers to reduce water wastage at the community level, ensuring better long-term service levels.
- ▶ **Facilitating cooperation:** enhancing cooperation among new housing development stakeholders to achieve shared benefits.
- ▶ **Proving business case:** demonstrating the technological, commercial and operational viability of water-neutral new developments for both incumbent water companies and new entrants.
- ▶ **Raising awareness:** increasing knowledge about alternative water sources (reuse) through education for housing developers and local authorities, addressing financial, scalability and public health risks.
- ▶ **Influencing policy:** influencing policy and regulation to overcome barriers to water neutrality.
- ▶ **Creating public value:** demonstrating that public value can be created across all six capitals (financial, manufactured, human, intellectual, natural, social) through water neutrality innovation at New Appointments and Variations (NAV) sites.



Deliverables, tools and resources: see the [project's website](#) for more information



Find out more: dx@affinitywater.co.uk

Challenges and gaps

- ▶ **Establishing a national framework for water offsets:** developing a national framework and standards for water offsets is crucial to achieving water neutrality without it succumbing to greenwashing. As offsetting is a novel concept, any frameworks must be adaptable as they are tested and developed. Once a solid concept is confirmed, stakeholder agreement is necessary before sharing it with regulators to secure a national position.
- ▶ **Overcoming regulatory barriers to water reuse:** current regulations prevent water companies from installing, monitoring, or maintaining water reuse systems that do not treat water to wholesome standards. While the private sector can install such systems, water companies are restricted. Non-household sectors already use greywater recycling systems, but public water supply regulations currently deem these systems unacceptable. Addressing this regulatory gap is essential for broader adoption of water reuse practices and enabling water neutrality.
- ▶ **Continuing to incentivise investment in innovation:** to tackle the significant challenges faced by the sector, further investment in research and development is required. There is a pressing need for new solutions and technologies to address issues related to water fixtures, fittings and alternative uses.
- ▶ **Site planning, selection, and communication with developers:** effective communication with developers is essential to address concerns about homeowners potentially removing or neglecting water efficiency fixtures. This challenge is a high priority, and further work is required to develop integrated or tamper-proof devices. Ensuring that water-saving technologies are user friendly and maintainable is critical for their long-term success and acceptance by homeowners.



Insights from the global community

International case studies

This section shares insights and best practice from the global water community, showcasing projects and broader initiatives that enable water-efficient communities through their contribution to developing and sharing knowledge on customer engagement, diversity and vulnerability and behaviour change in water consumption.

By providing this context, UK water sector stakeholders can reflect where there might be gaps in our knowledge or operations, as well as where there are areas of excellence that could also inform global practice on these core topics for enabling water-efficient communities and securing water supply for the future. By sharing these learnings, we aim to further increase the ambitions of the water-efficient community ecosystem and forge new and lasting connections, in the UK and across the world.





Location: USA
Date: 2006
Duration (if applicable): ongoing

Organisation(s) involved: United States Environmental Protection Agency (EPA)

Summary

WaterSense is a voluntary programme designed to raise awareness about water efficiency and promote water-saving products and practices among consumers, businesses and organisations. The programme provides information, resources and educational materials to help individuals and communities make informed decisions about water conservation.

Key outcomes

The WaterSense label identifies products such as toilets, taps, showerheads and irrigation systems that meet water efficiency criteria, helping consumers make informed purchasing decisions. Along with information for consumers about water conservation strategies, WaterSense collaborates with manufacturers, retailers, utilities and local governments to promote water-efficient products and practices.

 www.epa.gov/watersense



Location: EU (France, Greece, Portugal, Italy, Estonia, Turkey)
Date: September 2019
Duration (if applicable): 2 years

Organisation(s) involved: Erasmus + European Union, Petra Patrimonia Corsica, Chios Marine Club, IDEC S.A , Pancyprian Offshore Nautical Club (PONATHA), Antalya İl Milli Eğitim Müdürlüğü, Institut Cannizzaro, Narva Soldino Gymnasium, Cluster of Schools of Atouguia da Baleia

Summary

Blue Schools Project is an educational initiative focused on water conservation, sustainability and the principles of the Blue Economy, offering resources and guidance to schools to promote responsible water use. It engages students in hands-on projects and practical reflection, aiming to cultivate environmental awareness and promote a sustainable future for coastal regions. By fostering environmental consciousness from a young age, it pushes beyond traditional conservation approaches to cultivate a future generation of environmentally conscious citizens.

Key outcomes

Blue Schools Project: establishes a common language for partners and schools to align efforts and implement the blue school concept, supported by a roadmap for expansion; provides teachers with a guide to promote the Blue School concept within educational institutions; offers online learning resources for students; hosts seven events across partner countries.

 www.blue-schools.eu/en/the-project

Enhanced Customer Outcomes

Location: Australia
Date: 2022
Duration (if applicable): ongoing


Organisation(s) involved: Nucleus3, South East Water (Aus)

Summary

Enhanced Customer Outcomes addresses water scarcity challenges in Australia by engaging customers in actively managing their water usage behaviours through the integration of AMI-connected smart utility systems and the GreenBe platform. The goal is to achieve ongoing water efficiency savings and promote sustainable water behaviours.

Key outcomes

Enhanced Customer Outcomes: identified residential leaks and high-consuming residential appliances; engaged and educated in highly personalised water efficiency ‘challenges’ to reduce household daily water consumption; allowed customers to track and analyse consumption data to ensure a reduction in bill shock or concern; harnessed gamification via a built-in points and rewards engine; helped customers reduce water consumption by 21% (approximately 40L per day) compared to GreenBe application users.

 swan-forum.com/case-studies/nucleus3-ami-case-study



Location: Spain
Date: 2011
Duration (if applicable): ongoing

Organisation(s) involved: Global Omnium, Honeywell, Itron, Sensus, Sigfox, MBus, NBloT

Summary

Global Omnium manages a network of smart water meters, one of the largest in Europe. The utility developed a software and analytics platform, GoAigua (now part of Xylem Vue), to manage data from these meters. This project primarily aims to address high non-revenue water rates and the rising costs associated with water distribution and treatment, exacerbated by Spain’s water scarcity issues. This initiative sets a precedent for comprehensive water management strategies that go beyond traditional approaches, showcasing innovative solutions for sustainable water distribution and conservation.

Key outcomes

Global Omnium: implemented smart meters and identified over 250 leaks per day, significantly reducing water loss; integrated meters and technologies from up to 16 providers; increased customer engagement through enhanced interaction with their water usage data, resulting in a 60-fold increase in app and account interactions; increased public acceptance of the use of end-to-end encryption, addressing security concerns.

 www.globalomnium.com/Group/Home

Digital Metering

Location: Australia
Date: 2019
Duration (if applicable):
a five-year period, with
plans for expansion from
2024 to 2029

Organisation(s) involved: South East Water

Summary

Digital Metering aims to improve leak detection and reduce non-revenue water. By collaborating with meter manufacturers and developing in-house technology, South East Water has employed advanced sensors that can detect leaks and pressure changes. Its innovative strategies, such as spike notifications and rewards trials, highlights a commitment to pushing beyond traditional methods, setting a precedent for comprehensive water conservation initiatives.

Key outcomes

A 14% reduction in water loss is expected by 2025. 100,000 meters have been deployed as part of an 800,000 meter rollout over a five-year period. Spike notifications during periods of high consumption resulted in a 21% reduction in water usage.

southeastwater.com.au/residential/upgrades-and-projects/projects/digital-water-meters





3 Collaboration in practice

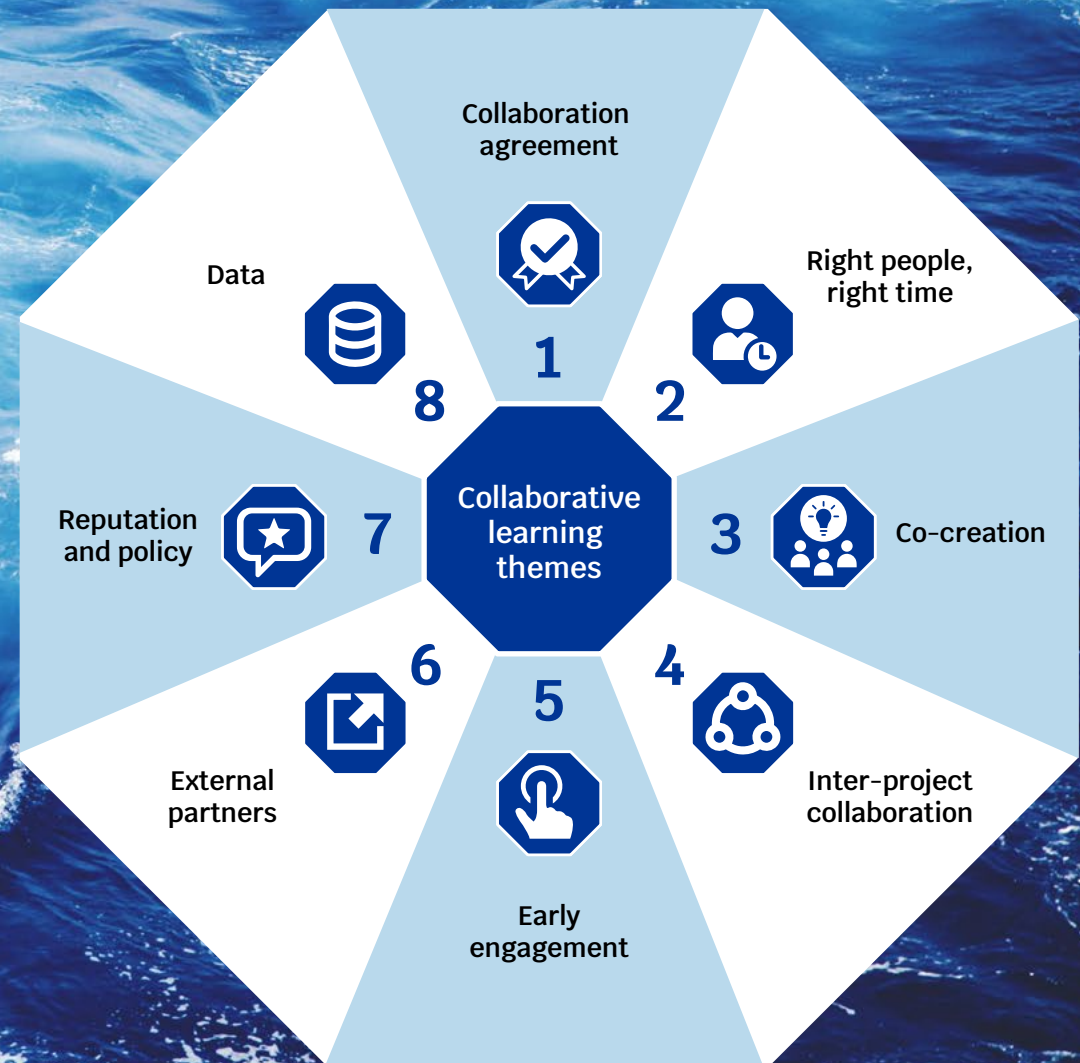
A notable success of the Ofwat Innovation Fund in the period 2020-2025 has been the step change in collaboration across the UK water sector. The increase in partnership activities and maturity of the sector in its approach to knowledge sharing and pursuit of mutual benefits will be a lasting positive legacy of the fund.

Beyond the project- and topic-specific learnings and insights highlighted in this report, partners across the Ofwat-funded portfolio have also gathered valuable experience in other aspects of project delivery, management and governance.

In this section we delve deeper into these learnings, across topics such as partnerships, legal agreements and other collaborative learning themes.

We also shine a light on the challenges and barriers to effective scaling and implementation of project tools, outputs and results.

We hope that by acknowledging these learnings we enable future applicants and stakeholders to overcome these challenges, improving the outcomes and impact of the Ofwat Innovation Fund and its portfolio of funded projects.





1. Collaboration Agreement (CA)

Drafting and signing the CA took significantly longer than expected for nearly all project teams. It is valuable to start the CA process with partners as early as possible to allow time to focus on the project scope, delivery planning and recruitment. Without an agreement in place, many partners were working on goodwill and were exposed to an unfavourable degree of risk, especially for smaller organisations. More experienced partners now start drafting a high-level CA as part of the application process, preparing and agreeing the CA, up to proceeding to signature, between the announcement and the project start.



2. Right people, right time

Transdisciplinary teams with a diversity of skills and expertise, and clear roles and responsibilities, work best. Any gaps should be identified early as recruiting the right talent, especially if on short-term contracts, can take time. Partners all agreed that the lead partner organisation should ensure appropriate project management capacity is in place from the start. Recruiting communications and marketing roles early enables robust communications and dissemination plans, which are essential for the widest impact and uptake of project outcomes. Adopting an agile methodology allowed projects to adapt swiftly to changing requirements, especially with an iterative approach with frequent feedback loops and user-centric design. Some partners felt that the Ofwat reporting cycle didn't align with this way of working, with its more rigid quarterly monitoring and reporting cycle.



3. Co-creation

The need for co-design and co-creation with end users was stressed by projects. Taking time to plan these engagements and thinking through how a project engages across different end users pays dividends. Using human-centred design techniques to ensure the customer/end user voice is at the heart of design processes is highly effective, yielding longer-lasting, more profound impact. Some partners suggested a funded co-creation phase to enable a deeper understanding of the problem space – its people, their needs and pain points. This would ensure the relevance and targeted nature of future project interventions.

Partners stressed the need for a transparent and collaborative culture of co-creation within the project, too. Without this, learnings were less easily shared, and risks less well managed.



4. Inter-project collaboration

Some partners reflected that, within the portfolio of projects in a theme or a grouping of inter-related themes, there is currently a missed opportunity to come together and share learnings, insights and resources. This would enable greater and more systematic alignment between project partners, throughout the lifetime of the projects. One suggestion was the creation of a network of project leads within these thematic areas. This network would drive the agenda on behalf of the sector and create a discernible community of innovation practitioners and excellence to engage within the sector, the supply chain and regulators alike.

5. Early engagement

Considering and defining what success looks like before project delivery starts enables far better evaluation of objectives and key results, ensuring a continuous reflective culture from the outset. Partners shared insights on the merits of engaging the breadth of end users and adopters early in the project to ensure the project offer is relevant and can secure adoption. Consultative, consensus-driven planning with the regulators, other external partners, water companies, customers and even internal colleagues is critical to an innovation project's smooth delivery. It enabled partners to secure engagement, creating relationships that would benefit the project, plugging resource and skill gaps and helping shape the delivery programme.

6. External partners

Some of the projects shared insights around how water companies' hard and soft infrastructure, as well as processes and systems, were significant barriers to project delivery and how they were unable to capitalise fully on the expertise, technology or capabilities of external partners as a result of this. Providing data to external partners could be a challenge due to the sensitivity of the data or attempts to link incompatible systems.

7. Regulation and policy

Many partners cited current regulations and the policy landscape as a significant barrier to achieving the full potential of their innovation projects, highlighting fragmented regulations working against a systemic approach. There is an opportunity for these innovation projects to act as a sandpit/testbed to trial new regulatory models, with dispensation that may impact their regulatory compliance in the short-term as these new models are embedded in water company operations. Given that one of the fundamental principles of innovation is that if a project is delivered in a collaborative, consultative way then regulation can and will change, if necessary, partners should not be deterred. Partners also remarked on the importance of a project's alignment to strategies beyond the water sector that can enable change at a wider deeper level, as they cross government agendas and other investment opportunities.

8. Data

Partners reported concerns over access to data from project partners, in particular water company-held datasets. Lack of access to data meant that some projects had to rely solely on publicly available data that was of lesser quality and lacked the granularity required in certain cases, reducing their impact. It often required interpretation and wider input to validate assumptions, introducing inefficiencies and margin for errors.

Reflections

The challenges of enabling population growth amid water scarcity and climate change remain significant. To meet these challenges, ongoing efforts are required to foster water-efficient communities that have the knowledge, technology and desire to use water sustainably. Thanks to the Ofwat-funded projects discussed in this report, alongside ongoing sector-wide activity, we now know more about customer demographics, their water use and how to drive sustained behaviour change than ever before. Applying this knowledge will be fundamental in securing UK water supply for the future.

Looking ahead, further technological developments are anticipated to reduce water consumption. Research, such as the Hydro-powered Smart Meter project, is continuing to push the boundaries of what is possible, catalysing activity in the global supply chain. With smart metering roll-outs underway and government targets in

sight, it is crucial to share the knowledge developed through these projects to ensure this technology is implemented effectively and the data gained can deliver a reduction in consumption alongside improved service provision.

As well as the fantastic growth in knowledge around enabling water-efficient communities that has been supported by the Fund, much can also be learned from what other global leaders are doing. The UK water sector must stay attuned to international best practices that can be adapted to implement innovative solutions faster in the UK, too.

The collaborative efforts and research discussed in this report provide a comprehensive knowledge base for the UK water sector to build on. By continuing to innovate and apply these insights, the sector can secure sustainable water supplies for the future while meeting the diverse needs of all customers.

Further reading

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Call to action

Ofwat's hope is that this report and the insights and learnings in it will be useful in implementing and scaling the knowledge and resources shared by partners of the projects highlighted.

As stated at the outset of the report, this is a starting point for connections, further collaboration and development, as well as a catalyst for change that can bring about positive impact for the water sector, its customers, society and the environment. If you would like to discuss any of the topics described in the report we invite you to reach out directly to the projects and their partners, or to the Ofwat Innovation Fund delivery team at waterinnovation@challengeworks.org

The time for action is now. Take these learnings and seize the opportunity to improve service provision and promote more sustainable action in communities to secure future water supplies. By harnessing innovation and collaboration we can overcome the current and future challenges facing water management in the UK.



These projects, funded by the Innovation Fund but focusing on water demand management, have the potential to shape Ofwat's new £100 million Water Efficiency Fund, which is being developed for AMP8. The Water Efficiency Fund will help deliver a transformative, sustained and measurable reduction in water demand across England and Wales. The fund aims to encourage people to use water wisely and will support water companies to overcome the barriers they face in this area. These barriers include dependency on customer behaviour, limits to the skills and experience available in water companies, coordination challenges across water companies, and perceptions about the

long-term nature of the pressures facing the sector on water resources.

It is Ofwat's ambition to prioritise water efficiency on par with energy efficiency and other sustainability challenges, promote the efficient use of water, gather greater understanding, and remove barriers to help water companies deliver on their responsibilities. To this end, the Water Efficiency Fund will learn from the experience gained by running the Innovation Fund and build on the successes already secured in this area.

Find out more about the **Water Efficiency Fund**.

Ofwat Innovation Fund

Ofwat Innovation Fund is overseen by Ofwat, the Water Services Regulation Authority for England and Wales. The Ofwat Innovation Fund is delivered by Challenge Works, supported by Isle Utilities and Arup.

waterinnovation@challengeworks.org

waterinnovation.challenges.org

Challenge Works, the new name for Nesta Challenges, is part of Nesta, a registered charity in England and Wales 1144091 and Scotland SC042833. Our main address is 58 Victoria Embankment, London, EC4Y 0DS.

